RIIO-GD1 Business Plan 2013-2021

Part B1

Outputs

This paper forms part of Wales & West Utilities Limited Regulatory Business Plan 2013 - 2021. Your attention is specifically drawn to the legal notice relating to the whole of the Business Plan, set out on the inside cover of The Executive Overview (Part A) of the Business Plan. This is applicable in full to this paper, as though set out in full here.

Except where stated to the contrary, all financial values within this paper are stated in 2009/10 prices, inclusive of 1% efficiency and prior to real price effects. This is in order that they match the figures used within the detail of the Business Plan Data Template.

This is a redacted copy. We do not indicate where material has been redacted.

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1. Statement of Purpose, Scope & Structure

1.1. What is the purpose of this document?

This document is part of the WWU Business Plan suite of documents, this is the Part B1 – Outputs document.

This Part B1 Outputs document:

- Describes the outputs that will be delivered by WWU from 2013 – 2021 under the following categories:
  - Safety.
  - Reliability.
  - Environment.
  - Customer Satisfaction.
  - Connections.
  - Social Obligations.
- Details the level of expenditure required to achieve the outputs.
- Describes the various options/sensitivities that have been considered to meet stakeholder expectations of the different outputs.

1.2. What is the scope of this document?

This document provides a summary of the individual Investment, Delivery & Support plans that contribute to achieving the outputs shown.

To understand the context in which we are operating, we have attached appendices which set out the number and type of assets that make up our network.

1.3. What is the structure and content of this document?

- Chapter 2 (Executive Summary) provides a concise summary of the:
  - WWU Business Plan strategy.
  - Outputs we plan to deliver.
  - Level of expenditure required from 2013 – 2021 and the impact on bills.
- Chapter 3 (Introduction & Background) provides a summary of the:
  - Outputs we have delivered in GDPCR1 and the associated expenditure.
  - How stakeholders have influenced our business plan.
  - Main focus areas in response to the stakeholder feedback.
- Chapter 4 describes the incentive regime going forward.
- The following 6 Chapters of this document are split into each output category:
  - Chapter 5: Safety.
  - Chapter 6: Reliability.
  - Chapter 7: Environment.
  - Chapter 8: Customer Satisfaction.
  - Chapter 9: Connections.
  - Chapter 10: Social Obligations.

Each chapter includes the following:

- Our performance to date.
- Our response to the stakeholder feedback.
- The various sensitivities we have considered to meet stakeholder needs.
- The output targets we plan to deliver from 2013/14 – 2020/21.
- The level of expenditure required to achieve these output targets.

The forward looking outputs and costs detailed in this document are those we are planning to achieve. They are based on our best present assessments. Although absolute numbers are given in accordance with the requirements set out by Ofgem, they reflect a number of assumptions which are likely to vary over time, affecting the actual delivery of these outputs and the associated costs going forward. The same applies where there are ranges given or qualitative statements made.

2. Executive Summary

2.1. What is our strategy based upon?

When WWU was established in 2005 we set a clear business mission which is still entirely relevant six years on, that is:

'Delivering first class services to consumers, keeping public and employee safety at the forefront of all that we do'.

Our strategy for 2013-21 revolves around two key elements – firstly meeting all our licence and statutory obligations, and secondly reflecting the aspirations of stakeholders where relevant and practical.

Our Business Plan strategy is based on six key principles which are described in Part A – Executive Overview:

- Stakeholder Focused.
- Outputs Led.
- Sustainable.
- Risk Based.
- Financeable.
- Value for Money.

Our key objectives for the next regulatory period are essentially to continue to meet our statutory obligations and stakeholder requirements by:

- Continuing to maintain the safety levels of running our network.
- Reducing our greenhouse gas emissions to support a sustainable energy future.
- Investing to maintain the reliability levels within our network.
- Investing in new technologies that add value. Value may include safety, cost, social and environmental benefits.
- Continuing to provide excellent customer service.
- Helping to reduce fuel poverty by the provision of gas to identified consumers.
- Supporting the connection of renewable gas to our network.
- Continuing to provide value for money services to customers and consumers - using innovative, risk management strategies to provide cost effective solutions.

2.2. What outputs do we plan to deliver during RIIO-GD1?

In response to the feedback we received from stakeholders we have proposed challenging output targets for delivery from 2013/14 - 2020/21 which are detailed by year in this document. In headline terms by 2020/21 we plan to deliver:

Safety

- Minimising the risk of explosion by removing a further 461km of metallic pipes and associated services per annum - £680m over the 8 years.
- Addressing condition and safety risk of our high pressure steel pipelines and associated components including replacing and reconditioning 234km - £103m.
- Improving storage by replacing low pressure gas holders at three existing high risk COMAH[1] sites with storage pipelines - £22m.
- Addressing safety risk by decommissioning and demolishing 15 redundant gas holders - £6m.
- Ensuring the optimum balance between risk and costs by prioritising public reported escapes where the risk of explosion and impact is greatest - £100m.
- Ensuring public safety by maintaining the emergency standard of 97% - £94m.

Reliability

- Maintaining the performance of pressure reduction equipment by investing £66m to replace 580, and refurbish a further 1,873, district governors due to risk and condition – and investing £41m in Pressure Regulating Installations - including the development of innovative condition based risk tools.
- Maintaining a reliable gas supply whilst managing peak gas demand and responding to local increases in peak demand - by upgrading 200km of distribution mains (around 0.5% of the network) and 128 Governors - £72m.
- Improving network monitoring and control by investing in improved Telemetry and associated IT systems - £15m.
- Reducing non-routine faults with targeted maintenance, using improved Reliability Centred Maintenance and root cause analysis - £70m.

Environment

- Reducing WWU's carbon footprint by another 16% by further reducing gas leakage and from lower carbon output activities like fuel and energy.
- Continuing the remediation of WWU owned land - using innovative techniques to remediate a further 22 sites - £13.3m.
- Further reducing waste to landfill by continued use of recycled aggregate.

[1] Control of Major Accident Hazard Regulations 1999

Customer Satisfaction

- Maintaining upper quartile customer performance in our sector - using root cause analysis of customer feedback towards further improvement.
- Further reducing customer complaints, and satisfactorily addressing complaints which are received.
- Maintaining stakeholder engagement throughout the plan period.

Connections

- Maintaining upper quartile service standards performance.
- Proactively supporting the connection of renewable gas to our network.

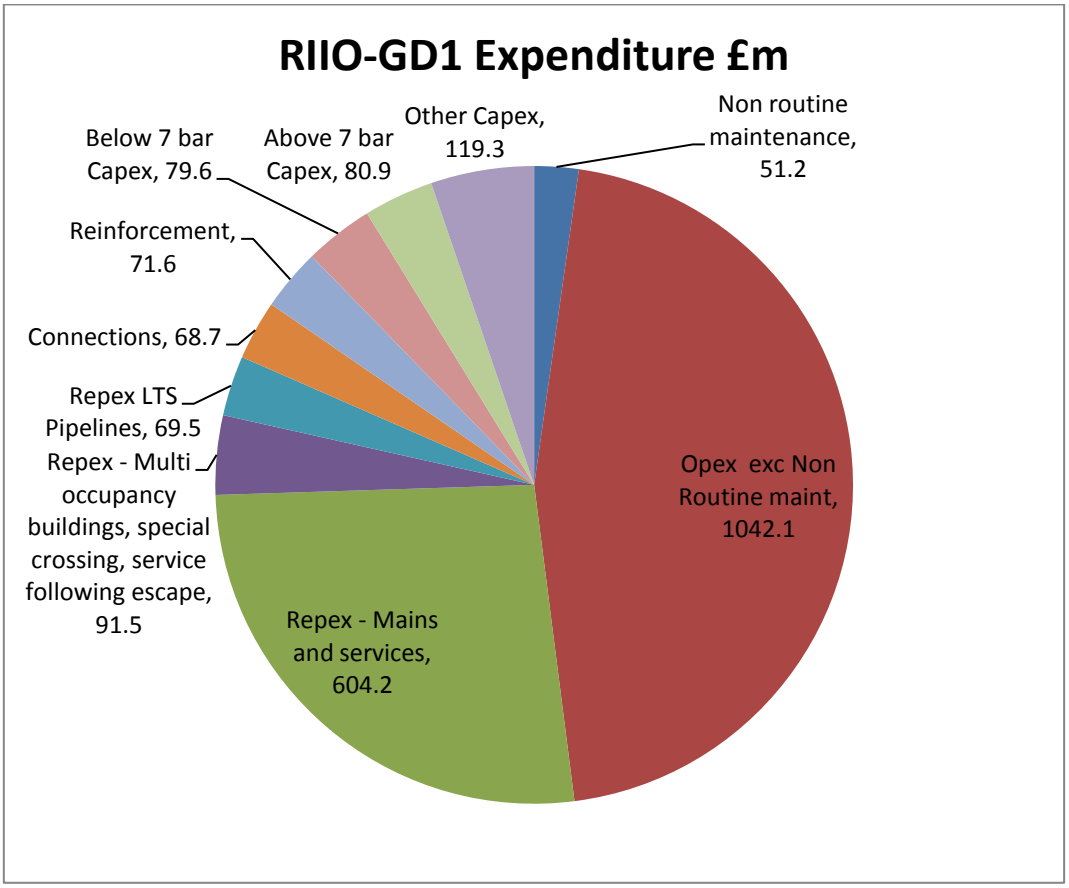
Social Obligations

- Continuing to work with partners in addressing fuel poverty through access to a gas supply.
- Increasing public awareness of the risks of Carbon Monoxide poisoning.
- Further reducing the impact of our street works on the public.

2.3. What total level of spend is required to deliver these outputs?

In order to deliver these outputs, the total expenditure (replacement, capital and operational expenditure) required across the entire business is £2.3bn[2] over the 8 year price control period. This equates to an average of around £285m per year which is broadly in line with the last price control review average annual expenditure. The impact of our business plan and associated efficiency challenge will mean the distribution element of consumer bills will be around 3% higher in real terms on a like for like basis by 2021 compared with the end of this current period in 2013, this amounts to around £4 increase per consumer.

Chart 1: WWU Total Expenditure[2] (£m) (2012/13 – 2020/21)



[2] Excludes payments for National Transmission Capacity, Interruptible payments, Impact of Smart Metering and TMA to make the forecast comparable with the 5 year period from 2008/09 – 2012/13

3. Introduction & Background

This section provides a summary of:

- The stakeholder engagement process.
- The outputs we have delivered in this price control period, from 2008 to 2013, and associated expenditure to date.
- The stakeholder feedback we have received our main focus areas in response to the stakeholder feedback.
- Our approach to determining expenditure.

3.1. Identifying stakeholder needs

What are our stakeholder needs?

In constructing our Business Plan, a key consideration has been to identify the relevant stakeholders and to assess the needs of those groups. A number of our stakeholder needs are supported by the investment in, and the operation and maintenance of the assets, and in the way that we interact with consumers. Our investment and delivery plans are critical in satisfying those needs. Our task is to balance and satisfy the needs of these stakeholders in respect of:

- Compliance with our regulatory and statutory obligations.
- Public and employee safety.
- Reliability of the gas supply.
- Delivering quality services and customer satisfaction.
- Sustainability of gas supply.
- Environmental impact and minimal public nuisance.
- Delivering value for money, minimising the overall costs to current and future consumers.
- Providing a satisfactory return on investment.
- Delivering shareholder value.
- Delivering our Social Obligations.
- The processes and conditions for connection of new consumers.

How have we determined what stakeholders require?

We have a number of stakeholders with whom we consult on a regular basis. The requirement to undertake stakeholder engagement as part of RIIO-GD1 is not new to WWU. We have regular engagement with, amongst others, the HSE, Ofgem, Local Authorities and Highways Authorities, the Welsh and UK Government, Consumers, Gas Shippers, Gas Suppliers, developers and the Environment Agency as well as our investors. The outcome of this engagement will continue to influence our decisions and we will provide feedback to them on our performance.

