SGN
Your gas. Our network.

A plan for our shared future

RIIO-GD2 Business Plan

Executive summary

9 December 2019

Positive impact

Safe and efficient

Shared net-zero future

Executive summary

Highlights of our plan

We are proud to deliver an essential public service and we recognise this comes with important responsibilities - to our customers, our communities and the environment as we drive for net-zero by 2045. Our plan is rigorous, ambitious and deeply aligned to customer and stakeholder needs. We understand their priorities and preferences and we are confident we will be delivering extra value for our customers by:

- Reducing our share of customer bills by 10% in Scotland and 6% in Southern
- Proposing to build the UK's first 100% hydrogen network to heat customers' homes
- Reaching net-zero faster by matching Scotland's 2045 ambition across both our networks
- Investing to maintain our high standards of safety and resilience, cyber and physical security
- Helping 250,000 customers in vulnerable circumstances and delivering financial benefits of £40 million
- Providing a better than 9 out of 10 service to customers, maintaining our award-winning standards
- Delivering excellence through innovation and efficiency, reducing like-for-like costs by 4.5%.

Customers have recognised the benefits of the activities in our plan, with 92% of customers in Scotland finding our plan acceptable in testing and 86% of customers in Southern.[1]

Listening and responding to customers with our three customer commitments

We have listened extensively to our customers and stakeholders to create our plan; with 23,000 high quality, individual engagements and more than one million people reached online. Customers told us they have seven priorities, which we found also resonated with stakeholders.[2]

Our RIIO-GD2 (GD2) plan is built on these priorities, brought to life in three strong customer commitments that run throughout our plan and underpin all our proposals.

1. We will make a positive impact on society, by supporting vulnerable communities and providing excellent service.

Our plan is about doing the right thing for customers with a strong focus on social responsibility. The voluntary contribution of **£145 million we made to customers in GD1** demonstrates our commitment and the commitment of our shareholders to the people we serve.

- We will help 250,000 vulnerable customers to use energy safely, efficiently and affordably. Our extra help will deliver direct financial benefits to vulnerable households of £40 million (m) over GD2, and an additional social well-being value of £17m each year. We know that the personal support and concern provided by our staff is also welcomed and valued by our customers.
- We will continue to provide an excellent service for all our customers, keeping up our efforts to deliver an industry leading customer experience and achieve customer satisfaction scores higher than 9 out of 10.

2. We will deliver a safe and efficient service by acting safely, keeping the gas flowing and keeping costs down.

Ongoing investment in our ageing network is essential. However, given the uncertainty around the future pathway to decarbonisation, where we can reduce or delay expenditure safely we will.

- We will keep our network as safe and resilient as it is today and invest to keep our customers safe from cyber and physical attacks.
- We know our assets well and will make the right interventions, always with consideration given to safety, cost and longer-term options for decarbonisation.
- We have created a strong link between our performance and the amount we are paid, reducing risk for customers in uncertain times.
- We are reducing bills for customers and like-for-like costs are 4.5% lower in GD2.

3. We will build a shared net-zero future by accelerating decarbonised energy solutions and minimising our environmental impact.

The energy industry is changing fast and critical decisions on future heat policy will be made within the next five-year planning period. Our cutting-edge research, development and demonstrations of greener gas will provide evidence needed to support these complex decisions and resolve uncertainty about the future of the gas networks.

- We will build a 100% hydrogen demonstration network and customers will experience homes warmed by hydrogen.
- We will facilitate a greater volume of biomethane in our network.
- Working towards Scotland's 2045 net-zero target across both our networks, we will minimise our own carbon footprint to help the UK decarbonise further and faster.

[1] Percentage of informed domestic customers who found the plan acceptable, Business Plan Acceptability Testing Phase 2 (ref 079) based on SGN's cost of capital assumptions

[2] Stage 1: Explorative Qualitative Workshops and Interviews (Exploratory Phase) (ref 002) and SGN webinar 'What customers want from a gas network'

Our three commitments, and the seven customer priorities underpinning them, align to Ofgem's output categories of meeting the needs of consumer and network users, maintaining a safe and resilient network and delivering an environmentally sustainable network.

These commitments create a consistent thread throughout our plan, maintaining our focus on the outputs and outcomes prioritised and valued by our customers.

Our customers rightly expect us to deliver efficiently now, while looking after their interests for the future. We believe we have risen to the challenge and produced a plan that delivers extra value for both our customers and future customers.

Our track record in GD1

Our two distinct network regions include the most densely populated areas of South London and the remotest parts of Scotland and the Hebrides, each with its different needs and challenges.

Our costs account for around 25% of the average household gas bill, estimated at £145 a year in 2018/19. For this, our customers receive:

Lower bills

We are forecasting a reduction in our share of customer bills of 7% in real terms over the course of RIIO-GD1 (GD1). And we are doing more; we expect to replace 8,300km of our metallic mains, renew over half a million steel service pipes, reduce leakage by over 20% and exceed our target to connect 27,500 fuel poor customers by the end of the current price control.

Award winning customer service

We are recognised as the best network for customer service and we are still improving. In Scotland customer satisfaction scores have increased from 8.53 at the start of GD1 to 9.24. Our Southern scores have increased from 8.28 to 8.98. Customer complaints are down by 76% so far during GD1, and we have increased our support services to our vulnerable customers. Our Scottish network is ranked first in the UK for customer satisfaction and we were recognised as the leading gas network for stakeholder engagement for the last two years.

24/7 **A highly reliable gas supply**

On average our customers only experience an interruption once every 50 years. Our full emergency service responds to gas escapes 24/7, attending to uncontrolled gas escapes within an hour over 98% of the time. In 2018/19 our average response time to uncontrolled gas escapes was 43 minutes.

