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RIIO GD1

Consultation on strategy for the next gas distribution price control - RIIO-GD1 Outputs and incentives

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Target audience: Consumers and their representatives, gas distribution networks (GDNs), independent gas transporters (IGTs), other network companies, gas shippers and suppliers, environmental organisations, debt and equity investors, government policy makers and any other interested parties.

Overview:

The next gas distribution price control, RIIO-GD1, will be the first to reflect the new RIIO model. RIIO is designed to drive real benefits for consumers; providing network companies with strong incentives to step up and meet the challenges of delivering a low carbon, sustainable energy sector at a lower cost than would have been the case under our previous approach. RIIO puts sustainability alongside consumers at the heart of what network companies do. It also provides a transparent and predictable framework, with appropriate rewards for delivery.

We are now consulting on the strategy for the two price control reviews. This supplementary annex to the main consultation documents sets out our proposals for the outputs that GDNs will need to deliver over the price control period, and the associated incentive mechanisms. This document is aimed at those who want an in-depth understanding of our proposals. Stakeholders wanting a more accessible overview should refer to the main consultation documents.

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Associated Documents

Main consultation papers

- Consultation on strategy for the next gas distribution price control - RIIO-GD1 Overview paper (160/10)
  http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/ConRes/Documents1/RIIOGD1%20overview.pdf

Links to supplementary annexes

- Consultation on strategy for the next gas distribution price control - RIIO-GD1 Tools for cost assessment
  http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/ConRes/Documents1/GD1%20costs%20assess.pdf
- Consultation on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Business plans, innovation and efficiency incentives
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/T1%20and%20GD1%20BP%20prop.pdf
- Consultation on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Financial issues
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/T1%20and%20GD1%20finance.pdf
- Consultation on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Uncertainty mechanisms
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/T1%20and%20GD1%20uncert.pdf
- Consultation on strategy for the next transmission and gas distribution price controls - RIIO-T1 and GD1 Impact Assessment
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/T1%20and%20GD1%20IA.pdf

Links to other associated documents

- Consultation on strategy for the next transmission price control - RIIO-T1 Overview paper (159/10)
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/RIIOT1%20overview.pdf
- Handbook for implementing the RIIO model - Ofgem, October 2010
  http://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/RIIO%20handbook.pdf
- RIIO: A new way to regulate energy networks: Final decision
  http://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/Decision%20doc.pdf
- Approach and timetable for TPCR5: decision document (21/10)
  http://www.ofgem.gov.uk/Networks/Trans/PriceControls/TPCR5/Documents1/TPCR5%20Approach%20and%20Timetable%20-%20Decision%20Document%20-%20FINAL.pdf
- Gas Distribution Cost Reporting, report by RUNE Associates Ltd on behalf of Ofgem
  http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/ConRes/Documents1/RUNE%20cost%20reporting.pdf

A glossary of terms for all the RIIO-T1 and GD1 documents is on our website:
http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/ConRes/Documents1/Glossary.pdf

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1. Introduction

Chapter summary

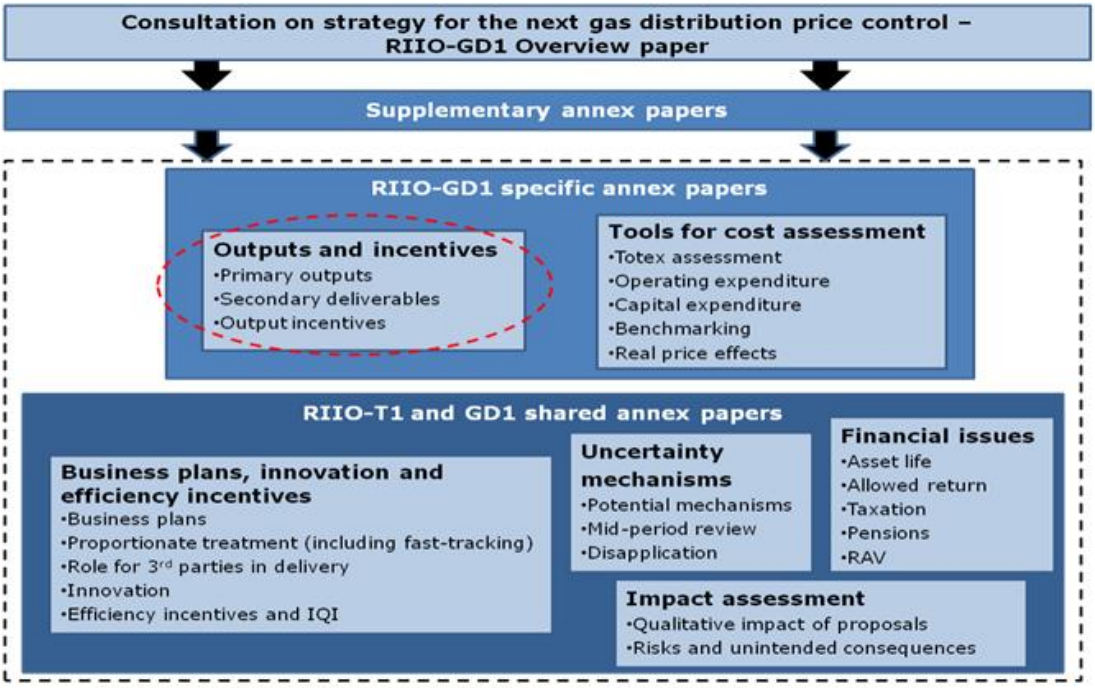
This chapter summarises our overall approach to identifying the outputs that companies will need to deliver over RIIO-GD1, and the associated incentive mechanisms. We also discuss our proposed approach to regulatory reporting requirements to support the outputs-based framework. We also describe the structure of the remaining document.

Question 1: We would welcome respondents' views on the approach we have taken to develop the outputs framework.
Question 2: Do any of our proposed output measures present potential difficulties in ensuring the submission of accurate and comparable data?
Question 3: Are there any aspects of our proposed outputs framework where the reporting requirements are likely to lead to disproportionate regulatory costs?
Question 4: Should we introduce an independent examiner for all companies to improve regulatory reporting?
Question 5: Do you have any views on our proposed approach to revising outputs?

Introduction

1.1. The next transmission and gas distribution price controls, RIIO-T1 and RIIO-GD1, will be the first to reflect the new RIIO model. We are now consulting on the strategy for the two price control reviews. This supplementary annex, to the main consultation document, sets out our proposals for the outputs that network companies will need to deliver over the price control period, and the associated incentive mechanisms. This document is aimed at those who want an in-depth understanding of our proposals. Stakeholders wanting a more accessible overview should refer to the RIIO-GD1 Overview Paper. Figure 1.1 below provides a map of the RIIO-GD1 documents published as part of this consultation.

Figure 1.1 - RIIO-GD1 supplementary annex document map*



***Document links can be found in the 'Associated documents' section of this paper.**

1.2. In this section, we first discuss our approach to developing primary outputs and secondary deliverables, and associated incentive mechanisms. We also discuss potential changes to the regulatory reporting requirements to support the outputs framework. Finally, we describe the structure of the rest of this document.

Development of outputs framework

1.3. Outputs based regulation is a highly effective way of promoting efficiency. By defining what networks are required to deliver as opposed to prescribing a set of inputs, companies face powerful incentives to innovate and seek least-cost solutions to delivering the services required by customers. An output based framework also facilitates stakeholder engagement with regard to the types of service and standards of service desired by customers that they will pay for in their bills. This engagement process should result in the delivery of services that are valued by customers.

1.4. Under the RIIO model, we are committed to setting out clear and comprehensive outputs that the network companies will be held to account for delivering. These outputs, taken together, need to ensure the companies deliver the high level RIIO objectives. These are:

- to ensure that network companies play a full role in the delivery of a sustainable energy sector
- to deliver long-term value for money in the services they provide for existing and future consumers.

1.5. The RIIO process identified six key output categories – or key areas of delivery for network companies. These are: environment; customer satisfaction; safety; reliability; conditions for connection; environmental impact; and, social obligations. For each of these output groups, we have identified a number of specific behaviours that we are seeking to encourage in each of the key service delivery areas:

- **Environment:** encouraging companies to play their role in the achievement of broader environmental objectives, namely the reduction in carbon emissions, as well as minimising the 'narrow' environmental impact of the company's activities by managing their own carbon footprint.
- **Customer satisfaction:** maintaining high-levels of customer satisfaction, and improving the service levels provided where required. We also seek to encourage companies to undertake effective engagement with their stakeholders, and reflect stakeholders' views in the day-to-day operation of their business.
- **Connections:** encouraging networks to connect customers in a timely and efficient way, including responding to the specific needs of distributed gas customers.
- **Social objectives:** extending the gas network to communities who are fuel-poor where it is efficient to do so, and introducing measures to address risks associated with carbon monoxide (CO) poisoning.
- **Safety:** ensuring the provision of a safe network in compliance with Health and Safety Executive (HSE) safety standards, and improving the companies' asset knowledge to ensure companies develop well-justified investment plans.
- **Reliability and availability:** promoting a reliable network, such as minimising the number and duration of interruptions, and ensuring adaptation to climate change.