We have also improved stakeholder engagement through workshops which began in November 2010 and which are planned to continue throughout the period of the next

price control review to enable us to adapt our decisions having regard to what stakeholders tell us. Further information can be found in Part B5: Stakeholder Engagement.

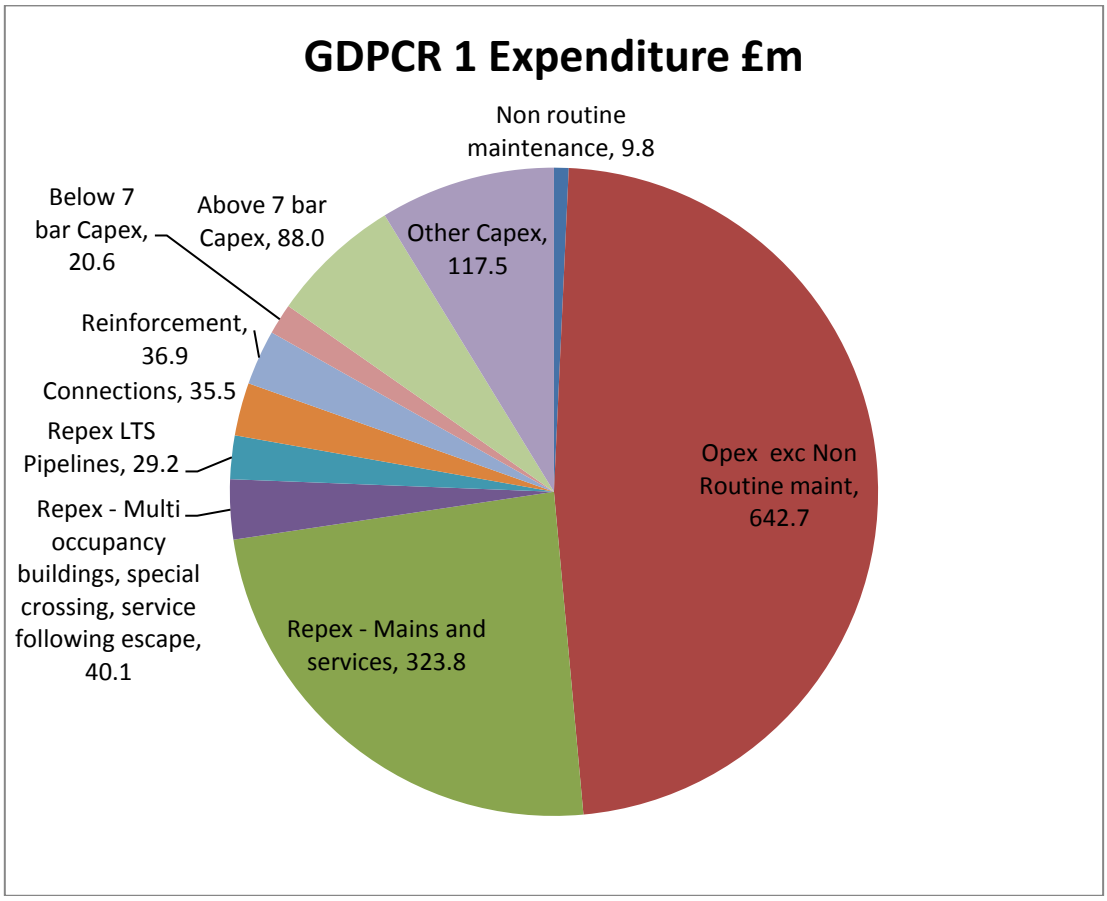
In addition to talking to stakeholders, we also have a number of statutory and licence obligations with which we are required to comply. This significantly determines the way we manage our business in terms of its operation, maintenance and investment. Compliance with such obligations is fundamental to our Business Plan and the outputs we plan to deliver.

3.2. What have we delivered in this price control period?

What level of expenditure has been made?

By the end GDPCR1 our total expenditure, on 31 March 2013, will have reached over £1.3bn. The majority of the investment has been in relation to mains, services and pipelines; as well as pressure regulating installations, district governors and storage. The operating costs mainly relate to providing an emergency service, repairing leaks and undertaking maintenance. A breakdown of spend is shown below:

Chart 2: WWU Total Expenditure (£m) (2008/09 – 2012/13)



How much does all of this cost the consumer?

Currently gas distribution charges make up around 16% of a household gas bill, that's around £126 a year. This covers the cost of all of our activities, from providing a public emergency service to anyone who calls us, irrespective of whether there is a fault on our equipment or not, repairing and maintaining our assets, to investing in our network.

What outputs will we have delivered by the end of this price control review?

Our sound financial performance over this price control period will deliver real bottom line benefit to consumers of gas:

- Since formation in 2005, we have taken out 23% of our inherited operating cost base delivering real value to consumers.
- We anticipate our outperformance on our operating cost allowances by 2012/13 will provide £29m worth of benefit to consumers.
- We anticipate consumers will have saved over £50m from our outperformance on asset investment during the period from 2008 to 2013.
- We have delivered benefit to consumers against the incentive sharing mechanisms – i.e. the Exit & Interruption incentive we expect to have saved £10m over the 5 year period in lower than expected interruption payments.

In summary, in the five years from 2008/09 – 2012/13, we will have delivered the following:

Safety

- Over 2,100km of deteriorating metallic pipes, including 1,850km of iron mains within the 30:30 programme, removed to reduce the risk of gas escape and explosion.
- Our GS(M)R Safety Case remains acceptable to the Health & Safety Executive with no enforcement notices.
- Achieved over 97% performance against our Licence condition standard for response to gas escapes (1hr & 2hr standards) every year.
- Put in place a risk prioritisation mechanism for gas escapes from mains and services to ensure gas leakage is prevented at high risk escapes as a priority. This may result in lower risk escapes taking more than the 12 hour target contained in the Gas Safety Management Regulation but ensures that priority is given to the higher risk leaks.
- Managed the risk of major accident hazard pipelines and COMAH sites.

Reliability

- Maintained reliability of the network with the average consumer only experiencing a planned interruption once in every 40 years (once in 200 years for an unplanned interruption).

- Ensured compliance with the obligation to plan the network for a 1 in 20 peak demand day with no experienced loss of supply incidents.
- Revised a risk based approach to maintenance with improvements in the key statistic of "mean time between failure".
- Brought the monitoring and control of our network in house from National Grid, enabling us to add value to business decisions and implement improvements.

Environment

- Carbon footprint from gas leakage reduced by 12% from 579,000 to 507,000 tonnes.
- Significant reduction in hazardous waste volumes; 3,000 litres compared to 11,000 litres in 2005/06, 73% improvement.
- Continued improvement in reducing the proportion of virgin aggregate used in reinstatement.
- Investigated over 40 contaminated land sites and carried out statutory remediation at around 22 sites.
- Demolished 19 low pressure gas holders that are no longer operationally efficient.

Customer Satisfaction

- Established WWU at the forefront of customer service performance.
- 13% reduction in the level of complaints.
- 50% reduction in Guaranteed Standards of Performance payments.
- 97% reduction in Energywatch/Ombudsman referrals.
- 3 out of last 5 years as the top scoring GDN in the customer satisfaction survey.
- Awarded Society of British Gas Industries (SBGI) award for customer service three years running.

Social Obligations

- Working with a number of partners on Fuel Poor Gas Connections. We have delivered over 3,000 fuel poor connections to date.
- Working with vulnerable groups to raise the awareness of carbon monoxide poisoning.

Connections

- Consolidated the new connections processes following on from the insourcing process which took place from 2005 to 2007.
- Significantly improved the customer interface in the quotation area.
- Improved the connections Guaranteed Standards of Performance and timelines for quotations, acceptances and provision of new connections.

3.3. What were the views of stakeholders?

We have engaged extensively with a wide range of stakeholders since our inception, which has resulted in some valuable feedback and business improvements. The specific engagement undertaken recently as part of this price review process has also provided valuable feedback and helped to determine our priorities for our Business Plan from 2013 onwards.

The processes of engaging with these groups and how we use the learning, forms our stakeholder strategy, which is further detailed in Part B5 - Stakeholder Engagement. This outlines the specific process of stakeholder engagement undertaken as part of our Business Plan development, along with the results of that engagement. We refer to the output of that feedback constantly throughout the content of our plan.

In summary their views were as follows:

Safety

- Continued removal of all deteriorating Iron Mains within 30m of property was considered a high priority.
- Maintaining the 30 year replacement time period was widely supported and certain stakeholders felt that this programme should be accelerated because of the environmental and safety benefits, although others were of the opinion that this may lead to an increase in disruption.
- Current level and standards of emergency response were good and appropriate and should not be allowed to slip.
- The proposals for the removal of gas holders were considered a lower priority by stakeholders as a whole, however this is a safety priority for the HSE and those living in the vicinity.
- The HSE's feedback has been positive in terms of the direction WWU are taking and particularly support the removal of risk in accordance with our obligations utilising innovative Condition Based Risk Management (CBRM) Models. However they have been cautious with their support for a methodology which can encourage the trading of risk between different asset groups and hence the population affected by them.

Reliability

- With regard to interruptions, many felt that the current level of service was good and that improving this was not a priority.
- There was broad agreement that the service provided by WWU was sufficiently reliable and that maintaining the current high standards, rather than seeking to improve them, should form part of our ongoing strategy.
- WWU's strategy of investment in its asset replacement programme, was commended although it was felt that this should be reviewed at regular intervals.

- The HSE's feedback has been positive in terms of the direction WWU are taking utilising innovative Condition Based Risk Management (CBRM) Models which determine the Health Index and Risk Metric of assets. However they have been cautious with their support of a methodology which could see investment being diverted from safety into other benefits, such as customer interruption levels. They do, however, understand that a more holistic based approach can be useful, but with the proviso of still requiring compliance with legislation, such as The Pipelines Safety Regulations.

Environment

- Reducing gas leakage through the mains replacement programme was considered a top priority and there was general consensus that this should be WWU's main environmental focus.
- There was no support for an increase in consumer bills to fund environmental initiatives.
- It was widely agreed that increasing the proportion of gas from renewable sources should be a priority and should be encouraged.

Customer Satisfaction

- WWU's customer service was widely praised.
- Many stakeholders felt that UK-based call centres were essential.
- Most stakeholders agreed that WWU should seek to raise its profile although this should be done in a cost effective way.
- There was a good deal of positive feedback for WWU with regard to its work in liaising with highways authorities and to our commitment to continual improvement.

Connections

- Most stakeholders agreed that current connections service standards were good and that improving on these was not high priority.

Social Obligations

- The Fuel Poor gas connection scheme was widely praised and it was stated that more should be done with relevant organisations to ensure eligible consumers benefited from it.
- It was felt that WWU should continue to work to extend its network, but the consensus view was that the cost of this should be borne by the individuals who benefit from the new connection.
- It was felt that WWU should work to promote awareness of the dangers of carbon monoxide poisoning but should not be expected to provide carbon monoxide monitors.

Investor Views

In addition to this, we need to finance our operations adequately whilst complying with the licence obligation to ensure we can achieve an investment grade credit rating. As part of this we need to reward providers of both debt and equity funding with a return on their investment which both adequately rewards them for the risk they incur, and gives

management confidence that funds will be available as required throughout the price control period. In addition, incentive arrangements need to ensure equity investors and other stakeholders interests are aligned in the efficient and effective delivery of outputs.