Deploying innovation

We lead the way on innovation and have helped other networks adopt new technologies to improve efficiencies and reduce disruption. We have reduced our environmental and community impact with new technologies for high rise buildings, excavation and robotic repair technology. We are leading the way in biogas and hydrogen exploration and have live projects underway in both networks which will help determine the future pathway for a decarbonised energy system.

Social legitimacy

As a regulated utility we recognise the importance of the social contract we have with our customers. Since the start of GD1 we have and continue to deliver all our outputs; we have improved safety, customer service, and we were the only Gas Distribution Network (GDN) to provide a voluntary contribution back to customers.

This is the foundation we will build on as we approach GD2.

An ambitious plan

Our three customer commitments are brought to life through a mosaic of interconnected ambitions and activities which will deliver real value to our customers. With significant change expected in the mid to longer-term, we focused on our future customers as well as those who rely on us today. We created ten-year ambitions which provide a pathway and momentum beyond GD2 and over the subsequent price control. We then focused on what we believe we can achieve in the five years of GD2 and defined our ambitions for the first draft of our plan in July 2019.

Delivering for our customers

We subsequently discussed and refined our ambitions with our stakeholders and customers, working collaboratively between July and December to create actionable plans and deliverables. We describe below the way that customers and stakeholders have shaped our ambitions.

1. We will make a positive impact by helping 250,000 vulnerable customers to use energy safely, efficiently and affordably

Ambition refined. On the advice of stakeholders and with additional customer feedback we have refined this ambition to provide deeper and more targeted support for vulnerable customers. Our initial July ambition was to help 500,000 vulnerable customers; however, we will now focus on delivering higher levels of support and deeper impact for 250,000 customers in vulnerable circumstances.[3]

Our people have a strong everyday commitment of care and concern for all our customers, especially those in vulnerable circumstances, and we strongly welcome Ofgem's additional focus in this area. We have developed our plan working with stakeholders to co-create ideas for valuable initiatives, targets and output measures.[3]

Plan for delivery

- We will provide targeted help for 50,000 people each year using our framework co-created with stakeholders to make best use of the new vulnerability use-it-or-lose-it price control deliverable (PCD). This will generate direct financial savings for vulnerable households of more than £3m each year.
- We will help an additional 18,000 households out of fuel poverty with a free gas connection through the Fuel Poverty Network Extension Scheme (a PCD).
- We will provide extra value to customers in vulnerable circumstances as part of our business as usual activities, for example installing a locking cooker safety valve for customers living with dementia.

See chapter 6 for more details.

2. We will make a positive impact by providing a great service to our customers, keeping up our efforts to deliver industry leading customer experience and achieving customer satisfaction scores higher than 9 out of 10

Ambition confirmed. Many customers and stakeholders were broadly supportive.[4]

We have not proposed additional outputs or incentives for customer service. We believe existing outputs and incentives are working well which is borne out by what our customers tell us. Customer expectations continue to increase each year and we have set ourselves the target of exceeding 9 out of 10 satisfaction levels each year across both our networks.

Plan for delivery

We capture and value customer feedback and use this insight to continuously improve our processes and engagement. We will prioritise the most important improvement opportunities highlighted by customers, particularly around communication, timescales and quality of work. Customers supported this approach, recognising increasing expectations require continued investment to provide the great service customers expect.[5]

We will maintain our strong focus on getting things right first time for customers, working proactively to reduce the need for customers to complain. With real-time feedback and focused management attention, we can quickly resolve any issues for customers. We will continue to work in an agile way, adapting to change efficiently and keeping our service costs low. We will invest in interactive technology, improve employee training and optimise our work sites and our daily interactions with customers. However, our customers have also expressed concern about the wider impacts of what we do; noise, dust, access disruption and inconvenience.[5] Customers asked us to improve our collaboration with other utilities to reduce these negative impacts. In response we have proposed a bespoke social value collaboration incentive.

See section 6.10 for more details.

3. We will deliver a safe and efficient service by keeping our network as safe and resilient as it is today

Ambition confirmed. Customers and stakeholders in all our research place a very high priority on us keeping the gas flowing safely. We do what is needed to ensure our network is safe and resilient from asset deterioration, physical and cyber threats. We fulfil our legislative duties and our essential social purpose to keep our customers safe and warm.

Plan for delivery

With an ageing asset base, investment is essential to retain asset integrity and maintain standards of safety and reliability. However, we are also conscious of the uncertainty around the future of heat and the risk of asset stranding. Our 4Rs strategy is to repair or refurbish before escalating to more costly replacement of components or, as a last resort, a full site rebuild. This strategy is explained further at section 7.2.

We have developed our plans with extensive internal expertise, supported by engagement with informed stakeholders who have engineering or specialist cyber security knowledge.

[3] Moving forward together stakeholder workshops (ref 013, 014, 016, 017)
[4] Positive Impact round table event - (London combined with Scotland) (ref 088) - Shaping the Business Plan Qualitative Workshops - Customer Service & Supporting Vulnerable (085)
[5] Shaping the Business Plan Qualitative Workshops - Customer Service & Supporting Vulnerable (ref 085)

- To keep our customers safe and manage risk from our pipes we focus on the mandatory replacement of iron pipes. In addition, we will accelerate steel mains replacement, decommission iron stubs, remove vulnerable redundant assets and extend riser inspection surveys to medium rise blocks of flats with three or four storeys.
- We know our assets well and have a good understanding of where the greatest risk resides. We have specifically named the projects and programmes which must be carried out to maintain the resilience of our transmission and distribution assets. We have provided a cost benefit analysis (CBA) and engineering justification paper (EJP) in each case.
- Cyber threats will be dynamically assessed during GD2 in-line with the Cyber Assessment Framework. Initiatives will be implemented to mitigate the threats to the network with advice and interaction from industry and advisory bodies, including the Energy Emergencies Executive Cyber Security Group (E3CC) and cyber security specialists.

See chapter 8 for more details.

4. We will deliver a safe and efficient service by reducing like-for-like customer bills

Ambition confirmed. Customers tell us one of their highest priorities is to keep overall bills down.