Output measures

1.6. We established working groups in July to identify outputs and incentive mechanisms for each of the six output categories. The working groups included the network companies, as well as other stakeholders, including environmental, social, and customer representative groups, as well as the HSE. Our recommendations reflect the working group discussions as well as views expressed at other stakeholder fora.

1.7. The outputs framework comprises both primary outputs and secondary deliverables. Primary outputs are the ones that will make a material contribution to the outcomes we are seeking. Secondary deliverables have an important role in helping us to monitor companies' performance, and often provide 'leading indicators' of performance in order to ensure long term delivery and value for money.

1.8. In identifying primary outputs, we have drawn on the principles set out in the RIIO handbook.[1] This includes, amongst other things, ensuring they are controllable by the network companies (or where we have concerns about controllability, we consider carefully the applicability of financial rewards/penalties); measurable; auditable; and comparable.

1.9. We expect network companies to include in their business plans the costs required to deliver primary outputs in future price control periods. To ensure consumers do not pay unnecessarily high prices, companies will be expected to set out the rationale for expenditure in the context of a long-term strategy for delivery.

Setting baselines

1.10. Our work has focussed on how the outputs for each category are defined and measured. For most output measures, we do not propose to prescribe output levels (or baselines). Instead, companies will need to set out the required level of outputs in their business plans, justifying the proposed level in terms of the costs and benefits to network users, and informed by their stakeholder engagement. The exceptions include health and safety related output measures – where network owners need to comply with HSE specified outputs – and output levels covered by the Guaranteed Standards of Performance (GSOP).

1.11. The proposed outputs framework also has implications for regulatory reporting, to enable us to monitor and evaluate companies' performance against the output measures. We discuss our proposals for regulatory reporting in the section below.

Incentive mechanisms

1.12. For each output, we have considered a range of incentive mechanisms to encourage network companies to deliver the primary outputs and secondary deliverables at value for money to current and future consumers. These incentives include financial rewards/penalties and 'reputational' incentives.

[1] See Ofgem (4 October 2010) Handbook for implementing the RIIO model, p. 35.

1.13. The structure of the incentive mechanism (i.e. whether it is symmetric/asymmetric), and the basis for setting the reward/penalty will depend on the output measure. In some instances, we have set out a mechanistic revenue reward/penalty to be applied to variations in output performance, e.g. for gas lost on the transport network (the 'shrinkage allowance mechanism'), where the marginal incentive rate is set equal to the gas commodity price and the value of carbon abatement.

1.14. Where we cannot set out a mechanistic reward/penalty, we have set out rules for how we will set the size of the reward/penalty in the light of a company's output performance. For example, in some instances we propose to set a penalty for under delivery of outputs based on a measure of the value of work avoided through under delivery, with the possibility of an additional penalty to deter under delivery. As an alternative, we could require companies to deliver the shortfall in outputs at the subsequent price review but without providing additional funding. We do not expect to provide any additional revenues associated with the over delivery of outputs where this is not valued by consumers. However, in other cases, where the company can demonstrate the incremental output has the support of network users, we will recognise the efficient costs associated with this output in setting allowed revenues.

1.15. We have not proposed financial incentive mechanisms for all output measures. For example, we have not proposed any financial incentives for the set of safety related outputs. For these outputs, the network owners need to comply with legal obligations, and are subject to HSE enforcement action in the event of non-compliance, and we do not consider that it is reasonable for us to impose an additional penalty. For other output measures where the network companies have a low level of control over performance, such as the proportion of renewable energy transported, we propose to require the companies to report on their performance in order to provide a reputational incentive, but no financial incentive.

Reporting requirements

1.16. We will need to introduce new reporting requirements on companies to enable us to monitor and evaluate their performance against the proposed set of outputs.

1.17. We have two main reporting processes to enable us to monitor GDNs performance for the current price control. We require GDNs to submit to us on annual basis regulatory reporting packs (RRPs) which provide a common framework for the collection and provision of accurate cost information.[2] We also require GDNs to submit data as set out in our Regulatory Instructions and Guidance (RIGs), which provides a common framework for GDNs to report relevant outputs and standards of performance data to us, and for us to monitor their performance.[3]

1.18. For RIIO-GD1, we will need to revise and expand the current RIGs to enable us to monitor GDNs performance against the output measures. We propose to start work early in 2011 on the development of RIGs for RIIO-GD1 and to issue draft revised RIGs in

[2] The RRPs have been developed in accordance with Standard Special Condition A40 (Price Control Review Information) ('SSC A40').

[3] These are issued under Sandard Special Condition D9. The current RIGs sets out reporting requirements with regard to the number of interruptions, customer satisfaction survey, accuracy of pipeline records, and environmental performance. See: Ofgem (01 August 2008) Gas Distribution Quality of Service Regulatory Instructions and Guidance Version 4.
http://www.ofgem.gov.uk/Networks/GasDistr/QoS/Documents1/Gas%20Distribution%20Quality%20of%20Service%20Regulatory%20Instructions%20and%20Guidance%20FINAL.pdf

advance of final proposals in December 2012. We will work with the industry in developing common reporting templates which will form part of the RIGs.

1.19. We would welcome respondents' views on whether any of our proposed output and performance measures present potential difficulties in terms of ensuring accurate and comparable data submissions. We would also welcome respondents' views on whether there are any aspects of our proposed outputs framework where the data requirements are likely to result in a disproportionate regulatory burden.

1.20. We are considering whether we should require the companies to take measures, such as appointing an independent reporter to verify their returns, to provide us assurance as to the accuracy of their regulatory reports. Under the current licence conditions, we can request an independent examiner to examine the companies' systems, processes and procedures and the specified information, to ensure the company is in compliance with the RIGs.[4] However, this is not a standardised process for all data. We note that reporter arrangements are used in the regulation of the rail and water sectors and a variant of these arrangements may be appropriate as we move to an outputs based approach. We invite respondents' views on whether in principle it is appropriate to consider requiring the companies to do more to verify their regulatory reports. We also seek views on whether the use of reporters or other approaches would be appropriate.

Changes to outputs

1.21. There are circumstances where it might be appropriate to change the outputs set at the time of the price control review. For example the mid period review of outputs (discussed in Chapter 7 of the 'Supplementary annex – Uncertainty mechanisms') considers the following:

- material changes to existing outputs that can be justified by clear changes in Government policy (e.g. if Government policy on climate change changes, a higher or lower level of delivery or performance may be needed)
- introducing new outputs that may be needed to meet the needs of consumers and other network users.

1.22. There are two other areas where we also consider that it might be appropriate to make changes to the outputs. These changes would be separate from the mid-period review and are set out below:

- **Administrative errors**: If we identify errors by Ofgem in the target/baseline or the incentive rate associated with an output then we would look to correct these errors without delay.
- **Unfit measurement/reporting arrangements**: If we identify that the measurement/reporting of an output does not meet the intended purpose (e.g. there is scope for gaming on reporting of the figures) then we would look to refine the reporting arrangements to ensure the intended purpose is met. As part of this revision it may be necessary to adjust the target/baseline to maintain consistency with the policy intention at the price control review. This might be an area where we would consider using reporters to make an independent assessment of any required changes.

[4] Standard Special Conditions applicable to all DN Licensees: Part D, Art. 8.

1.23. We would not look to use the approaches above to change outputs for other reasons. For example, we would not look to make any changes if with hindsight any output target/baselines are over- or under-demanding on the networks. We would also not change the incentive rate associated with outputs if new information arises unless the change qualifies for the mid-period review of output requirements. We do not propose any changes in these instances as we want to provide regulatory certainty that we would not change the 'deal' made at the price control retrospectively.

1.24. We welcome views on the proposed approach to revising outputs set out above.

Structure of document

1.25. The remainder of this document sets out our proposed output measures and incentive mechanisms for the six output categories, namely:

- Chapter 2: Environmental impacts
- Chapter 3: Customer service
- Chapter 4: xoserve
- Chapter 5: Social obligations
- Chapter 6: Customer connections
- Chapter 7: Network safety
- Chapter 8: Network reliability.

1.26. In addition, in Chapter 9 we discuss our proposals with regard to the development of a broad approach to asset management for the gas distribution sector.

2. Environmental impacts

Chapter summary

The RIIO framework requires companies to reduce their own business carbon footprint (the narrow environmental objective), as well as contribute to meeting GB carbon targets (broader environmental objectives). This Chapter sets out the outputs that we propose to require companies to deliver over the RIIO-GD1 period to deliver these objectives.