3.4. What is our main focus as a result of this stakeholder feedback?

The stakeholder feedback strongly influenced our priorities and the areas of major focus for us going forward are as follows:

Our focus is displayed above in the output categories agreed with Ofgem, which we have supported throughout the process, participating in the working groups and helping to develop the suite of outputs. The outputs we plan to deliver are split into "Primary Outputs" and "Secondary Deliverables" where applicable, all of which are included in this document. A simple referencing system has been used throughout this document to distinguish between the primary outputs and secondary deliverables as follows:

Output Category	Type of Output	Prefix	Reference
Safety	Primary Output	SP	SP1, SP2, SP3, SP4, SP5, SP6
Safety	Secondary Deliverable	SS	SS1.1, SS1.2, SS1.3, SS1.4, SS4.1
Reliability	Primary Output	RP	RP1, RP2, RP3
Reliability	Secondary Deliverable	RS	RS1.1, RS2.1, RS3.1, RS3.2, RS3.3
Environment	Primary Output	EP	EP1, EP2, EP3, EP4, EP5, EP6
Customer Satisfaction	Primary Output	CSP	CSP1, CSP2, CSP3
Connections	Primary Output	GS[3]	GS4-6, GS8, GS9-10, GS11
Social Obligations	Primary Output	SOP	SOP1

There is not a simple one to one relationship between these outputs and each of the asset groups and processes. To help explain this complexity, at the start of the majority of the chapters later in this document there is a table or a diagram indicating the various influences on the outputs which also includes the references in accordance with the table above.

In addition we have developed an outputs optimisation model which takes into account some of the major areas of influence, this is described further in Part B6: Asset Strategy. This model helps to understand the impact of the various interventions on the outputs to ensure we optimised the outputs we are delivering and hence the value delivered to stakeholders.

3.5. What approach have we taken to determine how to respond to stakeholder needs?

We will continue to take a risk based approach to running our network, from responding to the public following a call reporting the smell of gas, to prioritising the repair; from determining maintenance requirements to defining assets requiring investment. Our Business Plan is built upon managing risk with the optimum level of investment and identifying and investigating alternatives, wherever possible, to ensure the least cost overall solution to the consumer.

Risk Based Approach to Managing our Assets

As an effective asset management business we continually improve the ways in which we manage our assets. Basing our expenditure on managing risk has been crucial in our methodology. Wherever possible we have been designing and utilising decision support tools to enable us to determine the optimum level and timing of investment. We are investing in new and innovative Condition Based Risk Management (CBRMs) models which will encompass:

- Health index - showing the condition and performance of assets.
- The probability of failure - influenced by the health index and its criticality.
- How the assets age, and how this affects their reliability.

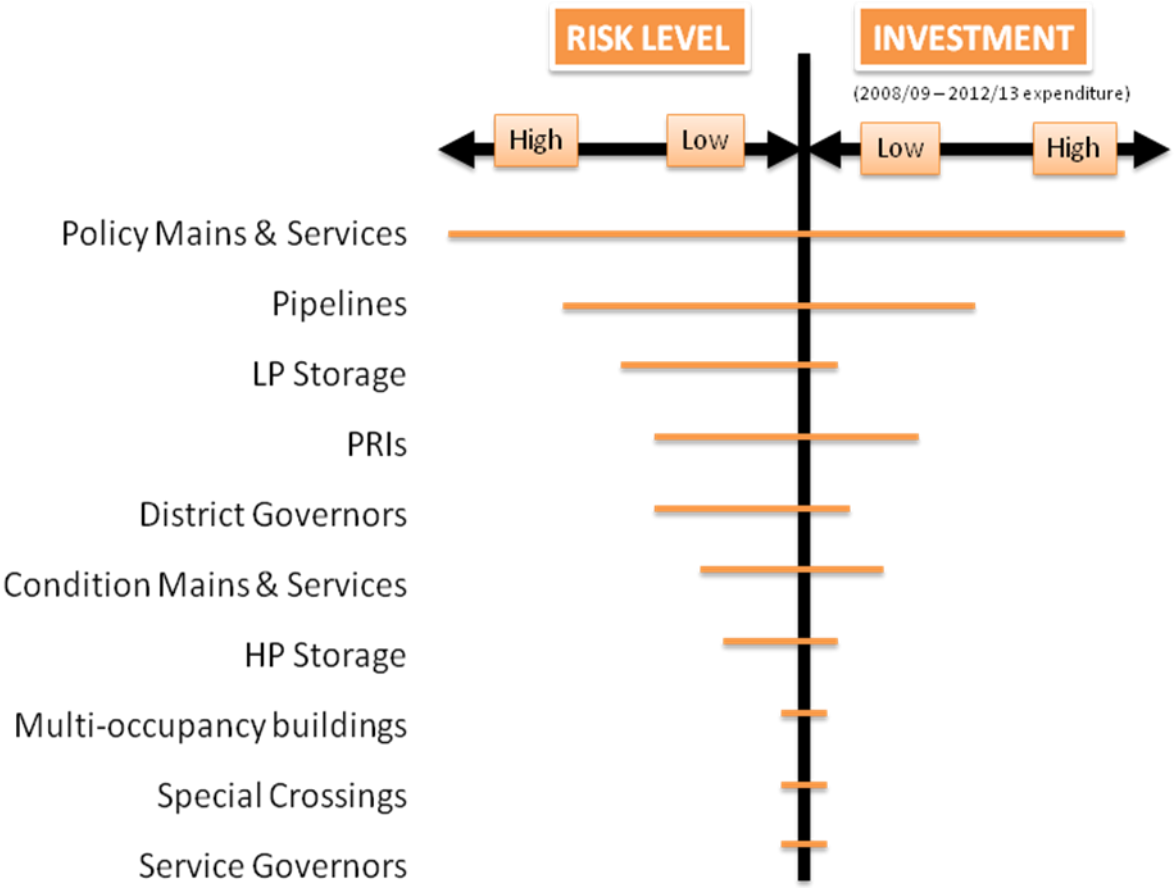
[3] The outputs within the connections section are already numbered as Guaranteed Standards hence the reason for the different naming convention to the other outputs.

- The consequences of failure - in terms of cost, safety, environment and security of supply.
- The type and timing of interventions - balancing cost and risk to deliver the most appropriate form of intervention.

In addition to the Condition Based Risk Management (CBRM) models, we are utilising an upgraded mains replacement prioritisation tool which incorporates a condition assessment to supplement the risk of fracture, as well as a storage decision support tool (DST) to look at the cost of the different storage options over time.

For peak demand we have continued to use our models to understand the impact of demand changes and therefore determine investment required. In order to manage some of our Control of Major Accident Hazards (COMAH) sites, we have implemented a further DST which assists in making the best value for money decision to either operate our low pressure gas holders to provide diurnal storage or to procure National Transmission System "Flex" to provide our storage requirements.

To illustrate our risk based approach to investment, the following schematic diagram indicates the level of risk associated with our main asset categories, and how this is balanced against the level of investment since April 2008:



Part B6 - Asset Strategy, contains more detailed information about this risk based approach.

Risk Based Maintenance

We have utilised risk based maintenance methodologies, such as reliability centred maintenance, to determine the most appropriate actions to focus our attention on the most susceptible assets.

Risk Based Repairs

When we are experiencing high volumes of gas escapes from mains and service pipes during the winter months, the levels of repairs required tends to exceed the resources available to undertake them. If we resourced to meet these peak periods, it would result in an unacceptable cost falling on gas consumers. In order to prioritise repairs, we have therefore implemented an innovative prioritisation system, based on the risk of an explosion.

Risk Based Emergency Service

The prioritisation of attendance at gas leaks reported by the public is based on whether the leak is controlled or uncontrolled, which influences the risk of explosion. The former has an attendance of a two hour requirement, and the latter one hour. Our performance against these standards is exemplary, being in excess of the 97% requirement every year since the formation of WWU.

Environmental risk

WWU's approach to environmental risk has a number of key aspects:

- For environmental issues, such as carbon footprint, we assess the CO_2 impact, and prioritise our actions based on this impact. For example, leakage of natural gas has the biggest impact, and has the most significant prioritisation.
- On land owned by WWU where there is contamination from previous gas production processes, the risk of contamination migrating from the land is assessed, and an innovative approach to remediation of the sites prioritised based on this risk.

Customer Satisfaction risk

Our customer satisfaction improvement measures are risk based and determined from surveys and complaints root cause analysis. For example, from this we understand that reinstatement and the provision of new connection dates have the highest risk of leading to poor satisfaction and potential complaint. Our targeted actions are prioritised into these areas.

4. Incentivisation

4.1. Summary

It is vitally important that the RIIO incentivisation mechanisms support and promote the effective and efficient delivery of the stakeholder required outputs. It is also important that networks and consumers benefit from any incentive schemes. Therefore our proposed incentivisation mechanisms have been developed to facilitate these outcomes. Within this document we set out in each Output category our proposed incentivisation mechanisms. In most cases the form of incentivisation aligns to the Ofgem proposals contained within their March 2011 strategy documents.

4.2. Incentivisation of Total expenditure (TOTEX)

Currently we have different incentives associated with different parts of our expenditure; and benefits are not shared with consumers until the end of the Price Control Period. From 2013 all controllable total expenditure (Totex) will have a single cost incentive rate and the gains or losses will be shared with consumers during the price control period. To mitigate potential year on year variations in charges to consumers, as a result of the sharing, there will be a two year lag applied to any sharing. This will give shippers and consumers advance notice of the impact.

There is no doubt that the largest incentive on networks for the period 2013 to 2021 is the incentive to reduce costs. The actual incentive rate is yet to finally be determined by Ofgem but is likely to be a rate of between 50% and 60%. This would mean that for every pound saved by the network, the consumer will benefit by 40p to 50p. As the incentive is symmetrical, every pound of over spend will cost the consumer 40p to 50p.

Where possible, we already take decisions that have least total cost impact on consumers. We also take account of costs and benefits over the longer term. We are therefore supportive of the Totex incentive on all controllable costs as it will better support the right decision for consumers regardless of whether the cost is Operating, Replacement or Capital expenditure. We recognise that the annual sharing may generate volatility in charging and we will work with industry participants to address this.

5. Safety

5.1. Summary

Stakeholders agree that our overriding and primary business principle should continue to be:

"Delivering first class services to consumers - keeping public and employee safety at the forefront of all that we do."

In response to stakeholder feedback we plan to deliver the following safety related outputs during 2013/14 to 2020/21:

Output Ref	Output
SP1	0.104 incidents of risk removed
SS1.1	2958 km of iron risk removed
SS1.2	5993 - 8638 Fractures
SS1.3	11169 - 14735 Gas In Buildings
SS1.4	Health Indices & Risk Metrics
SP2 & SP3	97% Emergency Response
SP 4	<23 million repair risk score per annum
SS4.1	40% performance on preventions within 12 hours
SP5	Safety Case Acceptance
SP6	COMAH report reviewed by HSE

In order to deliver these outputs and therefore to manage the safety risk, we plan to:

- Annually remove 370km of metallic mains at risk and 91km of poor condition mains, replace 42,500 metallic services and relay 4,750 services following an escape at a total cost of £680m over the 8 years.
- Addressing condition and safety risk of our high pressure steel pipelines and associated components including replacing and reconditioning 234km - £103m.
- Remove 4 low pressure gas holders on 3 sites which are currently high risk COMAH sites and replace with storage pipelines £22.4m.
- Decommission and demolish 15 redundant gas holders, £6.3m.
- Repair – continue to manage the repair activity to provide timely response to escapes on our assets, in a prioritised manner, in order to maintain an acceptable risk profile, and to comply with the Gas Safety (Management) Regulations, £100m.
- Emergency attendance at gas escapes – continue to satisfy the current industry standard of 97% attendance at escapes within one or two hours dependant on whether the escape is uncontrolled or controlled, £94m. The cost of this activity is dependent on the level of the "offsetting" metering activity, the impact of the

SMART metering programme and future carbon monoxide poisoning mitigating strategies.

5.2. Background

How have we performed in GDPCR1?