Plan for delivery
Our plan includes a reduction to our share of customer bills of 10% and 6% in Scotland and Southern respectively to give an average reduction of 7% for all our customers across SGN. To achieve this reduction we will deliver average efficiency benefits of £15.2m each year of GD2. This is generated from an overall average productivity improvement of 1% a year.

The value provided to customers from each investment project or programme costing more than £500k has been defined in one of 135 CBAs and 146 accompanying EJPs which have been submitted with this plan.

See chapter 17 for more details.

5. We will deliver a safe and efficient service by facilitating fewer interruptions to customers' supplies as a result of third-party damage, working collaboratively towards a 15% reduction

Ambition amended. At recent workshops a common theme from both customers and stakeholders was to improve collaboration to reduce disruption for customers.[6]

Plan for delivery
Acting on this feedback, we have changed the focus of our ambition and will work in collaboration to facilitate a reduction in emergency repair interruptions caused by third parties damaging our pipes. Although not directly under our control, we believe proactive engagement and collaborating to avoid third party damage will provide extra value customers want through fewer interruptions and a resulting reduction in carbon emissions.

See section 4.14.3 for more details.

6. We will build a shared net-zero future by helping the UK Government create a future for heat that is sustainable, affordable and reliable, building impartial evidence from 100% hydrogen demonstrations

Ambition confirmed. Our engagement with informed, specialist stakeholders has confirmed the importance of our 100% hydrogen demonstrations to a net-zero pathway.[7]

To achieve the Scottish and UK Government's ambitions for decarbonisation and meet our customers' expectations, the energy industry must continue to accelerate the pace of collaboration, evidence gathering and transition towards 2045 net-zero.

Plan for delivery
We created a 'whole systems charter' with electricity networks operating in Scotland and the South, setting out a series of commitments defining how we will work together during GD2.

We believe our clear role is to help provide the best available evidence to policy makers on the cost and feasibility of decarbonising the gas networks.

We have identified the following four themes for research, development and demonstration in GD2.

1. Whole systems – research and demonstrations are carried out considering the whole system to evidence cross-sector benefits
2. Emerging technologies – research and demonstration of new technologies with potential to facilitate greater levels of decarbonisation and/or enhanced security of supply
3. Demand forecasting – research into dynamic changes in demand forecasting due to a rapidly evolving energy system
4. Pathways project – research, development and demonstration projects that evidence the pathway to decarbonisation of the gas network.

See chapter 11 for more details on our proposal for whole systems.

7. We will build a shared net-zero future by increasing the amount of greener gas in our network, to supply the equivalent of 450,000 households

Ambition increased. Our July and October draft plans included an ambition of 400,000 equivalent homes to be supplied with biomethane. Biomethane producers supported maintaining or increasing this ambition,[8] and we have subsequently responded to a challenge from our Customer Engagement Group (CEG) to increase our ambition resulting in our revised target of 450,000.

Plan for delivery
We have consulted stakeholders about the primary barriers for future and current injection of biomethane on our network. Our plan has been developed to help overcome these barriers and includes:

- reducing connection costs by working on standardisation of equipment;
- longer term work to reduce propanation costs by promoting changes to regulations and codes; and
- improving network capacity for biomethane producers through smarter network control, upstream

6 Positive Impact round table event - (London combined with Scotland) (ref 088), Shaping the Business Plan Qualitative workshops - Customer Service & Supporting Vulnerable (ref 085)
7 Future of heat specialist panels, Edinburgh 1 & 2 (ref 023, 024), Shared Net Zero Future round table event (ref 090)
8 Biomethane and Gas Entry connections round table event (ref 095)

compression and technical support and solutions to facilitate further capacity.

We are also proposing three feasibility studies to assess the viability of biomethane feeding the networks in our Scottish Independent Undertakings (SIU) at Oban, Wick and Thurso.

See section 11.7.2 for further details.

8. We will build a shared net-zero future by reducing our total carbon footprint by more than 25% from 2018/19 levels

Ambition increased. Customers and stakeholders wanted us to aim higher.[9] We have therefore increased our target slightly from 25% in the July plan to bring us in line with Scotland's net zero-target.[10] By the end of the plan we aim to reduce our total carbon footprint (which includes leakage) by 180ktCO_2e.

Plan for delivery
Customers want us to prioritise environmental initiatives and invest in future energy solutions. Our approach to sustainability will therefore be more ambitious for GD2 than it was in GD1, linking our strategy to the United Nations Sustainable Development Goals (UN-SDG) and driving beyond science-based targets to support the UK's carbon reduction commitments.

- We will save an average of 1.1ktCO_2e a year by reducing our replacement cycle for all vehicles to six years and replacing a proportion of existing vehicles with low emission alternatives each year. We are proposing a use-it-or-lose-it allowance for low emission vehicles, since the pace of development of large vans suitable for our work is not certain.
- We will save an average 2.2ktCO_2e a year by accelerating the mandatory pipe replacement scheme and carrying out a proactive steel programme, given that gas leakage is the major contributor to our overall carbon footprint. We will focus this acceleration on areas more likely to be converted early to hydrogen, potentially enabling more substantive reductions in future emissions.
- We will focus on resource use and waste and work with our supply chain to understand our embedded carbon.

See chapter 9 for further details of our environmental action plan.

9. Reducing the peak demand for heat by 10%, lowering the overall capacity and investment needed in the network

Ambition amended. We discussed this ambition with stakeholders[11] and customers[12] to try to create an actionable plan. We still believe that for the UK to achieve faster decarbonisation, reducing peak gas demand lowers the barriers for alternative means of heating. However, customers and stakeholders have struggled to see a relevant role for us to reduce peak heat demand, and the response was lukewarm. Acting on this feedback we will withdraw the ambition and associated suggestion for an output delivery incentive. However, we will work to improve demand forecasting during GD2, something that will be key for either electrification or hydrogen pathways to net-zero.