Question 1: Do you agree with our proposal to require GDNs to report the capacity of bio-methane connected as a broad measure of environmental impact but not to adopt an associated financial reward/penalty?
Question 2: Is there any other measure of environmental impact which you believe could be financially incentivised, bearing in mind the need for an output to be measurable and controllable by the GDNs?
Question 3: We would welcome respondents' views on the expected take-up of bio-methane following the introduction of the Renewable Heat Incentive (RHI).
Question 4: Are there any wider-network benefits associated with bio-methane which might imply that we need to change the current connection charging boundary?
Question 5: We would welcome respondents' views on our proposed approach not to recover connection and downstream asset costs through general network charges. In particular, we would like to hear views on the potential rationale for socialising the costs of connecting bio-methane plant, and how we might be able to do this within our vires.
Question 6: Do you agree with our proposed approach of logging-up costs associated with bio-methane connections in the event that the connection boundary changes?
Question 7: Are there other issues we should be considering for the price control in relation to distributed gas (predominately bio-methane)?
Question 8: What information would distributed gas users find useful to help them connect?
Question 9: Do you agree with our proposal to broadly continue with the shrinkage allowance mechanism and Environmental Emissions Incentive (EEI) adopted at GDPCR1?
Question 10: Do you agree with our proposed change to the valuation of carbon for the EEI to bring it in line with DECC's recommended approach?
Question 11: Should we retain a cap and collar on the EEI and at what level should any cap and collar be set? Should we introduce a cap and collar on the shrinkage incentive mechanism, and if so, at what level should any cap and collar be set?
Question 12: Do you agree with our proposal not to adopt a rolling-incentive mechanism for the EEI mechanism?
Question 13: Do you agree with our proposal to require GDNs to report actual shrinkage data when the relevant data becomes available, with the intention that we will use actual shrinkage as the basis for the shrinkage allowance and EEI at future reviews?
Question 14: Do you agree with our proposals to require GDNs to establish a code of practice outlining how they will identify and process unregistered sites? Do you agree with our proposals to require GDNs to report annually on the number of unregistered sites they have processed?
Question 15: Do you agree with our proposal to publish companies' business carbon footprint (BCF) as a league table to provide reputational incentives but not to provide an associated financial penalty/reward?
Question 16: Do you agree with our proposals to publish other emissions and resource use but not to apply financial rewards/penalties?

Introduction

2.1. The RIIO framework identifies two environmental objectives: to ensure that companies contribute to the wider environmental objectives, eg by maximising the volume of low-carbon flows on the network and promoting energy efficiency ('broad measure'), as well as minimise the 'narrow' environmental impact of their own activities.

2.2. In this chapter, we first discuss our proposals with regard to the broad environmental measure, including the measures we are proposing to facilitate the connection of bio-methane and non-renewable forms of distributed gas. We then discuss output measures to ensure that companies minimise their own business carbon footprint, in relation to gas lost on the transport network ('shrinkage'), companies' wider business carbon footprint, and emissions and natural resource use.

Broad environmental measure

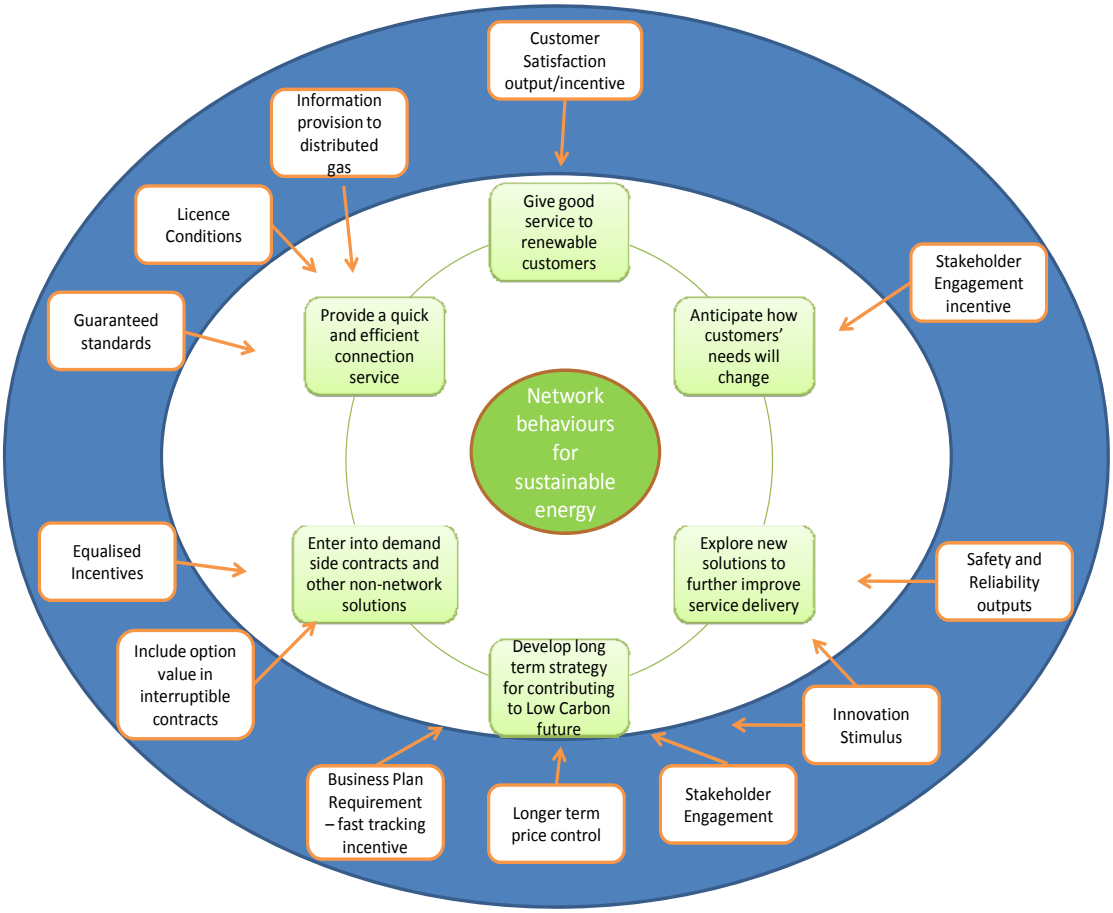
2.3. In terms of the broader environmental objective, our overall approach is to create an enabling regulatory environment to ensure that companies play their role in delivering a low carbon energy sector. For the GDNs this most obviously involves facilitating the connection of renewable gas (ie bio-methane[5]) plant.

2.4. As set out in Figure 2.1, there are many elements of our proposed regulatory framework that contribute to the broad environmental objective, including:

- connection standards, where we propose to extend connection standards to bio-methane and other distributed gas customers, and will require companies to develop suitable information provision (see Chapter 6)
- network reliability, where we will improve the current incentive arrangements for companies to engage in demand-side management (or 'interruptible contracts') to meet new load requirements (see Chapter 8)
- customer service and stakeholder engagement incentives, where we will encourage companies to be more consumer focused, and where we will reward companies that demonstrate that they effectively engage with and understand their stakeholders' needs (see Chapter 3)
- innovation stimulus, which will provide financing for trialling of technologies relating to the delivery of a low carbon future (see 'Supplementary annex: RIIO-T1 and GDI Business plans, proportionate treatment, and efficiency incentives').

[5] Biogas is a renewable source of gas produced from the breakdown of organic matter and is produced by a process of anaerobic digestion. Biogas has a variety of applications, but it is predominately used to generate electricity in the UK. To inject the gas into the grid it must first be converted to bio-methane by removing the oxygen. Distributed gas refers to non-renewable sources of gas (such as shale gas), as well as renewable sources (i.e. bio-methane).

Figure 2.1: The broad environmental measure and our regulatory proposals



2.5. In a parallel exercise to the price review process, we are also working with stakeholders on technical connections standards for biogas (eg with regard to the quality of gas). We are also setting out proposals to ensure GDNs provide information to bio-methane developers to enable them to understand the process of connection, and how the cost varies by location. We describe in more detail our proposals with regard to connection policy and information provision in Chapter 6.

2.6. We also propose to require companies to report the capacity of bio-methane connected on their system as our primary measure for the broad environmental output category. However, in line with the views of the environmental impact working group, we do not consider that this output measure is sufficiently controllable by companies to set either an output target (ie in terms of future MW of capacity connected), or to attach a financial penalty/reward with regard to companies performance relative to this baseline. The bio-methane industry is at an early stage of development, and the future role of bio-methane in meeting carbon reduction targets will depend on a number of factors outside companies' control, primarily the payments that bio-methane plant will receive under the government's proposed Renewable Heat Incentive (RHI). However, by publishing an annual league table of bio-methane connected for each of the GDNs, our proposed approach will provide reputational incentives to improve performance.