We have demonstrably provided a safe, reliable and sustainable network to date, and anticipate this will continue, by:

- Leading, managing and operating a risk based approach.
- Balancing the risk based approach with cost effective optimised asset utilisation and minimised life cycle costs through well managed maintenance, replacement and capital investment programmes.
- Optimised investment averaging £2m per week since 2008 and ongoing until 2013.
- Delivered the challenging 30:30 programme, removing 361 km of risk mains per year as well as replacing other poor condition gas mains and services. By 2012/13 we will have removed 1850kms of iron mains risk since 2008/09 and replaced around 104,000 services. This represents an investment of £363m, removing a significant safety risk from the network.
- Achieving over 97% performance against our emergency standards each and every year to date.
- Implemented a new risk based approach to managing repairs following gas escapes.
- Managed our Low Pressure Holder COMAH sites and delivered risk removal by investing £5.1m whilst providing consumers with a lower cost alternative by demolishing 19 holders by April 2013, decommissioning and purging 16 holders, demolishing columns at a further 4 holders leaving just 4 operational. This also has the benefit of saving an estimated £4m of operating costs over 10 years.
- Gained approval for major changes to our safety case throughout this price control review period and ensured compliance with our statutory and legal obligations.
- Maintained an excellent safety and industrial relations record during significant change, as well as managing a number of major network incidents without punitive HSE action.

Managing safety risk is an essential component of the asset management process. Identifying and understanding the risks to be managed is one critically important element which underpins how we target our investment effectively and enables us to deliver our stakeholder requirements.

What are the main influences upon the Safety Outputs?

The following matrix shows the main areas of our business which have the potential to impact the safety outputs:

Output Category	Ref	Output Description	Iron Mains & Services	Steel Mains & Services	Steel Pipelines	High Pressure & Low Pressure Storage	Multi-occupancy buildings	Leakage repair service	Emergency service	Maintenance
Safety	SP1	Mains replacement - level of risk removed	★	·	·	·	·	·	·	·
Safety	SS1.1	Mains replacement - length of iron risk removed	★	·	·	·	·	·	·	·
Safety	SS1.2	Mains replacement - fractures	★	·	·	·	·	·	·	·
Safety	SS1.3	Mains replacement - GIBs	★	★	·	·	★	·	·	·
Safety	SS1.4	Mains replacement - HIs & Risk Metrics	★	★	·	·	·	·	·	·
Safety	SP2	Emergency response - attendance at uncontrolled escapes in 1 hr	·	·	·	·	·	·	★	·
Safety	SP3	Emergency response - attendance at controlled escapes in 2 hrs	·	·	·	·	·	·	★	·
Safety	SP4	Repair - length of time to repair by risk category (risk x duration)	★	★	·	·	·	★	·	·
Safety	SS4.1	Repair - preventions within 12 hours	★	★	·	·	·	★	·	·
Safety	SP5	MAHP - safety case acceptance	·	·	★	★	·	·	·	·
Safety	SP6	MAHP - COMAH report reviewed by HSE	·	·	·	★	·	·	·	★

5.3. Stakeholder Focus

What did stakeholders tell us?

- Continuing to remove all deteriorating iron mains within 30m of property was considered a high priority.
- Maintaining the length of the 30 year replacement programme was widely supported.
- Some stakeholders felt that this programme should be accelerated because of the environmental and safety benefits although others were of the opinion that this may lead to an increase in disruption.
- Current level and standards of emergency response were good and appropriate but should not be allowed to slip.
- The proposals for the removal of gas holders were considered a lower priority by stakeholders as a whole, however this is a safety priority for the HSE and those living in the vicinity.
- The HSE's feedback has been positive in terms of the direction WWU are taking and particularly support the removal of risk in accordance with our obligations utilising innovative Condition Based Risk Management (CBRM) Models. However they have been cautious with their support for a methodology which can encourage the trading of risk between different asset groups and hence the population affected by them.

5.4. Output options, targets and expenditure requirements

What options are there to meet stakeholder requirements?

We have considered a number of options in relation to delivery of the outputs that stakeholders require. This chapter explores the various alternatives and demonstrate which one was chosen and why.

How did we undertake our Intervention & Risk Analysis?

WWU have undertaken an extensive risk analysis to determine various intervention strategies to deliver different outputs, ranging from not doing anything or making minimal change, to significant differences of approach. The overriding objective was to balance risk against the level of investment, in order to optimise value for consumers, whilst maintaining our safety performance.

What results were obtained?

We analysed and tested different approaches. These tests included looking at improving our performance against the outputs and the impact this would have on the risks and expenditure, and vice versa. Ultimately the main driver was to manage risk and undertake our licence obligations whilst satisfying our stakeholder expectations. Using this analysis and testing, we consider we have achieved the optimal approach of balancing intervention against risk to deliver the outputs which stakeholders require.

Examples of this analysis are contained throughout this section which supports the optimum and most effective approach of balancing risk and cost.

5.4.1. Mains Replacement

What options have we considered?

	SP1	SS1.1	SS1.2	SS 1.3
All outputs are totals over 8 years	Level of risk removed	Iron risk removed (km)	No. of fractures	No. of Gas in Buildings
No programme	0	0	7413-10684	12630 - 16716
37 year	0.079	2254	6331 - 9124	11517 - 15206
30 year	0.104	2958	5993 - 8638	11169 - 14735
23 year	0.172	4883	5069 - 7306	10218 - 13444

What option have we chosen & why?

We have chosen the 30 year option because:

- It is compliant with legislation.
- Although some stakeholders felt that this programme should be accelerated this is in line with what many stakeholders requested, limiting the disruption of doing it more quickly.
- Benefits are delivered as soon as reasonably practical.

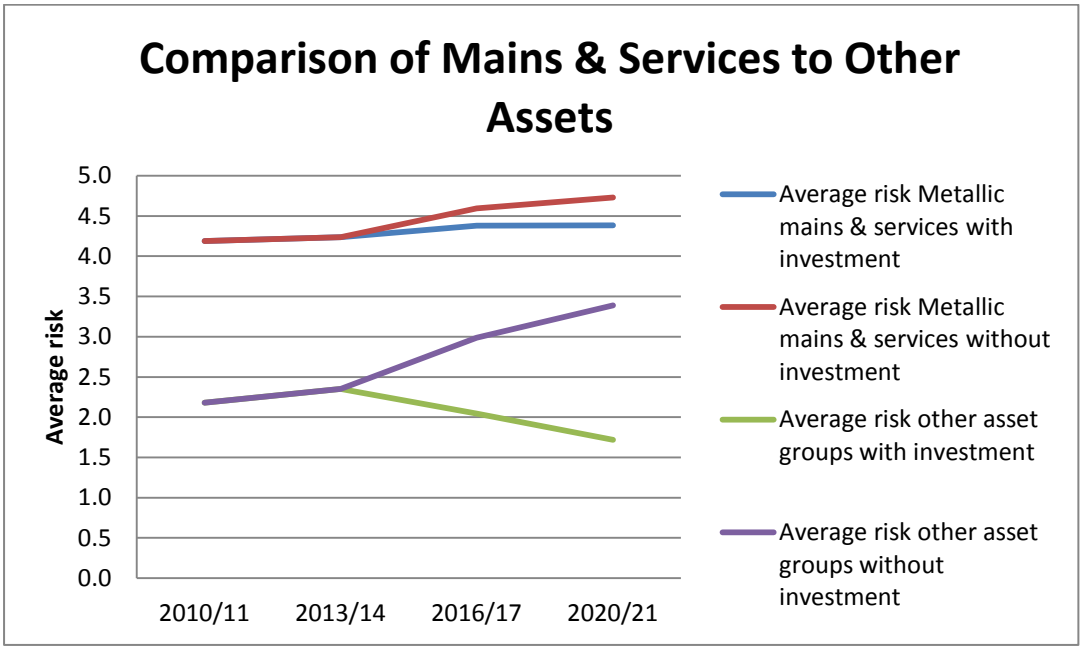
What are we planning to deliver?

In order to ensure that we are able to achieve the outputs stakeholders require and taking into account the various options outlined in the sensitivity analysis above, we plan to deliver the following outputs during the next price control review period:

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
SP1	Level of risk removed	0.024	0.018	0.018	0.015	0.014	0.012	0.01	0.009	0.008
SS1.1	Iron risk removed (km)	347.5	369.7	369.7	369.7	369.7	369.7	369.7	369.7	369.7
SS1.2	Min No. of Fractures	741	759	760	758	756	751	744	736	725
	Max No. of Fractures		1095	1095	1093	1089	1083	1073	1061	1045
SS1.3	Min No. of Gas In Buildings	1326	1313	1338	1363	1387	1409	1431	1452	1472
	Max No. of Gas In Buildings		1737	1769	1800	1830	1859	1886	1912	1936
SS 1.4	HIs and Risk Metrics	n/a	See graph below							

Health Indices and Risk Metrics (SS1.4)

In accordance with Ofgem's guidance we have assigned each asset a risk score between 1 (very high risk) and 5 (very low risk). This is explained further in Part B6 Asset Strategy. The graph below shows the effect of the replacement proposed in our plan, and the impact of no investment. It compares average risk from mains and services to the other asset groups



It is clear from this graph that metallic mains and services present a large proportion of risk compared to other asset groups, at a level that WWU and stakeholders believe to be unacceptable. The investment in mains and services is targeted to reduce this risk by replacing metallic with polyethylene pipe.

How are we going to do it?

These outputs will be achieved by:

- Replacing 370km per annum of iron mains within 30m of a building.
- Replacing 91km per annum of poor condition metallic mains (inc steel).
- Replacing 42,500 per annum of metallic services and services to multi occupancy buildings.
- £686m[4] of investment will be required over 8 years to deliver these outputs.

5.4.2. Emergency Service

What options have we considered?

	SP2 - 1 hour response	SP3 - 2 hour response	Cost £m pa (using base year of 9/10)
Current Standards	97%	97%	£8.8m
Improved Standard	99%	99%	£13.7m

What option have we chosen & why?

We have chosen to maintain the current standard because:

- This is in accordance with what stakeholders have asked for.
- It provides a lower cost solution compared with a higher target.
- It aligns to the current licence obligation which we think is appropriate.

What are we planning to deliver?

In order to ensure that we are able to achieve the outputs stakeholders require and taking into account the various options outlined in the sensitivity analysis above, we plan to deliver the following outputs during the next price control review period:

Output Ref	Output Description	10/11	13/21
SP2	Attendance at uncontrolled escapes within 1 hour (%)	98.5	≥97%
SP3	Attendance at controlled escapes within 2 hours (%)	99.4	≥97%

[4] Distribution mains & service replacement costs (£680m) plus multi occupancy building costs (£5.8m)

How are we going to do it?

These outputs will be achieved by:

- Ensuring that we continue to be well prepared for the "winter peaks" by measures such as the provision of 4 x 4 vehicles, and supplementing our first call operatives with competent maintenance operatives and some back office "reservists".
- Further investment in IT systems to improve decision making in allocating the right person to the call.
- Emergency service operating costs of £94m over the 8 years.

5.4.3. Repair

There are a number of options that we could consider in terms of the level of service we deliver in respect of our repairs following escape. Our analysis is based on improving our performance to meet the escaping gas prevention requirement in the Gas Safety Management Regulations:

Repair target by risk score	**Risk Score less than 250**	**Risk score 250 – 400**	**Risk score 400+**	**Annual Cost pa (£m)** (using base year of 9/10)
Current Target	28 days	7 days	2 days	£11.6m
Improved Target*	12 hours	12 hours	12 hours	£32.8m

*To comply with the Gas Safety Management Regulation 7(4)

We have chosen to maintain the current standard because this

- ensures risk is appropriately managed, agreed by the HSE.
- ensures costs to consumers are kept to a minimum.

What are we planning to deliver?

In order to ensure that we are able to achieve the outputs stakeholders require we plan to deliver the following outputs during the next price control review period:

Output Ref	**Output Description**	**10/11**	**13/14**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**	**20/21**
SP4	Min total of daily risk scores (million)	17.1	17.4	17.6	17.8	18.0	18.1	18.3	18.4	18.4
	Max total of daily risk scores (million)		21.7	21.9	22.2	22.4	22.6	22.7	22.9	23
SS4.1	Preventions within 12 hours (%)	43.8	40%							

How are we going to do it?