See section 15.5.

Delivering value for our customers

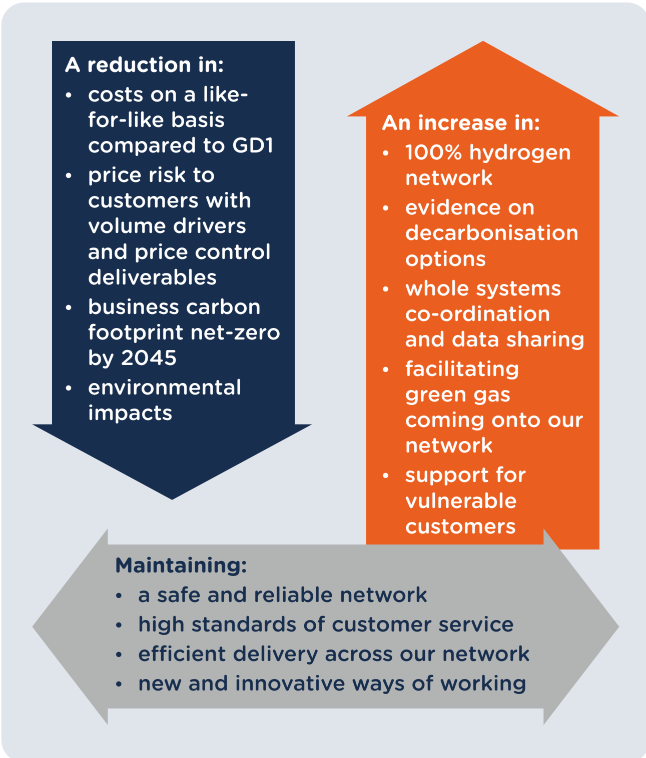
We will maintain our high performance standards and deliver extra value for our customers.

Our customer value proposition

We have clearly aligned our plan with the priorities of our customers, to provide a service that keeps pace with their increasing expectations and generates significant extra value. Many of the positive elements of our activities are not easy to quantify. For example, customers tell us about the positive interactions they have with our people and the many ways in which we go the extra mile.

At its core our plan is a fully justified, high-confidence investment proposal where the allowances requested are tightly aligned to the expenditure required to deliver outcomes valued by current and future customers.

We have summarised below the key elements of our customer value proposition:



As a result of the decisions made in the plan and the actions we take to implement those decisions, significant additional value will accrue for current and future vulnerable customers.

We have estimated our plan will deliver additional value of just over £700m as a result of investments and actions taken over the five years of GD2, in those areas of customer benefit we can value.

See chapter 5 for more details of our customer value proposition.

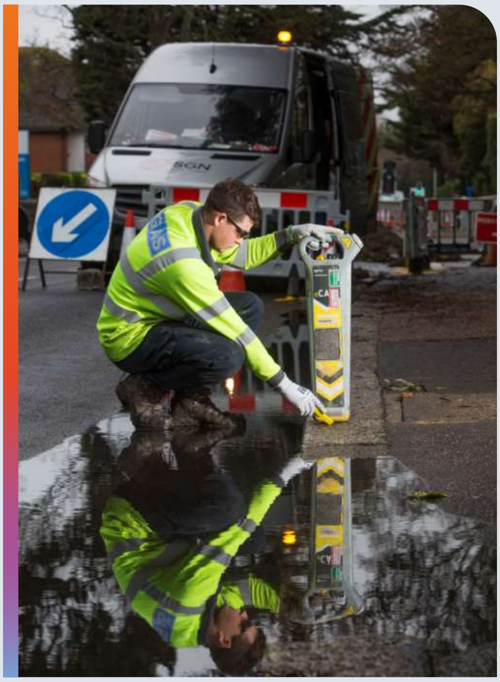
[9] Future of heat specialist panels, Edinburgh 1 & 2 (ref 023, 024) - Shared Net Zero Future round table event (ref 090)
[10] Our July plan was targeting an 80% emissions reduction pathway in line with earlier legislation
[11] Safe & Efficient round table event - London (ref 089)
[12] Business Plan Acceptability Testing Phase 1 (ref 078)

Balancing competing priorities

In creating our plan, we have tried to balance competing priorities, using insight from customers and stakeholders to make decisions about three fundamental trade-offs:

1. **Reducing cost while enhancing service**
2. **Reducing cost while managing uncertainty and risk**
3. **Balancing the interests of current and future customers.**

The chart highlights the relative importance customers placed on each of their seven priorities and the areas in which they would like us to invest to enhance our services.[13]



1. Reducing cost while enhancing service

Our customers' overarching priority is to keep overall costs and bills down. However, they have also told us they would value enhancements to our services, in particular to minimise our environmental impact, investigate future energy solutions and support vulnerable customers.

In line with the expectations of our customers that we keep our costs down, we have reduced our like-for-like totex to £563m a year for GD2, which is 4.5% lower than the last three years of GD1.

In our July draft plan, to provide customers with additional value aligned to their priorities we developed potential additional enhancements costing up to £152m, on top of our like-for-like services. Since July we have continued to engage with our customers and stakeholders[14] building our understanding of the specific service enhancements they believe should be included in our plan at a price customers are prepared to pay.

In summary, the value of enhanced services included in this final plan and supported by customers[15] is £54m and set out in table 1, with more details in chapter 16a.