Information provision and connection charging for distributed gas

Introduction

2.7. As set out above, for companies to play their role in meeting the broader environmental targets, we need to ensure that there are no regulatory barriers to entry for customers seeking to inject gas into the gas distribution network (comprising bio-methane as well as non-renewable forms of distributed gas such as shale gas). In this section, we set out our proposals with regard to connection charging arrangements, and the provision of information for distributed gas producers.

2.8. The Department of Energy and Climate Change (DECC) announced on 20 October 2010 as part of the government's Spending Review that the Renewable Heat Incentive (RHI[6]) will come into effect in June 2011. The RHI aims to provide long term support for renewable heat technologies in the form of payments to producers for the energy they generate.

2.9. Although there are only two grid connected bio-methane plants in the UK, the introduction of the RHI could lead to a rapid increase in the use of bio-methane as a renewable energy source. A number of recent studies have demonstrated the potential role for bio-methane to meet future space and water heating needs in a low carbon economy.[7] We would therefore welcome respondents' views on the expected take-up of bio-methane following the introduction of the RHI.

Information provision

2.10. It will be important for potential bio-methane plant to understand the costs of connecting to the network, and in particular which locations or situations may be more expensive than others.

2.11. We therefore propose to require the GDNs to provide common, simple, accessible and reliable information to meet the needs of all customers wanting to connect to the network, and we propose to set out this requirement in a new Licence Condition. We consider that this will help facilitate the connection of bio-methane (as well as non-renewable distributed gas).

2.12. We would like to hear from distributed gas developers about the information they would find useful to help them connect. We are keen for distributed gas developers to get involved in the process of designing the information provision to ensure that it meets their requirements.

2.13. In addition to the information provision, we are also proposing to extend the Guaranteed Standards for connection to distributed gas producers. We discuss our proposals in more detail in Chapter 6.

[6] More information on the RHI can be found on DECC's website here: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/renewable_heat/incentive/incentive.aspx

[7] See for example: Redpoint (November 2010) Gas Futures Scenario Project, Final Report.

Connection and use of system charging

2.14. We need to be certain that the current connection and use of system (UoS) charging arrangements do not create any barriers to entry for customers seeking to inject gas into the gas distribution network. We are also keen to provide flexibility within the price control to accommodate any potential changes to the current charging arrangements that might be made during the price control period.

2.15. The current connection charging methodology has the effect of a deep connection boundary for entry customers. This means all costs[8] of reinforcement upstream of the point of connection fall upon the customer connecting in an upfront connection charge. As part of these arrangements, currently the entry customer does not pay any UoS charges and there is no methodology in place to allow GDNs to recover charges from them.

2.16. The alternative to the current connection charging arrangements for entry customers (a deep connection boundary) would be to establish a 'shallowish' connection boundary. Under shallowish charging arrangements, customers pay a connection fee that includes the cost of any sole-use assets and a contribution towards the cost of reinforcing any shared-use assets.[9] Other network costs (eg operations and maintenance) are then recovered through ongoing UoS charges. There has been a shallowish connection boundary since 2005 for generators connecting to the electricity distribution network.

Potential changes to charging arrangements

2.17. GDNs are required[10] to keep their charging methodologies under review and to ensure that they properly reflect the costs imposed by (or saved by) customers on the network. We have written to GDNs requesting that they review their charging arrangements for entry customers.

2.18. One reason it may be important to introduce UoS charging arrangements for entry customers is if, as is the case in electricity, there are circumstances in which the GDN should be compensating an entry customer for the benefits it brings, for example by deferring the need for capacity related investment. Such arrangements would then ensure that bio-methane projects are properly rewarded for network benefits and make them more commercially viable. We have had discussions with our working group and with other stakeholders on this matter. These discussions have not identified any material network benefits associated with distributed gas that might need to be reflected in the current connection charges or UoS charges. However, this is something that requires further consideration by the GDNs, and we invite respondents' views on the findings from our discussions so far.

2.19. We have also been asked to consider whether we should exclude assets required to connect bio-methane from the connection charging arrangements. This would involve the GDNs carrying the full cost of bio-methane connections (including the cost of equipment associated with metering and bringing the quality of production to required levels, as

[8] We are not clear whether this includes all ongoing operation and maintenance costs for entry customers as GDNs have not reached agreement on this.
[9] This contribution to the cost of shared-used assets is set using an apportionment rule based on how much of the capacity of any reinforced assets will be used by the customer.
[10] In accordance with Standard Special Condition A5 para 2(a).

well as the cost of the connection pipework) and recovering these costs through use of system charges on demand customers (ie socialising these costs). The rationale for such a move would be the broader environmental benefits that are brought by bio-methane to society as a whole. However, we are not convinced that we have the vires to introduce such a cross subsidy through the charging arrangements, or that we would be able to defend this step against claims that it is discriminatory.

2.20. However, we would also welcome respondents' views on our proposed approach not to recover connection and downstream asset costs through general network charges. In particular, we would like to hear views on the potential rationale for socialising the costs of connecting bio-methane plant, and how we might be able to do this within our vires.

Changes to the connection boundary: funding mechanisms

2.21. In the event that the GDNs decide to move to a shallowish approach to charging for connections, expenditure undertaken by GDNs for entry connection that is not recovered from the connection charge will need to be recovered through the price control.

2.22. We propose to use one of the following mechanisms to ensure that GDNs are able to recover their efficient costs:

- **Option 1:** Logging up mechanism with ex post efficiency review - this would require the GDNs to keep accurate records of net expenditure on the entry connections and submit these annually to Ofgem as part of RRP reporting. At the end of the price control period an assessment will be carried out that will determine what costs will be included in future price control settlements.
- **Option 2:** Pass-through with incentive – this involves passing-through a percentage of GDNs' actual costs (net of customer contributions), with the remaining cost allowance based on the expected efficient cost of connecting distributed gas. We developed a similar incentive mechanism for the connection of Distributed Generation (DG) in electricity distribution at the last price control settlement (DPCR5).

2.23. Setting a pass through incentive would require a detailed understanding of the expected efficiency costs of connecting distributed gas. For DPCR5, the network companies were able to forecast costs of connection for DG which enabled us to establish the DG incentive mechanism. We do not consider that this is possible for RIIO GD1. Only two distributed gas producers have connected to the distribution network to date. These connections are presenting new challenges, and the industry is still in a development stage. As a consequence, the long run costs of connection for these customers are not yet known. We are therefore proposing to rule out developing a pass through mechanism and instead propose Option 1 of a logging up mechanism with an ex-post review. We invite respondents' views on our proposed approach in the event of a change to the connection charging arrangements.

Technical requirements

2.24. We also need to ensure that the technical aspects of connection charging arrangements do not discriminate[11] against bio-methane (and more widely non-renewable forms of distributed gas), and that the GDNs provide information to developers to enable them to understand the process of connection, and how the costs vary by location.

2.25. We recently held a workshop with government, industry and bio-methane producers to address technical issues with regard to the connection of bio-methane.[12] We propose to take forward the issues of concern to the bio-methane industry in a parallel process to this price review.

Shrinkage

Introduction

2.26. Shrinkage refers to gas which is lost from the transportation network. It is the dominant element of companies' business carbon footprint and accounts for more than 0.75 per cent of GB greenhouse gas emissions.[13] Shrinkage comprises leakage from pipelines (around 95 per cent of gas losses), theft from the GDN network (c. three per cent), and own-use gas[14] (c. two per cent).[15] Under the Unified Network Code (UNC), GDNs are responsible for purchasing gas to replace the gas lost through shrinkage,[16] and we fund companies to purchase reasonable levels of gas shrinkage in setting price limits.

2.27. In this section we describe the two mechanisms introduced at GDPCR1 to incentivise companies to reduce shrinkage, the shrinkage model and the Environmental Emissions Incentive (EEI), and potential changes to these mechanisms for RIIO-GD1.

An overview of the shrinkage allowance and EEI revenue[17]

2.28. For GDPCR1, we set a cost allowance for shrinkage based on a forecast volume of gas losses (expressed in GWh), multiplied by the day-ahead gas commodity price. The shrinkage allowance provides an incentive for GDNs to outperform the forecast volume of gas shrinkage. If GDNs reported shrinkage is below the allowed volume, they retain the cost saving. Likewise, if reported shrinkage is above the allowed volume, GDNs incur the cost of purchasing the additional gas.