These outputs will be achieved by:

- Investing appropriately through the replacement programme to prevent repairs in the first place i.e. replace deteriorating metallic pipes.
- Optimising our repair resource across our geography to ensure resource availability in the busier urban and suburban patches.
- Continue to operate a risk prioritisation mechanism for gas escapes from mains and services to ensure leaking gas is prevented at high risk escapes as a priority. This may result in lower risk escapes taking more than the 12 hours contained in the Gas Safety Management Regulation but ensures priority is given to the higher risk leaks.
- Operating costs for the repair activity of £100m over the 8 years.

5.4.4. Major Accident Hazard Prevention

Mixed feedback was received in respect of our proposals for gas holders. Stakeholders who attended our events considered expenditure to remove them was a low priority, however it was not discounted. The HSE regard this as an important safety priority and as such we have considered the options and propose a phased approach to the removal of gas holders in accordance with the views of the safety regulator.

What are we planning to deliver?

In order to ensure that we are able to achieve the outputs stakeholders require and taking into account the various options outlined in the sensitivity analysis above, we plan to deliver the following outputs during the next price control review period:

Output Ref	Output Description	10/11	13/14 – 20/21
SP5	Safety Case Acceptance	Y	Y
SP6	COMAH reports reviewed by HSE	Y	Y

How are we going to do it?

These outputs will be achieved by:

- Addressing condition and safety risk of our high pressure steel pipelines and associated components including replacing and reconditioning 234km - £103m.
- Decommissioning and demolishing 15 redundant holders £6.3m and removing an additional 4 holders on 3 sites which are high risk COMAH sites £22.4m.
- A maintenance regime that is compliant with legislation as well as being risk based.

5.5. Additional WWU Safety Outputs

There are a number of safety outputs which have not been included in the Ofgem measures which WWU believe are important to monitor. The following table summarises these additional outputs:

What are we planning to deliver?

Ref	Description	10/11 Performance	Target per year
WWU1	Gas explosions caused by gas leaking from network	1	≤2
WWU2	RIDDOR[5] Reportable incidents from WWU network	14	<20
WWU3	Mains & Service Repairs - % of high risk repairs in 2 days	>75%	>75%
WWU4	Investigate Gas Incidents that cause damage from leaking internal fittings and pipework and return GSMR reports to HSE in 28 days	75%	>80%
WWU5	Number of High Voltage Cable Strikes, including contractors	5	<10
WWU7	RIDDOR Reportable Gas Pipeline Damages	17	<25
WWU8	Number of Poor Pressures Reports due to network capacity restraints	80	<150
WWU10	Regulator Interventions – Enforcement Action	0	<2

How are we going to do it?

- Maintain high quality Safety Management System in line with HSE HSG65, Effective Health & Safety Management principles.
- Show leadership by setting personal example and being visible to the workforce.
- Maintain and review process safety indicators that measure both leading and lagging metrics.
- Maintain clear communications with our workforce and H&S regulators.

[5] RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences

6. Reliability

6.1. Summary

Stakeholders agree with our overriding and primary business principle:

'Delivering first class services to customers keeping public and employee safety at the forefront of all that we do.'

In response to stakeholder feedback we intend to deliver the following reliability related outputs by 2020/21:

Output Ref	Output
RP1	Around 50,000 annual planned interruptions average per year (2% of consumers affected)
RP1	Around 13,000 annual unplanned interruptions average per year (0.5% of consumers affected)
RP1	Average planned interruption duration of around 200 minutes
RP1	Average unplanned interruption duration of around 500 minutes
RS1.1	1.87 Average Health Indices /1.74 Average Risk Metrics
RS2.1	No change in asset utilisation
RS3.1	No more than 0.5% Offtake meter error inaccuracy per year
RS3.2	No more than 225 hrs on average to repair NOW faults
RS3.3	<0.08 Pressure System Safety Regulations A1&A2 faults per site

In order to ensure continuation of existing reliability performance from 2013/14 – 2020/21, we will be:

- Replacing 580 District Governors and refurbishing a further 1,873 due to risk and condition, £66m.
- Upgrading 200km (around 0.5% of the network) and 128 Governors due to localised increase in peak demand, £72m.
- Continuing investment in 129 pressure regulating installations due to condition and risk, £36m, plus Electrical & Instrumentation upgrades on 139 sites, £5m.
- Upgrading and introducing new telemetry and associated IT systems to enable improved monitor & control, £15m, hence mitigating our investment elsewhere.
- Replacing 64 and refurbishing 585 special crossings due to condition and risk, £10m.
- Maintaining the level of non-routine faults by carrying out root cause analysis and by further implementation of Reliability Centred Maintenance to target maintenance activities (overall routine maintenance cost of £70m and non-routine maintenance of £51m).

6.2. Background

How have we performed in GDPCR1?

We have demonstrably provided a reliable network to date, and anticipate this will continue, by:

- Leading, managing and operating a risk based management approach.
- Balancing the above by cost effective optimised asset utilisation, and minimising life cycle costs through well managed maintenance, replacement and capital investment programmes.
- Investing £82m at our pressure regulating installations following detailed survey work, leading to more efficient and reliable installations, so reducing the risk of an interruption to consumers following a failure.

  Overall we have been planning our network to meet our 1 in 20 obligation and the winter of 2010, utilising demand side management; that is we have efficiently purchased interruption capacity from shippers to avoid capital investment.
- We haven't seen any significant supply interruptions as a result of inadequate capacity because we have continued to respond to the need to invest £35m for localised increases in peak demand ensuring we are able to meet demand for a peak 1 in 20 winter.
- There are a number of other areas of investment which have clearly provided risk reduction, more efficient operations and minimised the risk of loss of supply to consumers, including £20m in replacing poor condition district governors.
- Developing new and innovative decision support tools developed to ensure we are investing in the right assets at the right time; these tools include a Condition Based Risk Management Models as well as our existing models for Growth to understand the impact of peak demand and therefore determine investment required.
- Minimising interruptions – Interruption levels have been very low, at just 1 unplanned interruption experienced by the average consumer every 200 years.
- Ensuring compliance with our statutory and legal obligations.
- Introducing a Reliability Maintenance Centred approach, improving the "mean time between failure".

Which asset groups and activities influence Reliability Outputs?

The following matrix shows which areas of our business impact on the reliability outputs:

Output Category	Ref	Output Description	Iron Mains & Services	Steel Mains & Services	Steel Pipelines	Reinforcement for Growth	Offtakes & Pressure Regulating Installations	High Pressure & Low Pressure Storage	District Governors	Special Crossings	System Operation	Adaptation to Climate Change	Repair	Maintenance
Reliability	RP1	Loss of Supply – Number of interruptions	★	★	★	★	★	★	★	★	★	★	★	★
Reliability	RP1	Loss of Supply – Duration of interruptions												
Reliability	RS1.1	Loss of Supply – Asset health and risk metrics			★		★		★					
Reliability	RS2.1	Network capacity – Asset utilisation / capacity charts			★			★						
Reliability	RS3.1	Network reliability – Offtake meter error reports					★				★			★
Reliability	RS3.2	Network reliability – Fault/duration measure (Telemetry)					★	★			★			★
Reliability	RS3.3	Network reliability – Fault/duration measure (Pressure System Safety Regulations) A1&A2 Faults					★	★						★

6.3. Stakeholder Focus

What did stakeholders tell us?

- With regard to interruptions, many felt that the current level of service was good and that improving this was not a priority.
- There was broad agreement that the service provided by WWU was sufficiently reliable at present and that maintaining the current high standards, rather than seeking to improve them, should form part of WWU's ongoing strategy.
- WWU's investment strategy for its asset replacement programme was commended, although it was felt that this should be reviewed at regular intervals.
- The HSE's feedback has been positive in terms of the direction WWU are taking utilising innovative Condition Based Risk Management (CBRM) Models which determine the Health Index and Risk Metric of assets. However they have been cautious with the support for a methodology which could see investment being diverted from safety into other benefits, such as customer interruption levels. They do, however, understand that a more holistic based approach can be useful, but with the proviso of still requiring compliance with legislation, such as The Pipelines Safety Regulations.

6.4. Output options, targets and expenditure requirements

What options are there to meet stakeholder requirements?

We have considered a number of options in relation to delivery of the outputs that stakeholders require and this chapter explores the various alternatives and demonstrates which one was chosen and the reasons for this.

How did we undertake our Investment and Risk Analysis?

As with the investment relating to safety, we analysed a range of intervention options and derived risk profiles which would have different impacts upon stakeholders. The overriding objective was to weigh risk against intervention, in order to optimise value for consumers, whilst maintaining our performance in respect of reliability.

What results were obtained?

We analysed and tested the delivery of varying levels of outputs for each asset group and selected the intervention that achieved the optimal approach of weighing cost against risk to deliver the outputs which stakeholders require.

The following sections contain examples of this analysis which supports the optimum and most effective approach of balancing risk and cost.

6.4.1. Loss of Supply

Customer Interruptions - What options have we considered?

Investment level	Total Investment (£m)	No. of Unplanned Interruptions
No investment	0	1,024,405
Maintaining current performance	264	97,075

Customer Interruptions - What option have we chosen and why?

We have chosen to maintain the current level of performance because:

- It delivers a reliable gas supply and represents a very low level of interruptions.
- This is in accordance with stakeholder feedback.
- It requires the minimum investment to ensure reliability does not deteriorate.

Customer Interruptions - What are we planning to deliver?

In order to ensure that we are able to achieve the outputs which stakeholders require, and taking into account the various options outlined in the sensitivity analysis above, we plan to deliver the following outputs during the next price control review period:

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
RP1	Number of planned interruptions ('000)	47.6	52.5	52.5	53.3	53.0	52.5	52.5	52.6	52.6
RP1	Average duration of planned interruptions (mins)	202	204							
RP1	Number of unplanned interruptions ('000)	12.2	11.2	11.5	11.8	12.0	12.3	12.5	12.8	13.0
RP1	Average duration of unplanned interruptions (mins)	473	500							

The increase in planned interruptions from GDPCR1 to RIIO-GD1 reflects change to the mains replacement programme.

Asset Health & Risk - What options have we considered?

The following table demonstrates the impact on asset health and risk for District Governors (domestic, industrial and commercial), with and without investment.

Investment level	Total Investment (£m)	Health Index at 12/13 (1 = new, 5 = end of life)	Risk Index at 12/13 (1 - Very low risk 5- Very high risk)	Health Index at 20/21 (1 = new, 5 = end of life)	Risk Index at 20/21 (1 - Very low risk 5- Very high risk)
No Investment	£0	-	-	2.84	2.28
Maintaining Health & Risk	£66m	1.55	1.31	1.67	1.17

Asset Health & Risk - What option have we chosen & why?