Table 1 Additional investment in GD2	Positive impact	Safe and efficient	Shared net-zero future	Total enhanced services
Potential enhanced services in July plan	£10m	£113m	£30m	£152m
Final enhanced services	£12m	£9m	£34m	£54m

[13] Stage 1: Explorative Qualitative Workshops and Interviews (Exploratory Phase) (ref 002)
[14] Customer qualitative workshops (ref 083, 084, 085), Specialist stakeholder round table events (ref 088, 089, 090) and Stage 3: Conjoint & WTP Summary report (ref 005)
[15] Stage 3: Conjoint & WtP summary report (ref 005, 094), Business Plan Acceptability Testing Phase 1 and 2 (ref 078, 079)

The services have been narrowed down through engagement with customers and stakeholders, cost benefit analysis, willingness to pay research, acceptability testing and technical assessment. The highest proportion of enhanced services is aligned to our commitment to create a shared net-zero future by minimising our environmental impact or focusing on future energy solutions. These are our customers' highest priorities.[16]

Further details of our engagement with customers and the enhanced services they support are given throughout the three output sections of our plan, indicated by blue, purple or green pages – making a positive impact, delivering a safe and efficient service, and building a shared net-zero future.

2. Reducing cost while managing uncertainty and risk

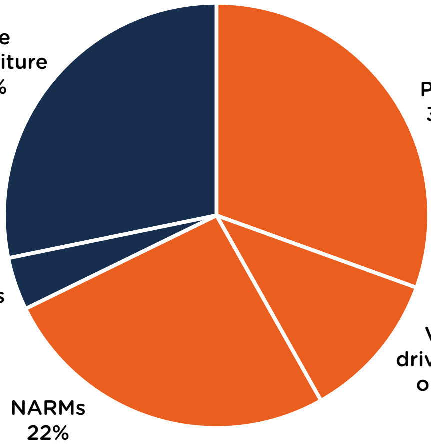
We have discussed with our customers the balance of risk they consider appropriate for a company like SGN. While customers told us they value stability, they also recognised volume-based mechanisms were appropriate for the type of work we carry out. Our customers' view was particularly for 'business as usual' expenditure, administrative and maintenance costs, fixed budgets were appropriate, but volume drivers were appropriate for up to a half of the expenditure. Customers were less supportive of larger changes and reopeners.[17]

We have reflected on this feedback as we have defined the outputs proposed in our plan. We have endeavoured to apply the right balance between protecting customers against poor forecasts while recognising their concerns that volume drivers and use-it-or-lose-it mechanisms may lead to inefficient expenditure.[17]

Figure 1 shows how two thirds of our investment in GD2 is attributed to a clearly defined output. This is an increase from just over a half of our investment in GD1. This improved level of definition gives greater confidence to our customers that the money we invest will give them an outcome they have asked for.

Full details of our proposals for uncertainty mechanisms can be found in chapter 12.

Figure 1



3. Balancing the interests of current and future customers

The interests of current customers may differ from those in the future given the uncertainty about the role of gas networks in a net-zero pathway. However, through our extensive engagement and research with current and future customers we have not seen a marked difference in views between the two groups. We do however remain concerned about inter-generational fairness and have discussed a number of challenges and mitigations with customers and stakeholders.

A responsible asset strategy. We know our assets well and apply our 4Rs strategy to make the right interventions. We ensure safety today while keeping costs down until decisions on decarbonisation are made. Expert stakeholders welcomed this strategy.[18]

Early innovation. This was defined as innovation which is not immediately ready for implementation and which may not provide a return to current customers, but which may deliver significant benefits for customers in the future.

Both current and future customers said they wanted us to continue to invest in early innovation.[17] Most participants would be prepared to pay towards early innovation, although they also expected us to make a company contribution which we have committed to.

Low regrets investment. There is a trade-off between the need to invest in replacing ageing network assets today, and the risk of asset stranding if the gas network is not an integral part of a decarbonised net-zero future. We have recognised and mitigated this risk to future customers by ensuring our investment is low regrets - 95% of investment in our plan is related to the integrity of our assets or the direct operation of our network. A very small amount of investment responds to customer needs for additional connections and network growth.

Cost of capital. By setting an inappropriate cost of capital, it will either promote or discourage investment resulting in a lower or higher cost to current and future customers. The current cost of capital proposed by Ofgem will discourage investment in areas that are considered particularly important for future customers, such as climate change and investing in the least cost decarbonisation pathway, in favour of bill reductions for current customers.

In acceptability testing of this final plan using our alternative cost of capital assumptions, we found no statistically significant difference in the levels of acceptability expressed by current and future customers.[19] With high levels of acceptability from both groups, we believe that our plan and cost of capital proposals provide a good balance between the interests of current and future customers.

16 Stage 3: Conjoint & WtP summary report (ref 005)
17 Qualitative workshops - Sharing Financial Risk. Innovation Investment (ref 083)
18 Safe & Efficient round table event – London (ref 089)
19 Business Plan Acceptability Testing Phase 1 and 2 (ref 078, 079)

Driving decarbonisation

Our plan demonstrates our ambition to support and accelerate the transition of the UK's energy system, with a long-term vision and shorter term actions.