[11] We do not consider entry connection should be treated differently to demand connections at this time.
[12] We have published the notes of the meeting, including the technical issues faced by the producers on our website. http://www.ofgem.gov.uk/Networks/GasDistr/GasDistrPol/Documents1/Biomethane%20Workshop%20Notes%20and%20Issues%20060810.pdf
[13] This is calculated using the government's reported statistics on total greenhouse gas emissions: http://www.decc.gov.uk/assets/decc/statistics/climate_change/1_20100325084241_e_@@_ghgnationalstatsrelease.pdf and the volume of Shrinkage which GDNs reported in 2008/9.
[14] Own use gas refers to that used for operational purposes on the GDNs' network. This is predominately heating water baths to heat gas to prevent pipes from freezing.
[15] Shrinkage does not include 'Unidentified Gas', which is gas lost on the supplier side of the emergency control valve through theft, unregistered sites or shipperless sites.
[16] http://www.gasgovernance.co.uk/sites/default/files/TPD%20Section%20N%20-%20Shrinkage.pdf
[17] These two mechanisms are set out in the network licences: Special Conditions Applicable to the Licensee (DN): Part E, Special Conditions E8 and E9.

2.29. By setting the cost allowance based on the day-ahead commodity price (as opposed to a forecast commodity price), we ensure that GDNs do not face any material price risks associated with fluctuations in the commodity price of gas.

2.30. The forecast volume of gas shrinkage is based on a model of the GDNs' networks ('shrinkage model'). The industry developed the model following extensive research into the relationship between network characteristics (eg asset age, pipeline material, system pressure etc.) and leakage levels. The model also includes a fixed assumption in relation to the level of theft and own use gas on the GDN networks. Under the GDNs' Licence Conditions, the GDNs need to obtain approval of their model from us, and any model changes are subject to consultation with shippers prior to our approval.[18]

2.31. During the price review, the GDNs first estimate and then calculate the modelled level of shrinkage on an annual basis, and GDNs purchase the modelled level of shrinkage and report this level to shippers.[19] As set out above, the GDNs incur the volume risk associated with deviations in the modelled shrinkage volume relative to the allowed level funded within the revenue cap.

2.32. In addition to the shrinkage allowance described above, at GDPCR1 we also adopted an Environmental Emissions Incentive (EEI) with regard to gas leakage (but not the theft or own-use elements of shrinkage). This mechanism ensures that GDNs also consider the carbon costs associated with gas leakage in managing leakage. If GDNs report leakage levels below the forecast level, the EEI allows them to capture the environmental benefit associated with the reduction in carbon emissions. Likewise, if the volume of leakage is higher than forecast, GDNs incur the associated environmental cost.

2.33. At GDPCR1, we adopted an incentive value of around £30/MWh based on the government's carbon valuation at the time.[20] This value reflects the fact that methane leaked to air has an associated environmental cost around 21 times the environmental cost of CO2 emissions.[21] However, to reflect the uncertainty with regard to setting leakage baselines and the high environmental value associated with methane released to air, we adopted a revenue cap and collar equal to ten per cent of the allowed level of leakage.

2.34. Taken together, the shrinkage allowance and EEI provide strong incentives for GDNs to undertake network investments (eg in terms of pressure management) where the cost of the investment is less than or equal to the expected savings arising from reduced gas purchase costs and the associated carbon cost. The overall framework ensures that GDNs have an incentive to attain the socially optimal level of shrinkage.

[18] Special Conditions Applicable to the Licensee (DN): Part E, Special Condition E9, para. 7.
[19] This report is done in two stages; an estimate is published at the start of the regulatory year to give shippers some indication of the shrinkage volumes. This estimate is based on the planned mains replacement works to be undertaken in the year. Then, at the end of the regulatory year, the actual details are inputted into the model once it is clear what mains replacement was actually undertaken.
[20] This was the shadow price of carbon outlined by the Department for Food, Agriculture and Rural affairs.
[21] http://www.decc.gov.uk/publications/basket.aspx?filepath=statistics%2fclimate_change%2f1_20100121130353_e_%40%40_listgreenhousegases.xls&filetype=4&minwidth=true

Current performance

2.35. To inform our proposals for RIIO-GD1, we have undertaken a review of the companies' performance over the last two years[22] with regard to the shrinkage allowance and EEI. Our analysis indicates that GDNs have achieved significant reductions in the volume shrinkage. In 2009-10 all GDNs beat their leakage and shrinkage allowances.[23] This resulted in the GDNs earning rewards under the EEI of approaching £8m pounds across all GDNs, with some licensees earning over £1m each (equivalent to a return of around 20 basis points on regulated equity).

2.36. From our discussions with GDNs, we understand that their outperformance is primarily a result of investment in improved pressure management. Investment in these systems by GDNs has led to a step change in performance against the shrinkage and leakage allowances. However, we expect GDNs' ability to outperform the allowed targets to diminish over GDPCR1, and indeed to diminish in subsequent review periods. We will need to be diligent in setting companies' shrinkage allowances at future reviews, and set challenging allowances to ensure that customers only finance reasonable gas shrinkage costs.

2.37. GDNs should submit forecast shrinkage and leakage baselines as part of their July 2011 business plans. In forecasting baselines, they should include the expected reduction in shrinkage from their proposed investment programmes (eg iron mains replacement; planned pressure management projects etc.). We will review the GDNs' modelling assumptions and forecast shrinkage before agreeing shrinkage allowances to be funded in price limits.

Proposed approach for RIIO-GD1

2.38. We propose to broadly continue with the existing shrinkage allowance and EEI incentive mechanisms for RIIO-GD1. The mechanisms provide strong incentives for companies to reduce their own carbon emissions, and contribute to the broader environmental objectives. However, we would like to consult on a number of potential changes to the way the mechanisms work, as we set out below.

Value of carbon: EEI

2.39. Since GDPCR1, the government has changed its approach to carbon valuation. At GDPCR1, DEFRA[24] recommended a social value of carbon of £25/tonne CO2 equivalent (CO2e),[25] and we adopted this value for the EEI. In April 2010, the same measure was adopted for the environmental aspect of the gas system operator incentive.[26] However, DECC has since changed its recommended approach to carbon valuation, and now recommends the use of a non-traded carbon value (based on the market value of

[22] Analysis of data from 2007/8 is not possible since GDNs were not required to establish their leakage model until 1 October 2008 and the leakage and Shrinkage targets for that year were partly based on a percentage of throughput and part GWh target.
[23] These figures were taken from the revenue reporting pack and revenue returns submitted by GDNs in July 2010.
[24] Department for Environment, Food and Rural Affairs.
[25] This was based on the shadow price of carbon outlined by DEFRA.
[26] We note that initial proposals for the environmental SO incentive for 2011 include a proposal to place a cost on all methane emissions from gas venting. This recognises the fact that there is an alternative to venting gas which can be used.

carbon) for carbon emissions outside of the EU Emissions Trading Scheme (ETS).[27] The non traded value is currently around £52/tonne CO2e.[28]

2.40. We propose to adopt DECC's non-traded value of carbon for the EEI for RIIO-GD1 to bring the EEI into line with government policy. The adoption of DECC's non-traded value would result in an approximate two-fold increase in the incremental reward/penalty associated with the EEI to around £66/MWh compared to the current value of around £30/MWh. We would welcome respondents' views on the proposed change.

Cap and collar: EEI and shrinkage allowance mechanism

2.41. As described above, at GDPCR1 the environmental emissions incentive was subject to a revenue cap and collar equal to ten per cent of the forecast cost of leakage. The ten per cent limit equated to a revenue cap and collar of around £11m p.a. for the industry as a whole. At the time, we considered the adoption of a cap and collar was prudent to reflect the uncertainty with regard to forecasting leakage allowance, and thus the potential for high rewards or penalties.

2.42. The potential change to the repex programme following the HSE review – which has implications for the GDNs' ability to forecast future gas losses with certainty – provides a potential rationale for retaining the cap/collar for the EEI. We also need to consider if we should introduce a cap/collar on the shrinkage allowance mechanism for the same reasons, ie to address uncertainty over the repex programme and to mitigate any potential windfall gains or losses from forecasting errors. The downside of introducing caps/collars is that this undermines companies' incentives to minimise losses when the cap/collar is reached.

2.43. We welcome respondents' views on whether we should retain a cap and collar for the EEI and introduce a cap/collar for the shrinkage allowance mechanism, and if so, the appropriate value of the cap/collar. We note that if we were to retain the same £ million limit on the cap/collar as at GDPCR1, and we were to increase the value of carbon as described above, we would need to lower the cap/collar to around +/- five per cent of the forecast leakage volume. We would like to maintain strong incentives on GDNs to reduce every MWh of leakage.

Rolling incentive mechanism ('roller')

2.44. We also invite respondents' views on whether we should adopt a rolling incentive mechanism (or 'roller') for the shrinkage allowance and EEI. A rolling incentive mechanism, which allows companies to retain the same number of years' worth of benefit (ie five years under the DPCR5 losses rolling incentive mechanism[29]) irrespective of the actual timing of the investment, can address the disincentive to undertake investments towards the end of the price review.