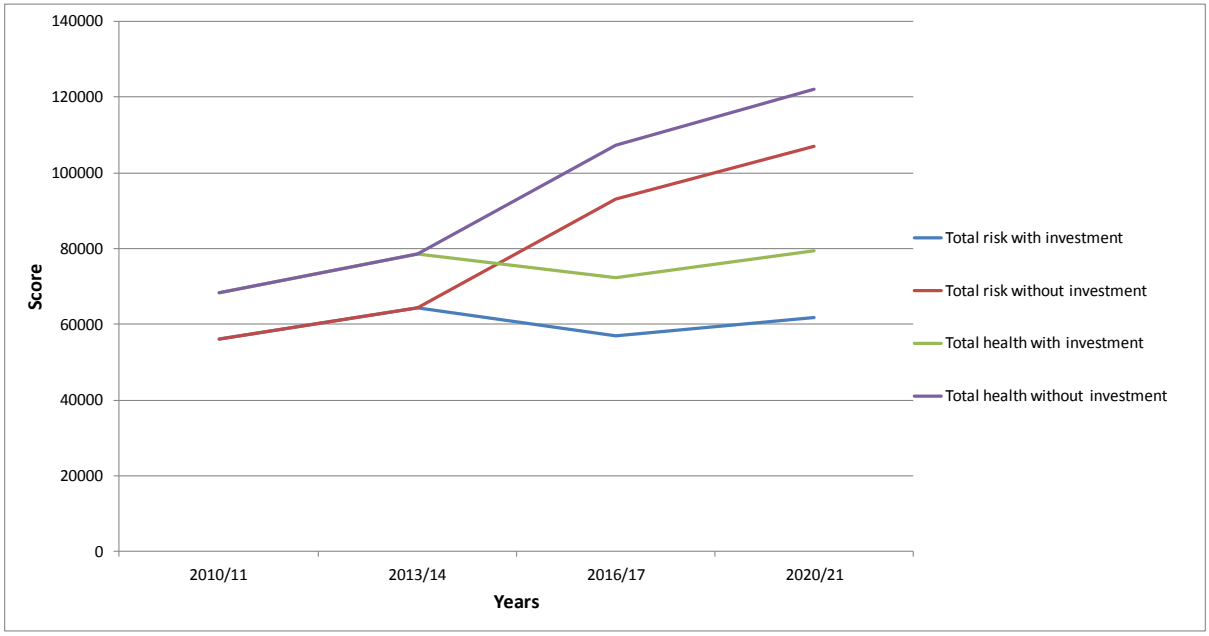
We have chosen to maintain the level of health & risk because:

- This is in accordance with stakeholder feedback.
- It requires the minimum investment to ensure that risk to reliability does not increase.

Loss of Supply - What are we planning to deliver?

The graph below shows the effect of the interventions proposed in our plan, and the impact of asset health without those interventions as per RS1.1 Loss of Supply – Asset Health and Risk[6].

WWU's Total Asset Health & Total Asset Risk (with & without investment)[7]



The overall aim of our plan is to ensure we deliver the safe and reliable outputs stakeholders want - but at the same time keeping consumer bills to the lowest possible level. Our plan subsequently focuses on maintaining asset risk at broadly constant levels, whilst also managing deterioration by maintaining asset health.

Loss of Supply - How are we going to do it?

These outputs will be achieved by:

- Replacing 580 District Governors and refurbishing a further 1,873 due to condition and risk, £66m.
- Continuing investment in 129 pressure regulating installations due to condition and risk, £36m, plus Electrical & Instrumentation upgrades on 139 sites, £5m.
- Upgrading 200km (around 0.5% of the network) and 128 Governors due to localised increase in peak demand, £72m.
- Upgrading and introducing new telemetry and associated IT systems to enable improved monitor & control, £15m, hence mitigating our investment elsewhere.
- Replacing 64 and refurbishing 585 special crossings due to condition and risk, £10m.

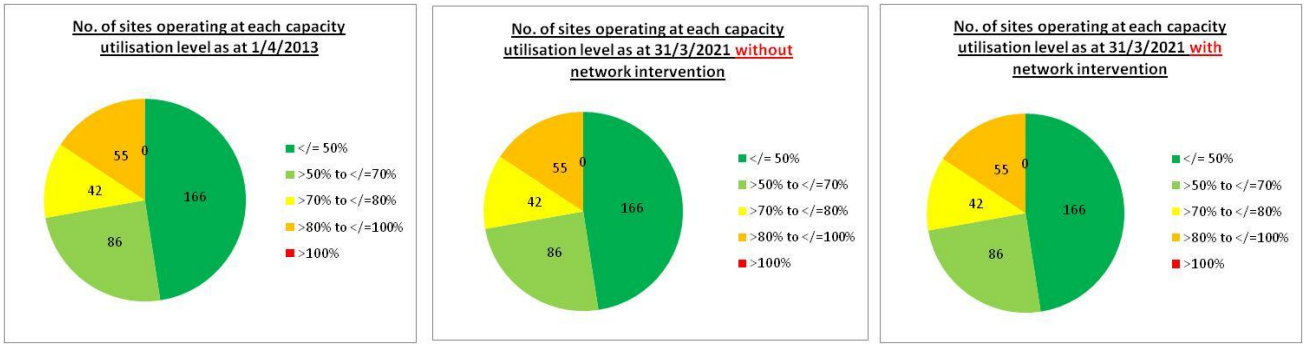
[6] In accordance with Ofgem's guidance, we have assigned each asset a health score between 1 (new) and 5 (end of life) and a risk score of between 1 (very high risk) and 5 (very low risk). This is further explained in Part B6 - Asset Strategy. The numbers represented here are a summation of every one of these scores, to give a total health score and a separate total risk score. The graph excludes Mains & Services which are a separate Ofgem output.

All of this is aimed at delivering the following:

- Legal compliance with The Pipelines Safety Regulations in a practical and innovative way.
- The safety and reliability outputs stakeholders required, whilst managing an aging network of gas assets.
- Environmental improvements which support a more sustainable future.
- Efficient delivery utilising an innovative approach to asset intervention.
- Investment that targets risk, not health (condition).
- Investment to support consumers and social obligations.

6.4.2. Network Capacity and Reliability

Network Capacity Asset Utilisation - What are we planning to deliver?



Note: it is not possible to match exact capacity requirements and the next step up is often over capacity at no extra historical investment.

Network Capacity Asset Utilisation - How are we going to do it?

Network demand forecasts indicate no increase in daily peak load in the period 2013 – 2021 and therefore no requirement to invest in the above 7 bar network for growth. There is however investment planned in the below 7 bar network to manage localised growth in peak demands.

Network Reliability – What are we planning to deliver?

In order to ensure that we are able to achieve the outputs which stakeholders require, we plan to deliver the following outputs during the next price control review period from 2013 to 2021:

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
RS3.1	Offtake meter error reports - % inaccurate in period	0.036	<0.5							
RS3.2	Fault x duration / Number of Telemeted Above Ground Installations – "Now Faults" (hrs)	114	181	168	153	141	161	182	202	223
RS3.3	Faults / Number of Above Ground Installations – PSSR A1 & A2 faults	0.07	0.073	0.072	0.071	0.07	0.072	0.074	0.076	0.078

Network Capacity and Reliability – How are we going to do it?

These outputs will be achieved by:

- Replacing 580 District Governors and refurbishing a further 1,873 due to risk and condition, £66m.
- Installing twin stream ultrasonic metering at our remaining orifice metering offtakes at £0.7m including provision of remote access for monitoring purposes.
- Upgrading and introducing new telemetry and associated IT systems to enable improved monitor & control, £15m, hence mitigating our investment elsewhere.
- Minimising the number and duration of faults through risk based maintenance processes.
- Continuation of our proactive and timely approach to notifying shippers of meter errors.

6.4.3. Records & Data Accuracy

What are we planning to deliver?

Although this is not an industry defined Output, this is an important Output for WWU hence the reason for inclusion in our business plan.

Output Ref	Output Description	10/11	13/14 - 20/21
WWU	% mains records updated within 42 days	96%	>95%
WWU	No. of third party reports on mains location (DR8)	27	circa 30

How are we going to do it?

- Defining minimum standards of service from our Service Providers for records quality and delivery.
- Continued close monitoring of performance by the Executive team, including jeopardy reports and the development of challenging internal deadlines to ensure we meet these standards.
- Maintaining and further developing high quality procedures, processes and training of personnel.
- Ensuring error reports are addressed in a timely way, according to the risk they present.

6.5. Incentivisation

The current Guaranteed Standards will continue to compensate consumers for unplanned loss of supply exceeding 24 hours and for lack of advance notification of planned interruptions.

In addition, at the end of GDPCR1, we will undertake an ex-post review to assess the Health, Risk and Capacity indices. Where we "Outperform" the indices, then Ofgem has indicated a symmetrical reward in the next price control period subject to the Information Quality Incentive. These potential adjustments would include an adjustment to reflect financing costs.

We will also be required to gather and report information on asset health, criticality and risk associated with our assets as part of the new licence condition which will commence ahead of 2012/13.

7. Environment

7.1. Summary

We acknowledge that as a major infrastructure provider, we have a significant role to play in minimising our environmental impact. Stakeholders believe that our main focus in this respect should be on managing gas leakage from our network, which makes up about 96% of our emissions. However we believe we have a contribution to make in improving our general environmental performance as well. In response to this we plan to deliver the following outputs from 2013/14 to 2020/21:

Output Ref	Output
EP1	16%[7] Leakage Emissions Reduction
EP2	10% Other business carbon footprint reduction
EP3	22 sites remediated
EP4	4% decrease in extraction of aggregates
EP5	4% decrease in spoils to landfill
EP6	No ISO14001 non-conformities

To ensure that we continue to minimise our environmental impact, we will be investing in:

- Continuing to remove all deteriorating iron mains within 30m of property was considered a high priority (£680m see Safety section).
- Initiatives to proactively manage operating pressures to minimise emissions from leakage, £7.2m.
- Initiatives to reduce fuel and energy usage across WWU, including new vehicles £39m and installation of Automatic Meter Reading (AMR) equipment.
- Proactive approach to land management utilising innovative techniques, £13.3m.
- Continued commitment to use recycled aggregate and minimise disposal of waste to landfill where permitted by local Regulators.

7.2. Background

How have we performed in GDPCR1?

- No significant environmental incidents or prosecutions.
- Successful retention of ISO 14001.
- Achievement and retention of industry leading scores on the Achilles "Verify" system since registration in 2007.

[7] This percentage has been calculated from 31 March 2013 until 31 March 2021

- Positive recognition by Business in the Community (BITC) and the Prince of Wales "May Day" scheme for continued high levels of environmental performance.
- Carbon footprint from gas leakage reduced by 12% from 579,000 to 507,000 tonnes.
- 750 Vehicles replaced with those having more efficient engines and speed restrictors.
- Less than 20% of our spoil is sent to landfill.
- Hazardous Solid Waste reduced from 11,000 to 3,000 litres.
- Carried out site remediation at 22 sites and investigated over 40 sites.

What influences the Environmental Outputs?

The following matrix shows which areas of our business impact on the environmental outputs:

Output Category	WWU Ref	Output Description	Iron Mains & Services	Steel Mains & Services	Network Management	Land Management	Repair	Maintenance	Property	Vehicles	Supply Chain	Logistics
Environment	EP1	Business Carbon Footprint – Leakage & Shrinkage - Emissions	★	★	★	·	·	·	·	·	·	·
Environment	EP2	Business Carbon Footprint – Other - League table	·	·	·	·	·	·	★	★	★	★
Environment	EP3	Other emissions & resource – Land remediation	·	·	·	★	·	·	·	·	·	·
Environment	EP4	Other emissions & resource – Aggregate Extraction	★	★	·	·	★	·	·	·	·	·
Environment	EP5	Other emissions & resource – Spoil to Landfill	★	★	·	·	★	·	·	·	·	·
Environment	EP6	ISO 14001 Non-conformities	·	·	·	·	·	·	·	·	·	·

Around 96% of our carbon emissions are due to gas leakage from our network on which we are continuing to focus our attention and investment. The remaining emissions are made up of a number of contributors, which are also the subject of focus.

7.3. Stakeholder Focus

We consulted stakeholders in respect of our environmental performance and we received the following feedback:

- Reducing gas leakage was considered a top priority and there was general consensus that this should be WWU's main environmental focus.
- There was no support for an increase in consumer bills to fund environmental initiatives.
- It was widely agreed that increasing the proportion of gas from renewable sources should be a priority and should be encouraged.
- It was not felt that the cost of connecting renewable sources should be passed on to WWU.

7.4. Sensitivity Analysis

WWU commissioned an external organisation to conduct a review of current and projected environmental performance. The table below summarises those projects that were short-listed in terms of their overall performance on Profitability Index, Annual Carbon Savings, Internal rate of return and Applicability of Environmental Emissions Incentive. The rankings indicated that Pressure Management emerged as the strongest candidate for implementation because, over its predicted asset life of forty five years, it scores well on all four indicators. Our responses against each of these projects are included in this table.