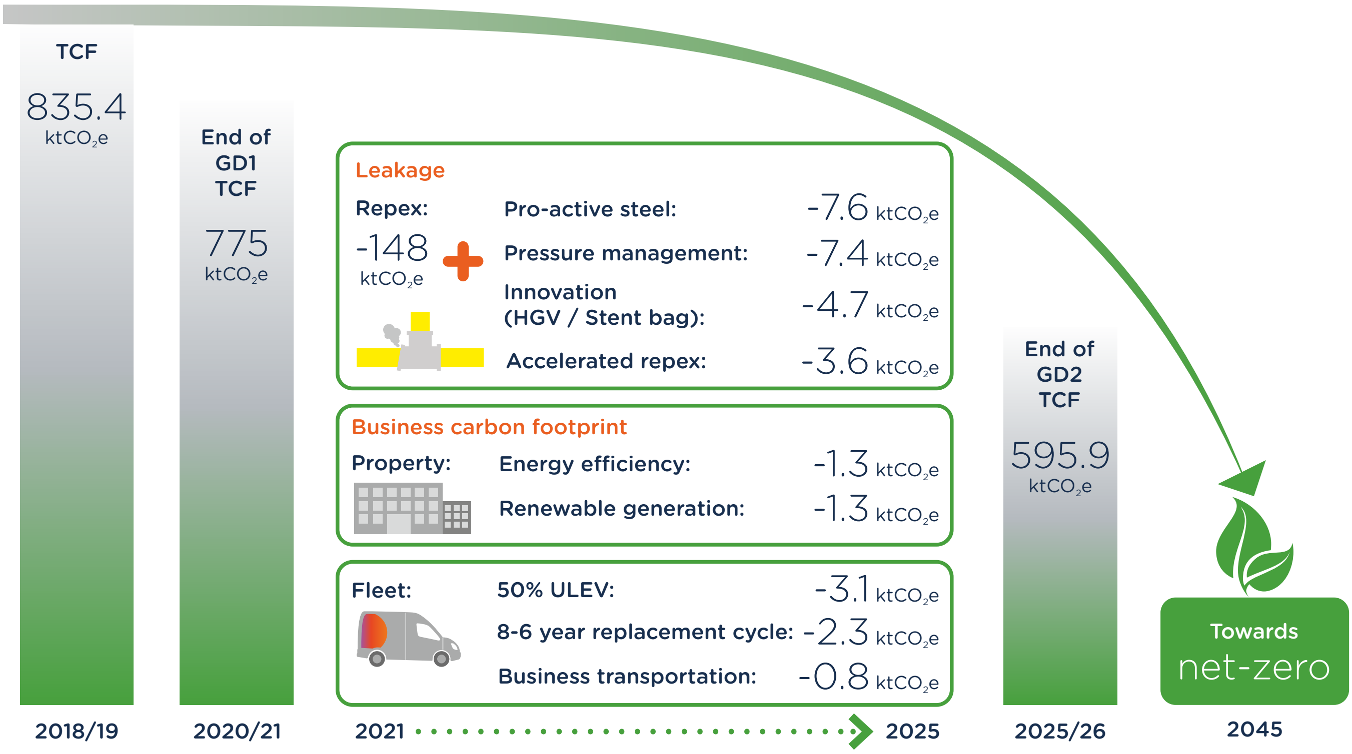
Accelerating towards 2045 net-zero

In the interests of our current and future customers we have a clear, collaborative approach to support faster decarbonisation and accelerate the UK towards a shared net-zero future in 2045.

We have a two-pronged approach within our plan: reducing our own carbon footprint and decarbonising the gas transported in our network.

1. We demonstrate how our proposals will minimise our current environmental impact by reducing leakage and other carbon emissions to achieve a total reduction of over 25% from our 2018/19 base, putting us on track for a 2045 net-zero (chapter 9 part A).

Action to support reduction in our total carbon footprint (TCF) over GD2, in $ktCO_2e$

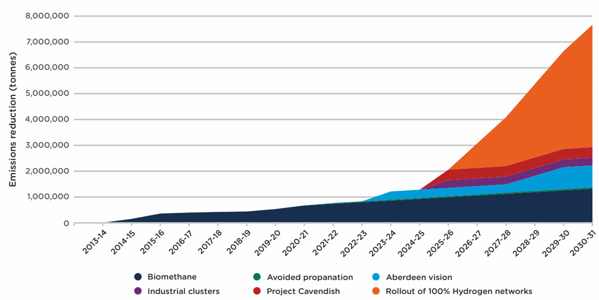


2. We explain our ambitious approach to decarbonising the gas within our network, an approach built on collaboration and innovation. We will support the Government in making decisions about how to decarbonise heat and energy systems by providing fair and impartial evidence of a potential pathway to deliver confidence in the role of hydrogen.

If our innovation programme is successful, and subject to relevant policy decisions, GD3 could see the delivery of a significant rollout of 100% hydrogen networks across a number of cities and towns in our footprint.

By the end of GD3, we forecast a 25% reduction (eight million tonnes) in the carbon contained in the gas we transport, compared to the GD1 baseline. We aim to provide the evidence base for hydrogen so that in GD3, the network is in a state where the conversion of further customers to 100% hydrogen will be largely business as usual, paving the way to achieve decarbonisation targets in line with government policy.

Decarbonised gas on our network



> The three elements of our plan that will deliver this ambition are:
> - Enabling increased biomethane volumes (chapter 9 part C)
> - Pursuing opportunities for optimum decarbonisation routes through whole systems thinking (chapter 11)
> - Evidencing the hydrogen pathway and preparing for future roll out (chapter 13).

Delivering efficiently

Our plan builds on our strong track record of efficiency and maintains our position among the most efficient networks in the sector.

We have delivered a consistent level of efficiency in both of our networks. With eight separate reporting regions making up the UK's gas distribution networks, it is possible to compare total expenditure across each regional network, taking into account each region's size, the volume of work and some of the regional cost characteristics.

This produces a point of comparison against which the different networks can be compared. We have then compared this against the 'upper quartile', the benchmark used by Ofgem in GD1 to determine the allowances each company was awarded. In Scotland and Southern, we have consistently been performing better than average and above or close to the upper quartile.

We believe that our proposals for investment build on this efficient position. Our plan will provide additional value to our customers and, when combined with our productivity challenge, we expect to be within the upper quartile, while maintaining the high-quality service delivery our customers expect. More details can be found in section 12c.

Table 2 GD1 efficiency performance

	Standardised efficiency score SGN proposed methodology				
	2013/14	2014/15	2015/16	2016/17	2017/18
EoE	1.07	1.06	1.07	1.13	1.08
Lon	1.09	1.04	1.10	1.05	1.06
NW	1.03	1.10	1.08	1.03	1.01
WM	0.98	1.03	1.02	0.99	0.99
NGN	0.88	0.90	0.93	0.92	0.95
SC	0.95	0.92	0.89	0.93	0.98
SO	0.95	0.93	0.93	0.98	0.97
WWU	1.05	1.03	0.99	0.97	0.97
UQ	**0.95**	**0.92**	**0.93**	**0.96**	**0.97**

Cadent operates four regions under one licence, WWU and NGN have one region covered by one licence each and SGN has two regions, each with its own operating licence. A score of below one means the network is better than the average sector performance, while a score greater than one is less efficient than average. The regressions reflect our proposed updates to Ofgem's methodology as set out in Chapter 12.