[27] The EU ETS only covers the electricity generation sector and therefore, gas not used for electricity generation is subject to non traded values.
[28] http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/1_20100610131858_e_@@_carbonvalues.pdf
[29] http://www.ofgem.gov.uk/Networks/ElecDist/PriceCntrls/DPCR5/Documents1/FP_2_Incentives%20and%20Obligations%20FINAL.pdf – page 34 & 35.

2.45. There are practical difficulties with such an approach. The adoption of a rolling incentive mechanism would require us to forecast companies' shrinkage volumes beyond the end of the price review to determine the associated reward or penalty. In doing so, we would need to make assumptions about the permanency of any reductions in shrinkage achieved in the latter years of the price review. To equalise incentives over the entire price review, we would also need to allow companies to retain outperformance for a period of eight years, ie equal to the price review period. This implies extrapolating performance on leakage to 2029.

2.46. We consider that extrapolating companies' shrinkage levels to 2029 would be difficult to do with confidence. We also note that the adoption of an eight year review period, allows companies on average to retain four years worth of benefits (compared to two and a half years on average for GDPCR1). For these reasons, we do not propose to adopt a rolling incentive mechanism for RIIO-GD1. However, we would welcome respondents' views on this issue and any suggestions others might have as to how a roller might work in this context.

Using actual shrinkage data instead of modelled shrinkage data

2.47. As described above, the reported level of shrinkage is based on a GDN's shrinkage model as opposed to actual shrinkage levels. The GDNs cannot currently observe actual shrinkage levels because of the way the settlement system in gas works.

2.48. The settlement system allocates total gas entry to the Local Distribution Zone (LDZ) to three broad customer classes: daily read meter (DRM) sites, large non-DRM sites, small non-DRM, as well as shrinkage (as a cost to the GDN). However, actual consumption data are only available for DRM and large non-DRM sites but not for small non-DRM (mainly households), as the meters are only required to be read every two years.[30] The settlement system therefore calculates small non-DRM volumes as the balancing item or the residual in the settlement system, and to do so, uses GDNs' estimated shrinkage volumes. These volumes are not updated retrospectively to take account of the meter readings. Therefore, the settlement system uses estimated values from which it is not possible to calculate shrinkage.

2.49. However, following the roll-out of smart meters, small non-DRM consumption will be known on a real-time basis. This should allow the GDNs to calculate actual shrinkage levels. The Government has set a target for all households and small businesses to have received a smart meter by 2020. It is expected that actual daily consumption data should become available over the RIIO-GD1 price control period and, by the beginning of the next price control period, it should be possible to consider an incentive that uses actual consumption data (whether or not this data is used as the basis of settlement).

2.50. We propose to put a Licence Condition on GDNs to ensure they collect the relevant data to calculate actual shrinkage, with the intention of using actual shrinkage data as the basis for the shrinkage allowance and EEI at future price reviews. Such an approach would remove any concerns about the accuracy of the current modelling approach to shrinkage. We are keen for GDNs to start discussions with suppliers in particular (who are responsible for the smart meter roll out) now to ensure that they can have access to such information. We welcome views on our proposal and invite respondents to set out

[30] Obligation under Standard Licence Condition 12.8 of the Gas Supply licence.

issues that may need to be addressed if smart meter data is to be made available to GDNs for this purpose.

Theft on GDN networks

2.51. We are aware that the fixed assumptions around the level of theft on GDN networks were the result of modelling work undertaken in 2002 and that there has been little testing of these since. We are keen for GDNs to undertake further work to reduce the level of theft on their network.

2.52. At present, the assumptions around the level of theft and own use gas are fixed for the course of the price control. We propose to included a mechanism within the licence to enable these assumptions to be updated within the price control period, should robust evidence become available that actions taken by GDNs have led to a material change in the volume of theft or own use gas on their networks. Individual GDNs will be able to use these revised assumptions to report their volume of shrinkage where they provide such robust evidence. Equally, if as part of the wider industry work[31] data emerges which challenges the fixed assumptions around theft on the GDN networks[32] (0.02 per cent of throughput), we expect proposals to be brought forward to update the fixed assumptions on which shrinkage is reported.[33]

Unidentified gas

2.53. There are a number of initiatives being introduced to identify and reduce unidentified gas in the industry as a whole.[34] These may identify more instances of theft in conveyance which GDNs are required, by licence, to investigate.[35] We consider that GDNs should be involved in developing improved arrangements for the detection and prevention of theft of gas.

2.54. Work is also taking place through an xoserve working group to tackle unregistered and shipperless sites.[36] In relation to unregistered sites, GDNs have a role in investigating these sites and seeking to recover charges from customers.[37] Consequently, we are considering whether to require GDNs to produce and comply with a code of practice outlining the processes they will put in place to locate such sites and the actions which would be taken once GDNs are notified of a potential unregistered site. This code should also set out the impact of GDNs' actions on customers and particularly vulnerable customers when they locate unregistered sites. It should set out how the

[31] We are aware that UNC mod 229 proposed the creation of an allocation of unidentified gas expert (AUGE). There may be new data from the AUGE which highlights the level of theft on the GDN network.
[32] For which the GDN is responsible.
[33] We would expect that any proposed changes would be fully supported by analysis and would be consulted upon with shippers and suppliers.
[34] These proposals include a National Revenue Protection Service (see www.gasforum.co.uk/nrps-workgroup for further details) and a Supplier Energy Theft Scheme (further details can be found at www.gasgovernance.co.uk/0277).
[35] GDNs are required to investigate when a supply may have been taken in conveyance. Where theft is identified, a GDN must seek to recover the value of the gas from the customer. These requirements are set out under Standard Licence Condition 7.1 and 7.2 of the Gas Transporter licence.
[36] An unregistered site is one that has been legitimately connected to the network but for which there is no shipper or supplier responsible. A shipperless site occurs where a shipper has withdrawn from a supply point but gas is still flowing through a meter. An xoserve working group is considering these issues and is due to report in early 2011.
[37] Depending upon the particular circumstances of individual cases, we consider that this is likely to be covered under Standard Licence Condition 7.1 and 7.2 of the Gas Transporter licence.

GDNs will work with suppliers to ensure that customers on such sites are offered a choice of supplier to contract with. It should also outline the steps GDNs will take to recover unpaid charges from such customers and actions it will take should customers refuse to contract with any supplier. We would also require GDNs to report annually on the number of unregistered sites they have identified and recovered charges from. We welcome views on the proposal for a code of practice for GDNs and ideas from respondents on the scope of such a code.

Business Carbon Footprint (BCF) excluding Shrinkage

2.55. The main elements of GDNs BCF relate to building energy usage, operational and business transport, fuel combustion, fugitive emissions[38] as well as distribution network losses or shrinkage.

2.56. We propose that GDNs report annually the CO2 equivalent emissions for the company (kgCO2e). We also propose to publish an annual league table of emissions to provide reputational incentives for companies to reduce their emission levels once we have established a standard reporting framework. The league table will exclude emissions associated with shrinkage as these addressed by the shrinkage allowance and EEI mechanisms (as discussed above).

2.57. We propose to work with the industry to develop a standard framework for reporting BCF. In doing so, we will draw on the existing CO2 reporting frameworks. For example, companies report carbon emissions under ISO 14001, and the climate change agreement (CCA), and we will seek to draw on these (and companies' own) existing reporting frameworks where possible. We will also draw on the reporting template that we developed with the electricity distribution companies as part of the electricity distribution price review (DPCR5).

2.58. We also propose to require companies as part of their business plan submissions to identify cost-beneficial schemes that reduce their BCF, and we will fund schemes which are well-justified. We will hold companies to account for the expected carbon abatement associated with these schemes by undertaking a review of the companies' performance against the expected outputs (in terms of CO2 reductions).

2.59. We do not propose to introduce a financial incentive for companies' BCF (excluding the incentive proposed in relation to shrinkage) but propose to rely on reputational incentives only. There are a number of financial incentives in place for companies to reduce emissions, including the EU's Emissions Trading Scheme (ETS), and the 'CRC Energy Efficiency Scheme' [39] which requires eligible companies (including some GDNs) to report and purchase carbon credits for metered gas and electricity use, and other fuel usage. These existing mechanisms capture a large share of companies' BCF, and we want to avoid duplicating the existing financial rewards/penalties.