Project	Primary Driver	WWU Response	
Existing pressure management	Leakage Optimisation	Already built into our Business Plan	
New pressure management	Leakage Optimisation	Already built into our Business Plan.	
Automated Meter reads	Emission Saving & Data Capture	Installed during 2011/12	
Onboard vehicle power packs	Emission Saving	This will not be taken forward at this time due to significant operational considerations that have not changed since the initial decision to introduce on board power in the first place.	
Solar Photovoltaic	Emission Saving	Third party funding model recommended and being considered subject to a suitable partner being identified	
Turbo Expander I at Seabank Offtake	Emission Saving	This will not be taken forward at this time due to significant limitations on the WWU Network.	
Energy efficient buildings	Emission Saving	To be considered during 2011/12.	
Bio methane fleet vehicles.	Emission Saving	WWU current strategy recognises the need for collaboration, and decisions regarding choice of vehicle and fuel(s) will be made during the period to reflect the best available technologies, infrastructure and cost efficiency at the time.	
Turbo-expander II at Dowlais & Nantgarw Offtake	Emission Saving	Due to financial risks and funding uncertainties, Turbo-expander II has been discounted.	

7.5. Output Targets & Spend Requirements

As a result of the feedback from our stakeholders, we plan to deliver the following outputs during the next price control review period from 2013/14 until 2020/21:

7.5.1. Business Carbon Footprint – Shrinkage

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
EP1	Emissions due to network leakage (GWh at year end)	450	415	407	399	390	382	374	365	357
EP1	Emissions due to network leakage (thousand tonnes C02e at year end)	539	497	487	478	468	458	448	438	427
EP1	Gas lost through Shrinkage (GWh at year end)	472	440	432	424	415	407	398	390	381

How are we going to do it?

These outputs will be achieved by:

- Continuing to remove all deteriorating iron mains within 30m of any property (£680m see Safety section).
- Proactively managing network pressures and maximising network management opportunities, albeit on a marginal basis due to the improvements already made, £7.2m.

7.5.2. Business Carbon Footprint Non-Shrinkage

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
EP2	CO2 emissions – other (excluding leakage) ('000 tonnes C02e)	22	20	20	19.5	19.5	19	19	18	18

How are we going to do it?

These outputs will be achieved by:

- Replacement of our entire vehicle fleet with the most cost effective option, £39m.
- Installing Automated Meter Reading equipment to enable us to better manage our electricity consumption.
- Working with our supply chain to minimise their environmental impact.

7.5.3. Land Remediation

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
EP3	Sites routinely monitored & maintained (statutory)	24	6	9	8	9	8	9	8	7
EP3	Sites remediated to low risk (statutory)	3	1	2	9	3	1	2	1	3
EP3	Sites remediated for commercial reasons	0	0							

How are we going to do it?

These outputs will be achieved by:

- Proactive approach to land management utilising innovative techniques, £13.3m.

7.5.4. Volumes of Aggregate Extraction

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
EP4	Volumes of Aggregate Extraction ('000 tonnes)	not reported	141	141	140	139	139	138	138	136

How are we going to do it?

These outputs will be achieved by:

- Continuation of our objective to reduce our reliance on imported natural products by working with local regulators (such as Highway Authorities) to permit innovative approaches to recycling.
- Working with partners to reduce the costs of recycling.

7.5.5. Spoil to Landfill

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
EP5	Spoil to landfill ('000 tonnes)	Not reported	71	71	71	70	70	70	70	68

How are we going to do it?

These outputs will be achieved by:

- Continuing to use every opportunity to re-use or recycle in a sustainable manner on a project by project basis, especially in respect of the mains replacement programme.

7.5.6. ISO14001 – Environmental Management System

What are we planning to deliver?

Output Ref	Output Description	10/11	13/14 – 20/21
EP6	ISO14011 Major Non-conformities	0	0

How are we going to do it?

These outputs will be achieved by:

- Ongoing compliance with legislation and continual improvement will underpin our success.
- Innovative integrated management system delivery in conjunction with PAS55.

7.5.7. Distributed Gas Entry Connections

Please refer to the connections chapter of this plan for further information.

7.6. What may change in the next price control that is out of our control?

We anticipate that there will be upward cost pressures in the next price control particularly in relation to compliance and reporting as required by new and emerging legislation, including the Adaptation to Climate Change requirements.

In addition to this there is a risk that the threshold for trading emissions under the Carbon Reduction Commitment (CRC) scheme is raised or the scope is broadened. Currently WWU are not captured under this scheme; however the impact from 2013/14

to 2020/21 could range from £40m up to £176m[8]. These costs have not been included in our Business Plan. For further information see Part B4 - Managing Uncertainties and Business Plan Assumptions.

Our continued commitment to sustainability remains a high priority and we will continue to achieve our targets and objectives in order to ensure that we minimise our impact on the environment.

7.7. Incentivisation

A range of financial and reputational incentives are linked to the delivery of the Environmental Outputs;

Broad Environmental measure

A new licence condition is being developed that will require networks to report on the capacity of gas from renewable sources connected.

Shrinkage Gas and Environmental Emissions

To incentivise the reduction of emissions from Gas Leakage, we propose a fixed baseline allowance for Shrinkage Gas (in line with the existing funding arrangements); and a continuation of the existing Environmental Emissions Incentive (EEI) based on the baseline projections in this plan. The reward/penalty associated with Environmental Emissions performance will be linked to the environmental value of carbon and will have no floor or ceiling. This is a strengthening of the existing incentive regime. Any financial adjustment as a result of out/under performance on Shrinkage and EEI will be shared with consumers. The sharing factor will be set in line with the IQI (Information Quality Incentive) percentage (likely to be between 50-60%).

We have considered an alternative mechanism which is a "Roller" mechanism as recently proposed by Ofgem[9]. Under a roller mechanism, there is the potential to improve the incentive regime by equalising the incentive regime over the period. However, the current proposal from Ofgem contains very complex iterative calculations that retrospectively amend annual incentives at the end of the price control period, with unintended consequences. In our view, this new proposal is not as transparent as the existing mechanism and therefore we believe the existing mechanism is more appropriate.

Other Environmental incentives

In addition to the Shrinkage Gas and Environmental Emissions incentives, we will have additional reporting obligations in relation to our carbon footprint and we be able to apply for innovation funding support. We will also be able to continue to make submissions to an independent, industry "Discretionary Reward" panel. Finally, stakeholder engagement in this area could contribute to the "Customer" incentives described in section 8.

[8] Costs indicated are based on the potential costs of carbon £12 per tonne and £54 per tonne respectively

[9] Ofgem - Further clarification on the proposed shrinkage incentive mechanism, Ynon Gablinger, 3rd October 2011

8. Customer Satisfaction

8.1. Summary

WWU have consistently scored well in customer service metrics, and since 2005 have reduced the number of complaints received, notably those that have been referred to Energywatch/Ombudsman. This demonstrates the effectiveness of our complaint resolution process. In response to the RIIO proposals for customer satisfaction, we intend to deliver the following outputs during 2020/21:

Output Ref	Output
CSP1	Top quartile in customer surveys compared with GDN peer group
CSP2	Complaints % unresolved in D+1* % unresolved in D+31 * % of repeat complaints * * These outputs targets will be defined in April 2012, at the end of Ofgem's 6 month trial period % of Ombudsman findings against WWU - zero
CSP3	Stakeholder Engagement – effective stakeholder engagement to maximise benefit from understanding the needs of stakeholder groups

In order to ensure that we maintain and improve our high level of customer satisfaction, we will be concentrating on the following:

- Maintaining WWU's own customer satisfaction survey process.
- Effective review of surveys and complaint processes using root cause analysis.
- Improvement mechanisms based on the results of the analysis.
- Enhanced systems to monitor and manage complaints processes.
- Incentivised approach within WWU to improve customer satisfaction levels.

8.2. Background

How have we performed in GDPCR1?

- Reduced Energywatch/Ombudsman referrals by 97%.
- Reduced the level of complaints by 13%.
- Reduced compensation payments by 50%.
- In 3 out of last 5 years, WWU was the top scoring gas distributor in independent customer satisfaction surveys.
- We were awarded the Society of British Gas Industries award for customer service in 2009, 2010 and 2011.

What influences the Customer Satisfaction Outputs?

Output Category	WWU Ref	Output Description	Repair	Emergency	Connections	Cross-Business	Mains and Service Replacement
Customer Service	CSP1	Customer Survey	★	★	★		★
Customer Service	CSP2	Complaint Handling	★	★			
Customer Service	CSP3	Stakeholder Engagement				★	

Stakeholder Focus

We consulted our stakeholders in respect of our customer satisfaction and we received the following feedback:

- WWU's customer service was widely praised.
- Many stakeholders felt that UK-based call centres were essential.
- Most stakeholders stated that WWU should seek to raise its profile for a number of reasons. However, it was widely felt that expensive profile-raising initiatives were not a priority.

8.3. Output Targets & Spend Requirements

What options are there to meet stakeholder requirements?

WWU has achieved considerable success in providing good customer service, as recognised by both Ofgem comparators, and by external recognition. WWU's stakeholders recognise this achievement and would wish us to remain in a leading position when compared to the other gas distributors. Our business plan reflects continuous improvement in customer service to satisfy the increasing needs of customers and to remain in an upper quartile position. This is a key element of our business plan.

As a result of the feedback from our stakeholders, we plan to deliver the following outputs during the next price control review period from 2013/14 until 2020/21:

Customer satisfaction survey – What are we planning to deliver?

Output Ref	Output Description	10/11	2013-2021
CSP1a	Consumers who experienced a planned interruption	1st	Upper quartile
CSP1b	Consumers who experienced an unplanned interruption	1st	Upper quartile
CSP1c	Customers who sought a new connection	1st	Upper quartile

(Note: a specific target score or range of scores is not being forecast until the trial of the new surveys has been completed).

Customer Survey – How are we going to do it?

These outputs will be achieved by:

- Continuing to carry out our own customer satisfaction surveys, analysing the results and improving from root cause analysis.
- Improving systems to enable analysis.
- Incentivising our people on good results and providing clear leadership.

Complaint Handling – What are we planning to deliver?

Output Ref	Output Description	10/11	2013-21
CSP2a	Percentage unresolved after D+1	Not measured	TBC
CSP2b	Percentage unresolved after D+31	Not measured	TBC
CSP2c	Percentage of repeat complaints	Not measured	TBC
CSP2d	Percentage of Ombudsman findings against the GDN	2 in total	TBC

Complaint Handling – How are we going to do it?

These outputs targets will be defined at the end of Ofgem's 6 month trial period in April 2012. In any event, we are proposing to:

- Improve our systems to provide better analysis and tracking of complaints in near real time to avoid failing standards.
- Improve our cultural approach to complaints.
- Carry out root cause analysis and to put in place improvement initiatives.

Stakeholder Engagement – What are we planning to deliver?

Output Ref	Output Description	10/11	13/21
CSP3	Stakeholder Engagement	Not measured	Judged as effective and innovative

Stakeholder Engagement – How are we going to do it?

These outputs will be achieved by:

- Putting in place formal processes that manage the engagement of a broad range of stakeholder engagements and by including the responses into our business planning process.
- Going forward, reporting our performance to stakeholders.

8.4. Incentivisation

We already have strong incentives to deliver outputs to consumers as our Licence includes various Guaranteed Standards. Failure to deliver against some of these standards requires us to pay financial compensation to consumers. In addition to the existing incentives the following financial incentives are proposed for the next price control review:

Component	Base demand Revenue %	Application of Penalty / Reward
Customer Satisfaction Survey	+/- 0.5%	Penalty/reward based on comparative performance based on acceptable range of performance relative to mean
Complaints Metric	-0.5%	Penalty set on a sliding scale relative to upper quartile company relative to mean
Stakeholder engagement	+0.5%	Reward based on qualitative assessment of companies by independent panel

All networks in collaboration with Ofgem are undertaking a trial from October 2011 for six months with a revised Customer Satisfaction survey and Complaints reporting in order to establish the mean performance for the next Price Control Period.