Through GD1 we have prided ourselves on being at the forefront of developing and deploying innovation projects. We have specifically targeted innovations to deliver process improvements for customers and our business, targeting pain points and finding solutions to overcome them. We believe this has helped us innovate successfully, offsetting cost pressures we would otherwise have seen coming through in GD1.

We will not be able to fully repeat the step-change in efficiency that we delivered in the early years of GD1, but customers will benefit from these savings from GD2 onwards through the cost assessment process. We have already realised the one-off opportunities available, for example by increasing live insertion rates to close to the maximum achievable and efficiency gains will now be more incremental. However, we do still forecast challenging efficiency savings in GD2 which include innovation benefits with an annual average of £2.2m carried forward from the last years of GD1. We have set out our approach to innovation in chapter 13.

Investment to deliver

We believe that our plan delivers the short and long term outcomes that customers expect at a price they are prepared to pay. The investment proposals to support these outcomes are described below.

Investment for GD2

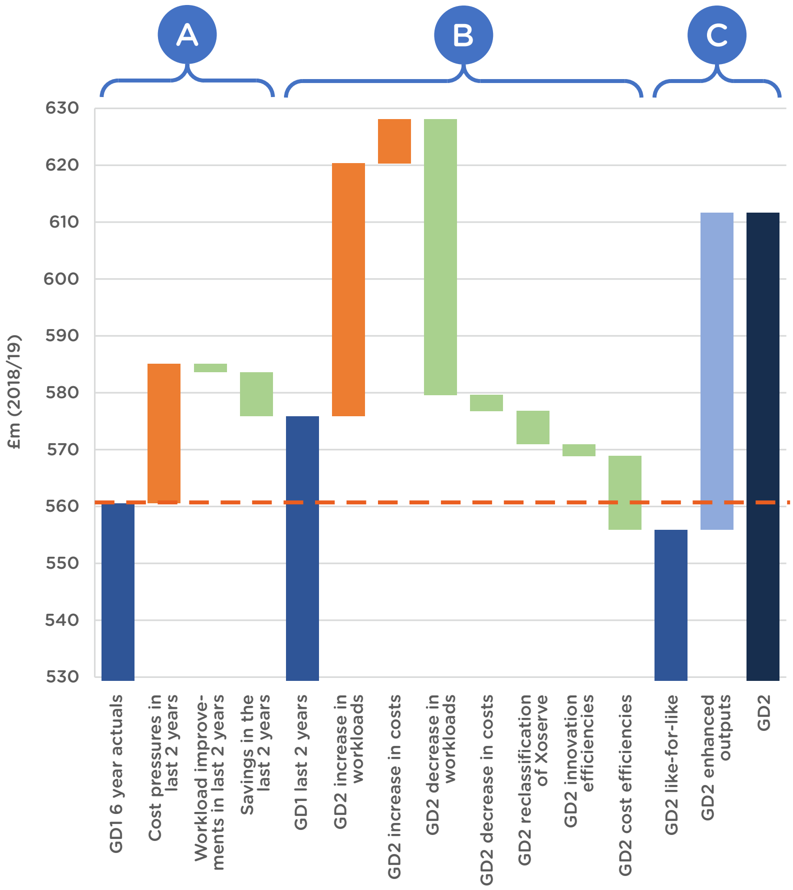
The table below summarises our investment proposal for GD2 against comparable bases in GD1. The first half of GD1 was characterised by a relatively benign low-cost environment whereas the second half of GD1 has seen increasing cost pressures, particularly in the labour market. Therefore, we believe the last three years of GD1 provide a suitable base to compare GD2. We have also included the first six years actual for GD1 as requested by the RIIO2 Customer Challenge Group.

Starting at an SGN totex level, average like-for-like totex in GD2 of £563m before new outputs is 4.5% below the last three years in GD1 and is broadly in line with the first six years actual. This has been achieved through reductions in workload and an ambitious 1% a year productivity target, despite continuing cost pressures.

Breaking this down further, we can see that the major changes in operating expenditure result from £13m a year of new outputs to improve our asset records for lower storey risers, to increase our focus on cyber resilience and to cover increasing smart meter interventions. Capex has increased as a result of local transmission system (LTS) workload and new GD2 outputs such as increased IT investment and additional environmental measures relating to buildings and fleet. Replacement expenditure (repex) overall has reduced as the workload moves across to lower cost interventions compared to the end of GD1, partially offset with new GD2 outputs focussing on accelerated and proactive workloads.

	SGN (£m 2018/19 prices)				
	GD1 6 year actuals	GD1 last 3 years	GD2: like-for-like	GD2: enhanced outputs	GD2: total
Opex	189	196	193	13	206
Capex	115	118	120	22	143
Repex	244	270	244	19	263
Totex (Excl Xoserve)	**548**	**584**	**557**	**54**	**612**
Xoserve	13	6	6	0	6
Totex	**561**	**590**	**563**	**54**	**618**
Scotland					
Opex	66	66	67	5	73
Capex	49	46	52	9	61
Repex	62	68	60	6	66
Totex	**177**	**180**	**179**	**20**	**200**
Xoserve	4	2	2	0	2
Totex	**180**	**182**	**181**	**20**	**201**
Southern					
Opex	122	130	126	7	133
Capex	66	72	68	13	81
Repex	183	202	184	13	198
Totex	**371**	**404**	**378**	**34**	**412**
Xoserve	9	4	4	0	4
Totex	**380**	**408**	**382**	**34**	**416**

The trace chart below shows the movements from the first six-year starting point of £561m, to our final GD2 position of £612m.