2.60. We would welcome respondents' views on our proposed approach to companies BCF.

[38] Fugitive emissions refer to pollutants released into the air from leaks in equipment.
[39] Companies with half-hourly metered energy supply in excess of 6,000 MWh p.a, and fulfilling other criteria will be subject to the CRC. See: Environment Agency (undated) The CRC Energy Efficiency Scheme, User Guide http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/user_guidance/user_guidance.aspx

Other emissions and natural resource use

Introduction

2.61. In the working group discussions we identified the material categories of emissions and resource use as being land remediation, extraction of aggregates, spoil to landfill, and emissions to water. These measures have been widely debated through an Environmental Working Group (EWG).

2.62. We do not propose to set baselines or attach financial rewards or penalties to companies' emissions or resource use. This is for two main reasons. First, in most areas companies have to comply with legal obligations with regard to their emissions and resource use (eg land remediation and emissions to water). For example, companies' require a discharge consent from the HSE for discharges to water bodies, and they face enforcement action and potential fines where the consents are exceeded. Thus, companies face incentives to minimise environmental emissions through existing legislation (and enforcement action).

2.63. Second, the government has also introduced a range of environmental taxes on emissions/resource uses to incentivise companies to minimise their resource use, and to seek less harmful environmental solutions. For example, there is a tax on extraction of aggregate and a tax on spoil to landfill. We want to avoid imposing additional rewards or penalties in addition to the existing system of taxes and subsidies.

2.64. Although we do not propose to introduce financial reward/penalties, we will require GDNs to report their other emissions and natural resource use, and we propose to publish a league table of their performance. Our approach will provide reputational incentives to minimise resource use (in addition to legal obligations and taxes). Below, we discuss our proposed reporting requirements. We are particularly keen to understand from respondents whether they think this information is useful and whether it is proportionate for us to require it from companies on an annual basis.

Land remediation

2.65. Land remediation normally refers to land that has been used for industrial and commercial purposes and could be derelict and possibly contaminated, or could just require partial remediation. It can include Gas Distribution sites which are no longer in use, or where land can be utilised for other purposes. Remediation of a site involves the removal of all known contaminants to levels considered safe for human health, and redevelopment can only take place after all environmental health risks have been assessed and removed.

2.66. All reasonable costs associated with land remediation are funded through the revenue allowance. GDNs also have the incentive to remediate sites to a higher standard than that required by statutory requirements, where they can realise a higher land value (where the profits are retained by the GDN).

2.67. We will require companies to set out in their business plans a forecast for the expected number of sites to be remediated, for the following categories:

- those sites requiring routine monitoring and containment against statutory obligations (included in business plan cost allowances)
- additional sites remediated to low risk (included in business plan cost allowances)
- additional land remediation not funded within the business plan cost allowances but undertaken in response to stakeholder requests or for commercial reasons (eg for land sales).

2.68. We will compare the business plan baseline with the annual returns to ensure that companies have remediated the sites for which they were funded.

Extraction of aggregates

2.69. Aggregate extraction is the exploitation of non-renewable natural resources. The GDNs use aggregate primarily in the laying of distribution pipes in roads.

2.70. The use of aggregates is subject to an aggregate tax, which provides an incentive to minimise aggregate use and explore alternative materials such as re-used (or recycled) aggregates.

2.71. We will require GDNs to submit the expected cost of aggregate extraction and the expected amount extracted within their business plans, and to report on aggregate use in their annual regulatory return.

Spoil to landfill

2.72. GDNs produce waste of various types, including landfill from activities such as digging. Newer technologies, the need to conform to stricter legislation, and environmental regulations and taxes (eg the landfill tax) have obliged GDNs to begin to change their processes.

2.73. GDNs will include the expected cost of spoil to landfill (including the landfill tax) within their business plans. We also propose to require them to report on the annual tonnes of spoil as part of their annual regulatory return.

Emissions to water

2.74. Emissions to water occur in two ways: planned and unplanned emissions. When making a discharge to surface water (for example a river, stream, estuary or the sea) or to groundwater (including via an infiltration scheme) planned emissions are subject to environmental permits from the Environment Agency (EA)[40] (previously discharge consents). For discharges to the public sewerage system, GDNs will have a commercial arrangement with the local water and sewerage company. Unplanned emissions are incidents which are unforeseen (eg due to faults and breakdowns) and can vary widely in number and effect. Discharges without a permit are investigated by the EA and could lead to prosecution.

2.75. We propose that GDNs should be required to report annually on the following elements:

[40] Water Discharge Consents were replaced by Environmental Permits with effect from 6 April 2010.

- number of environmental permits obtained (and the consents)
- number of incidence reports/infringements, ie where they have discharged beyond their consents.

3. Customer service

Chapter summary

This chapter sets out our proposed framework for incentivising companies to be responsive to customers' needs. We propose to establish a broad measure of customer service that will incorporate a customer satisfaction score, a metric for how effectively complaints are dealt with, and an appraisal of companies' stakeholder engagement strategies. We propose to introduce financial rewards and penalties for the different elements of the broad measure to ensure companies continue to improve the services they offer.

Question 1: Are there any aspects of customer service provided by the GDNs not captured by the proposed broad measure?
Question 2: Other than those specified, are there any other customer-GDN contact experiences that should be captured in the customer satisfaction survey?
Question 3: Do you agree with our approach to introduce a financial incentive linked to the successful resolution of complaints?
Question 4: Do you agree with our proposal to introduce a measure associated with resolving complaints alongside the existing guaranteed standards?
Question 5: Should we retain the discretionary reward scheme, given our proposed stakeholder engagement mechanism as part of the broad measure?
Question 6: What interest groups should be considered when designing the customer satisfaction surveys and approach to assessing stakeholder engagement activities?
Question 7: Do you agree with the proposed size and structure of the financial reward/penalty associated with each element of the broad measure?
Question 8: Will the fact that we will not be consulting on the size of the dead band before the end of 2011 prove to be a significant issue for companies/showstopper for fast track agreements?

Summary

3.1. The existing measures of customer satisfaction for the GDNs suggest that they provide a reasonable level of service.[41] Our approach for RIIO-GD1 is to build upon the measures that are already in place. However, we propose to replace the existing Key Performance Indicator (KPI) reporting arrangements with measures typically used by consumer-facing businesses in competitive markets. We also propose where appropriate, to develop a consistent approach in how customer service is measured for both gas and electricity distribution.

3.2. We are proposing to set output targets that will combine to form a broad measure of customer service. This broad measure will assess companies' performance in three key areas:

- customer satisfaction
- complaints handling
- understanding and responding to stakeholders

[41] http://www.ofgem.gov.uk/Networks/GasDistr/QoS/Documents1/CSS%20analysis%20-%20post%20RIGs%20v4.1AUG.pdf

3.3. We also propose to introduce financial incentives for each of these elements to ensure appropriate management and shareholder attention on this aspect of the GDNs' performance.

3.4. We have developed these proposals through a series of working groups held with industry representatives and stakeholder groups, as well as other stakeholder forums, and our proposals for consultation reflect stakeholders' views.

Customer satisfaction survey

3.5. The survey will capture the views for all customer groups which experience a direct contact with the GDN. The customers included in the survey will comprise those that have:

- experienced a planned interruption to service
- experienced an unplanned interruption to service
- sought a connection (including ICPs/IGTs)
- contacted the network company via the emergency telephone line.

3.6. The above categories of GDN-customer contacts are currently monitored by GDNs and are broadly the same as those used to assess the performance of electricity distribution companies.

3.7. We note that the customer categories do not include the shipper/supplier customer class who will be covered in relation to the performance of xoserve (the provider of balancing and settlement services to shippers), as we discuss in Chapter 4. However, we would welcome shipper/supplier views on whether there are services provided by GDNs but not through xoserve, which they would like to be included in the GDN customer satisfaction survey.

3.8. We will determine an overall performance measure based on an aggregate of the score awarded for each of the categories listed above. We note that using only the volume of contacts under each of the above categories would heavily weight the overall score towards customers contacting the GDN via the emergency telephone line or those experiencing a planned interruption (which comprise around 90 per cent of all contacts), and underplay the importance of the other issues, such as unplanned interruptions (which can lead to significant discomfort for households, and costs to businesses). We will therefore consider assigning a weight to these categories on a different basis than just the volume of contacts, and we would welcome respondents' views on this issue.

3.9. The survey will capture customer's views on a range of aspects of service that are experienced by the customer, from initial contact to final resolution of the issue. The survey will monitor:

- the company's handling of their contact/service issue
- the outcome of the contact/service issue
- the level of satisfaction with the overall experience (potentially using advocacy scoring)
- reasons for satisfaction/dissatisfaction.

3.10. We propose to set a penalty and reward for the broad measure (comprising all three elements) of +/- one per cent of total revenues. This is equivalent to the financial incentive associated for the broad measure for electricity distribution companies at electricity distribution price control (DPCR5), which we consider provides a reasonable financial incentive for companies to continue to improve performance (and an appropriate penalty where they fail).