9. Connections

9.1. Summary

WWU intend to maintain a high level of customer satisfaction in respect of new connections, as measured by guaranteed standards performance and the broad measure of customer satisfaction. We will also commit to introducing a voluntary standard of performance for the connection of distributed gas, in conjunction with the other GDNs.

9.2. Background

How have we performed in GDPCR1?

- Providing timely quotations consistently: >99% performance.
- Offering planning dates for connection work on time : >99% performance.
- Undertaking substantial completion on time: >96% performance.
- Connections related complaints have been reduced by 50%
- We were the first GDN to score over 8 out of 10 in the customer satisfaction surveys, with scores of 8.01 in Q1 and Q2 of 2010/11. WWU has been either 1st or 2nd GDN over the past three years on this measure.

9.3. Stakeholder Focus

We consulted our stakeholders in respect of connections and we received the following feedback:

- Most stakeholders agreed that our current connections service standards were good and that improving on these was not high priority.
- Consumers expect charges to be cost reflective and for the charges to be transparent enough to demonstrate this is the case.
- It was widely agreed that increasing the proportion of gas from renewable sources should be a priority. However, it was not necessarily agreed that this was the responsibility of gas distribution companies.

9.4. Output Targets & Spend Requirements

As a result of the feedback from our stakeholders, we are proposing to deliver the following outputs during the next price control review period from 2013/14 until 2020/21:

9.4.1. Connection Guaranteed Standards

Output Ref	Output Description	Target	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
GS4-6	Quotations	90%	99%	99%	99%	99%	99%	99%	99%	99%	99%
GS8	Land enquiries	90%	99%	99%	99%	99%	99%	99%	99%	99%	99%
GS9-10	Provide planning date	90%	99%	99%	99%	99%	99%	99%	99%	99%	99%
GS11	Substantial completion of works	90%	96%	95%	95%	95%	95%	95%	95%	95%	95%

9.4.2. Distributed Gas Entry

We agree with the Ofgem decision that it is not appropriate to include Gas Entry connections within the current connections standards of service. We will however work with Ofgem and Energy Networks Association to develop a voluntary scheme for distributed gas consumers. We will also work with the industry and our stakeholders to:

- Agree entry gas specification.
- Agree commercial arrangements.
- Publish a guide and process to gas entry connections.
- Establish a three tier process to positively support gas entry onto our network:
  - Offer access to network information,
  - Offer the same level response as land enquires once a developer has accessed our network information,
  - Offer feasibility study to provide detailed information.

9.5. Incentivisation

The proposal is that the current connections Guaranteed Standards of Performance will remain in place and there are no additional financial incentives proposed.

10. Social Obligations

10.1. Summary

In response to this we plan to deliver of the following outputs by 2020/21:

Output Ref	Output
SOP1	10,800 fuel poor connections completed

In order to promote the connection of gas services as a mechanism to mitigate against fuel poverty, we will:

- Work with promoting bodies to identify the opportunities.
- Facilitate additional gas connections estimated at 1350 additional connections per annum.

10.2. Background

How have we performed since 2005?

- Worked with three partner organisations to provide over 3000 gas connections as part of the fuel poor initiative implemented in November 2009.
- Worked with partner organisations to raise public awareness of the risks of carbon monoxide poisoning.
- Donated surplus equipment to local community groups, and supporting staff to engage in community volunteering initiatives.

10.3. Stakeholder Focus

We consulted all of our stakeholders in respect of connecting the fuel poor and we received the following feedback:

- The Fuel Poor scheme was widely praised. There was no broad agreement on whether this should be extended further. However it generally felt that more should be done with relevant organisations to ensure eligible consumers benefited from the scheme.
- For some, extending the gas network was a high priority. There was broad agreement that those that benefit from extending the gas network (such as developers) should fund gas network extensions.
- It was felt that WWU should work to promote awareness of the dangers of Carbon Monoxide poisoning but should not be expected to provide Carbon Monoxide alarms.

10.4. Output Targets & Spend Requirements

As a result of the feedback from our stakeholders, we are proposing to deliver the following outputs during the next price control review period from 2013/14 until 2020/21:

Fuel Poor Connections – What are we planning to deliver?

Output Ref	Output Description	10/11	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
SOP1a	Fuel Poor Connections	1779	1500	1500	1500	1500	1200	1200	1200	1200
SOP1b	Cost of Fuel Poor Connections (£m)	1.9	1.6	1.6	1.6	1.6	1.3	1.3	1.3	1.3
SOP1.2c	Reporting only on switching Electricity to gas	1403	Reporting requirement only							
	Coal to gas	251								
	Oil to gas	75								
	LPG to gas	9								

We have assumed a reduction in the number of connections from 2017/18 onwards because:

- We understand that Ofgem are looking for a mid point review of the scheme to take account of renewables.
- The easy to connect properties will have been connected by this time.
- The Local Authorities and Housing Associations will have addressed the urgent properties in their portfolio and will reduce their workloads.

Fuel Poor Connections – How are we going to do it?

These outputs will be achieved by:

- Working with our fuel poor partners, Warm Wales, Carillon and British Gas to promote the scheme and identify opportunities; using the additional funding they can access to maximise the benefits to consumers.
- Delivery of new connections through normal new connections processes.
- Reporting on the fuel from which consumers are moving from.
- Demonstrating that Natural Gas is the most efficiency solution in every case.

Carbon Monoxide – What are we planning to deliver?

We plan to continue to use our position to increase awareness and to mitigate the impact of carbon monoxide poisoning.

Carbon Monoxide – How are we going to do it?

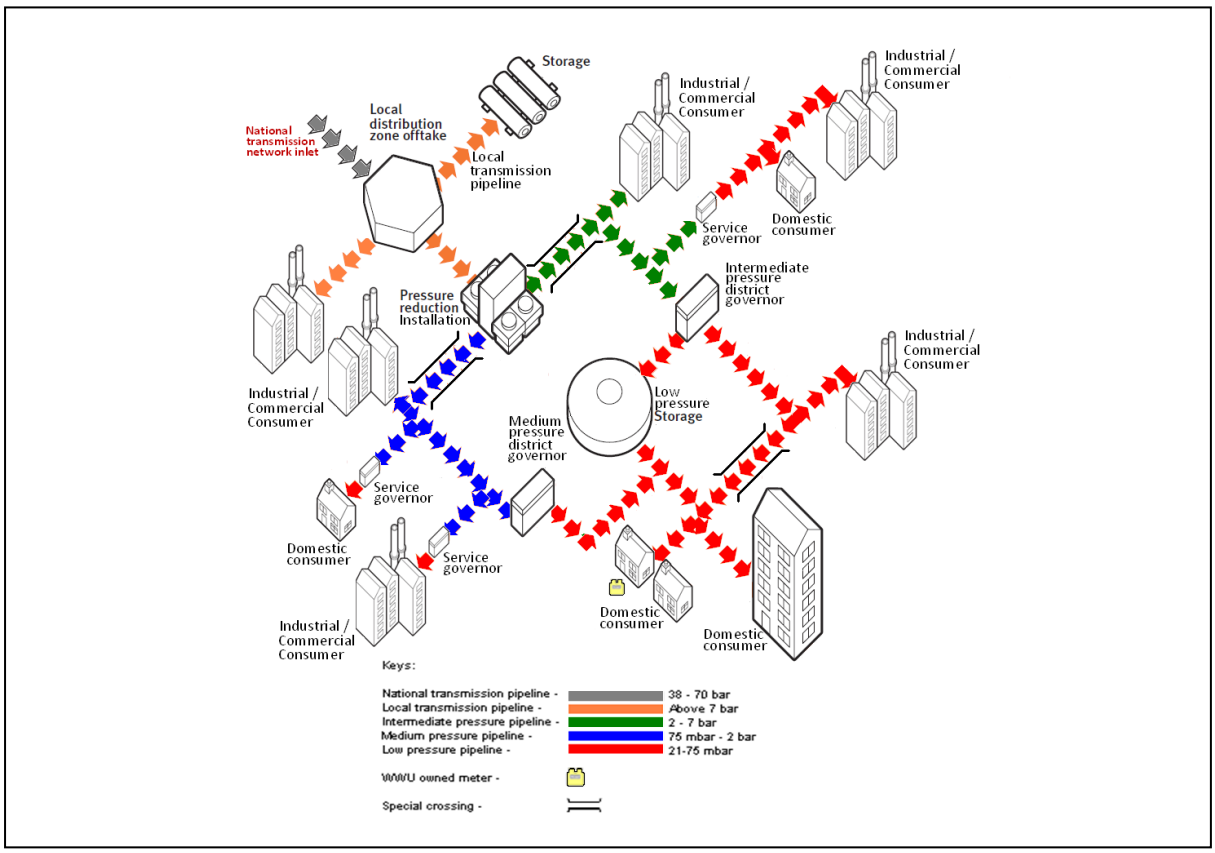
We propose to equip our first call operatives with personal carbon monoxide monitors to identify when they, or the consumer being visited are at risk. We plan to back this up with post visit support where carbon monoxide is indicated at worrying levels, to make sure that the consumer is aware of the risk and the mitigating action they need to take. We will also carry on with our awareness programme for vulnerable groups.

10.5. Incentivisation

There are no specific financial incentives proposed for Social Obligations; however, we will be able to apply for funding, work with partners and submit network deliverables to an independent panel who may award a discretionary reward. Our delivery of Social Obligations may also contribute to the customer incentives detailed in section 7 above.

Appendix 1. Gas Distribution Network Diagram

As a gas distribution business we transport gas through a network of gas pipelines and gas mains, serving a population of 7.5million with 2.5 million supply points across Wales and the South West of England. The assets range from an Offtake to a Gas Service and are best explained in the Gas Distribution Network Diagram below:



Appendix 2. Key Facts

The following section provides an overview about the number and type of assets we own and operate together with a brief description of their function:

- The geography we cover is 1/6th of the UK land mass.
- 17 Offtakes which are the physical interface between the NTS and WWU.
- 3 above ground HP storage vessel sites with a total of 15 vessels to enable the network to supply the within day variation in demand.
- 2,348km of welded steel pipelines operating at 7 to 70 bar transporting gas from the Offtakes into Pressure regulating stations. Pipelines also provide storage to ensure a largely flat profile of gas is taken from the NTS throughout the day and supply some large loads such as power stations.
- 331 LTS Pressure Regulating Installations (PRIs) which reduce gas from transmission pressures to distribution pressures and supply the distribution systems.
- 28 Low Pressure Gas Holders, 4 of which are in normal use being commissioned each winter to meet in day demand peaks (diurnal storage).
- 2,872 District Governors which ensure minimum pressures are maintained throughout the below 7bar distribution system.
- 14,022 Service Governors fitted on some service pipes upstream of the meter where pressure regulating equipment is required.
- 32,190kms of Distribution Mains operating at pressures between 21mbar and 7bar (made up of approx 19,000km of Polyethylene, 9,000km of iron, 4,000km steel).
- 1251 special crossings on distribution system which transport gas above ground across obstacles or geographical features (i.e. streams, canals, carriageways and railways).
- 523 special crossings on the >7bar system.
- 2.5 million supply points with service pipes that we own and operate up to the emergency control valve upstream of the meter.
- Over 30,000 meters which are owned by WWU, installed by request of a supplier under licence obligation.
- 3,873 pressure monitoring and management units of which 1,400 are profiling units.
- A telemetry & SCADA system which is used to monitor, and in some cases control, the security & performance on key pressure regulating & storage equipment.
- 2 discrete Liquefied Petroleum Gas (LPG) supply networks not connected to the mains gas distribution system including LPG tank farms storing gas at up to 16bar.