The trace identifies -

A The cost pressures towards the end of GD1

B The drivers of cost movements in GD2 split between cost, workload and productivity.

C Like-for-like service enhancements in line with our customers' priorities.

We have selected the additional outputs included in this final plan according to customer and stakeholder feedback, and rigorous assessment of technical and economic deliverability. At the time of the July submission these additional service enhancements came to £152m. We continued to test these extensively with stakeholders and have completed a series of technical and commercial evaluations. As a result, we have reduced the longer list of service enhancements from £152m to our final investment proposal of £54m.

Chapter 16 provides a further analysis.

Ensuring financial sustainability

It is important that Ofgem, regulated companies and interested stakeholders work towards a price control that is financially sustainable in the short and long term. We must all protect the interests of current and future customers, taking into account the need to invest in future decarbonisation as customers have asked us to do.

In assessing financeability and our appropriate credit rating thresholds, we considered the following points.

- The value to customers of a strong credit rating, a benefit which has been recognised by a range of different stakeholders.
- Intergenerational fairness – avoiding burdening consumers in the longer term given that decarbonisation investment for GD3 and beyond will be significant, increasing the critical importance of attracting appropriate investment at good value for customers.
- Long term financial sustainability of our company, including the ability to attract equity in future price controls.
- Stability and predictability of customer bills in the future to avoid the need for steep increases.
- Linked to all of the above, investor appetite and confidence (both debt and equity) ensuring that our critical infrastructure investments are supported by strong credit metrics is a crucial plank of building confidence and reducing financing costs for customers today and into the future.

The board have examined carefully whether the company is financeable in GD2 using Ofgem's working assumptions. We conclude that, based on the totex, outputs and incentives put forward in this plan, the notional company is financeable under Ofgem's working assumptions for GD2. However, we suggest this is a reflection of inappropriate working assumptions rather than, necessarily, the financial strength of the notional company. For example, we note that with zero outperformance, the notional company no longer achieves credit metrics in the minimum target range for BBB+/Baa1 credit rating. Alternatively, if the outperformance wedge was removed (as we believe should be the case) and both the allowed and expected returns were 4.8% under Ofgem's working assumptions, the credit metrics would return back to BBB+/Baa1.

Ofgem's working assumptions have put increasing financial pressure on the actual company and equity investors compared to GD1, including a notional £300m equity injection. This is significantly weakening the credit quality of the energy sector, at a time when we are facing unprecedented challenges and political risks. They also materially worsen the position of the company compared to GD1 and risk undermining our ability to invest in the future in decarbonisation. These increased financial pressures are being introduced without adequate justification from Ofgem.

Over the course of GD1, SGN has maintained a responsible corporate structure with appropriate gearing and the efficient issuance of debt with costs broadly in line with historical costs experienced elsewhere. As existing loans mature and to fund additional investment, we will need to raise a further £2.6bn of new debt. Assessing the financeability of the actual company, using Ofgem's working assumptions, it now falls short of the credit metrics we require to achieve our minimum credit rating. However, the company has a range of financing mitigating options available and these can be used to achieve the minimum credit rating. None of these mitigating options have a GD2 impact on customer bills, but they are costly for the company to implement and alter the risk profile of the company. For example, as they are largely accelerating cashflows and pushing risk into GD3 and beyond, we ultimately believe this will impact on bills.

Our charges in the last three years of GD1 have averaged approximately £147 per domestic customer per year. Under Ofgem's working assumptions this would fall to around £127 – a reduction of £20 (14%). We have separately assessed financeability against an independent and stand-alone analysis on the cost of capital. Our assessment of the notional and actual company demonstrates that a solid financeable position can be reached whilst still delivering on average an £11 bill reduction in GD2. We believe SGN's assumptions will provide longer term stability and overall intergenerational fairness. On this basis, 92% of our customers in Scotland and 86% of our customers in the South found our plan acceptable.

We believe SGN's working assumptions provide the best value for money for customers as they allow for bill reductions and the maintenance of a strong credit rating. This ensures the continuation of an environment to secure and maintain equity investors now and in the future. In comparison, Ofgem's working assumptions drive the need for mitigating actions; impact intergenerational fairness to the detriment of future customers, and damage investor confidence at a challenging time for the sector. Engagement with stakeholders and customers has demonstrated support for our approach. Chapter 18 provides more details.

Assurance

Our plan has been developed through extensive consultation with customers and stakeholders to create ambitious and sustainable outcomes that we, the SGN board, and the senior management team will be proud to deliver.

Our GD2 plan has been reviewed during its development by independent engineering and subject-matter experts. We have also responded to ongoing challenge from both our CEG, led by Maxine Frerk, and the RIIO Challenge Group, particularly through their feedback on our first and second drafts.

Our final plan reflects this constructive feedback and our ongoing dialogue with both the CEG, our customers and stakeholders. We have also focused on ensuring alignment between the plan and the business plan guidance released by Ofgem on 3 June 2019, updated on 9 September and 31 October 2019.

Our submission is supported by the assurance of our Board that the plan is in the interests of existing and future customers, that it is accurate, financeable, robust and represents good value for money for customers.

This assurance is supported by an extensive independent process that covered all the major components of the plan and reported directly to the Board. This process and our subsequent response to their independent challenges has provided assurance that our plan is aligned with what customers want, is fully justified for cost and engineering excellence, and retains the right balance of ambition and pragmatism to deliver the best outcomes for the future.

We have set out details of our Board assurance process in chapter 3.

SGN

Your gas. Our network.

SGN

St Lawrence House
Station Approach
Horley
Surrey
RH6 9HJ

Axis House
5 Lonehead Drive
Newbridge
Edinburgh
EH28 8TG

0800 912 1700

www

sgnfuture.co.uk
sgn.co.uk

Scotia Gas Networks Limited reg. 0495 8135