3.11. However, we propose to rebalance the financial penalty and reward associated with three elements to reflect differences between gas and electricity. We propose to set an a slightly narrower range for the financial incentive of +/- 0.5 per cent of annual allowed revenues for performance against the customer satisfaction measure, compared to the equivalent figure of +0.8/-0.5 per cent set at DPCR5. As we set out below, we propose to change the relative financial reward/penalty to other elements to retain the overall incentive of +/- one per cent of revenues.

3.12. As with DPCR5, we propose that the rewards and penalties will be based on a company's performance relative to the industry mean, with a dead-band (where we impose no penalty/reward) around the mean performance. We propose to establish the size of the dead-band based on customers' views on the acceptable level of performance relative to the mean during the trialling of the survey.

3.13. We will work with industry to develop and trial the survey during 2011. Where appropriate we will draw on the equivalent work that is currently being undertaken for DPCR5. Following the proposed trials we will consult by the end of 2011 on our proposal for establishing the size of the dead band. If we follow this timetable, the dead band may not be established ahead of any fast-tracking settlement. We seek views on whether this presents a significant issue for companies and is likely to be a show stopper for a fast-tracked agreement. We note that the dead bands associated with the equivalent incentive in DPCR5 have not yet been decided.

Complaints handling

3.14. We are proposing to introduce a complaint metric that will encourage the GDNs to manage customer complaints efficiently and resolve them to the satisfaction of the customer. This aspect of the broad measure is not intended to focus on the number of complaints a company receives per se, which can be influenced by factors beyond companies' control. Instead, the measure is designed to reflect (and improve) the effectiveness of the companies in handling the complaints that they receive.

3.15. Our proposed new measure draws upon the work we undertook for DPCR5 and reflects legislation that requires gas and electricity companies to comply with Consumer Complaints Handling Standards.[42] Under our proposed mechanism the network companies will be required to report performance against the following categories:

- percentage of complaints unresolved after 1 working day of receipt
- percentage of complaints unresolved after 31 working days of receipt
- percentage of repeat complaints
- percentage of ombudsman findings against the GDN.

[42] http://www.legislation.gov.uk/uksi/2008/1898/contents/made

3.16. We propose to attach a financial penalty (but not a corresponding reward) to this measure of - 0.5 per cent of annual allowed revenues. We will calculate a composite score based on each GDN's performance against each element. We also propose to introduce a dead band such that companies in the upper quartile of industry performance will not face a penalty. We will then apply the penalty on a sliding scale relative to the upper-quartile performance, with the worst performing company receiving the maximum penalty.

3.17. As with the customer satisfaction survey, we propose to work with industry to trial this approach during 2011, and we will also draw on lessons from trials undertaken by DPCR5.

Relationship with guaranteed standards

3.18. The GDNs' complaints handling performance is also subject to guaranteed standards. The standards require GDNs to pay compensation to each customer making a complaint where the GDN fails to provide a substantive response within 10 working days (20 working days if further information is required before responding). The compensation payment is £20 plus a further £20 for each subsequent period of 5 working days during which they fail to respond, up to a maximum of £100.[43]

3.19. We propose to retain the guaranteed standards alongside our proposed new complaints measure. This is for two reasons, first the Guaranteed Standards provide direct compensation for those experiencing a delay in receiving a response whereas our mechanism imposes a financial penalty on the company which does not benefit directly affected customers. Second, the working days allowed for response for the Guaranteed Standards are tighter than for the response times proposed for our new measure. For example, under the Guaranteed Standards, compensation is required if a response is not provided within 10 working days. Our proposed approach includes a measure of how many complaints are unresolved after 31 days. Our longer timeframe is justified on the basis that we wish to incentivise GDNs to satisfactorily resolve a complaint, rather than respond without necessarily resolving the issues. We propose to retain the standards to ensure that GDNs still face an incentive to respond promptly to complaints.

3.20. We note that GDNs paid out around £17,000 in 2009-10 in relation to Guaranteed Standards for complaints handling. This is a fraction of their overall revenue, and thus we do not consider that by retaining the standards GDNs will be exposed to excess financial risk. We welcome respondents' views on our proposals to retain the Guaranteed Standards as well as introduce the complaints handling mechanism.

Stakeholder engagement

3.21. This element of the broad measure is designed to encourage network companies to put stakeholder interests at the heart of their business. We want network companies to demonstrate that they have identified who their stakeholders are and that they understand their concerns and needs. They should also be able to demonstrate that they have considered their needs in the way they plan, run and evaluate their businesses.

[43] See Appendix 2 for payments made against the guaranteed standards in 2009/10.

3.22. Our proposed mechanism will reward companies that can demonstrate a genuine commitment to stakeholder engagement and show how this informs the development of business plans and strategies as well as internal processes and systems. Our proposed mechanism will not reward companies simply for carrying out stakeholder engagement activities.

3.23. We propose to attach a financial incentive to this element of the broad measure that will reward the best performing companies. We propose a reward only, with the level of the reward set at + 0.5 per cent of annual allowed revenues. As set out above, when combined with level of the incentive we propose to set for other elements of the broad measure, the total level of exposure for GDNs is equivalent to that set for network companies in DPCR5.

3.24. GDNs will be able to apply for the award on an annual basis. We are currently trialling equivalent arrangements for the electricity DNOs ahead of introducing the broad measure in 2012/13. We will use this trial to establish minimum requirements that the GDNs and the DNOs will need to fulfil in making their application. Submissions will be assessed by an independent panel who will also determine the level of the reward for each company up to the maximum reward of +0.5 per cent of revenues.

3.25. We will provide guidance on how we will assess companies' stakeholder engagement strategies but we will not set a detailed output target associated with the type or level of engagement.

3.26. As with the other elements of the broad measure, we will also draw on the experience from the trial of stakeholder engagement being run for DPCR5 in 2011 and 2012. We will run an equivalent trial for gas distribution in 2012, so that these arrangements can be in place for the first year of RIIO-GD1.

Interaction with Discretionary Reward Scheme

3.27. We need to consider whether the stakeholder engagement element of the broad measure replaces the existing Discretionary Reward Scheme (DRS) for GDNs. The DRS for GDNs has been run since 2008 and is a mechanism to provide annual rewards totalling up to £4m to GDNs for:

- initiatives which reduce the environmental impact of gas distribution, including those that reduce shrinkage
- initiatives which facilitate network extensions, particularly those that increase the affordability of network extensions for fuel poor consumers
- schemes to promote gas safety, including awareness of the dangers of carbon monoxide (CO).

3.28. To qualify for a discretionary award, we require network companies to set out the initiatives they have undertaken, and those that meet the minimum requirements set out by us are evaluated by an independent panel who decide on the level of the reward (if any).

3.29. We have proposed individual mechanisms in relation to those areas funded by the current DRS, eg with regard to companies' environmental impact (where companies can propose schemes which reduce their Business Carbon Footprint (BCF); receive a reward

for reducing shrinkage); a funding mechanism for network extensions; and, CO measures. In addition, the stakeholder engagement will provide a further funding mechanism across a broader scope of interventions where companies can demonstrate a consumer need.

3.30. However, we would welcome respondents' views on whether the DRS should continue to provide a funding mechanism for other specific activities. In relation to fuel poverty for instance, we recognise that there are circumstances where a connection to the gas main is not feasible or may not be the most appropriate long term sustainable solution. In these circumstances GDNs might still have a broader role to play within the industry to bring about the most appropriate energy solution to the fuel poor. We note that GDNs have embarked on a process of building relationships with agencies such as Eaga etc. and there may be a rationale for their role to change from just providing a gas connection to acting as a facilitator for bringing forward sustainable solutions to deal with fuel poverty amongst non-gas customers.

3.31. The DRS could help to incentivise behaviours on this and other issues. We welcome views whether we should retain the DRS, and its future potential role.

Summary of financial rewards/penalties

3.32. Overall, we propose to set a reward and penalty in relation to the broad measure at +/- one per cent of base demand revenue, the same overall penalty as set for DPCR5, and the proposed penalties/rewards described above achieve this. However, relative to DPCR5, we have rebalanced the apportionment across the broad measure, to place additional emphasis on stakeholder engagement.

3.33. Table 3.1 summarises our proposed financial penalty and reward associated with each element of the broad measure.

Table 3.1: Broad Measure Financial Rewards and Penalties

Component	Base demand revenue (%)	Application of penalty/reward
Customer satisfaction survey	+0.5/-0.5	Penalty/reward based on comparative performance, with dead band based on acceptable range of performance relative to mean
Complaints metric	-0.5	Penalty set on a sliding scale relative to upper-quartile company, with dead band above upper-quartile.
Stakeholder engagement	+0.5	Reward based on qualitative assessment of companies' by independent panel

4. xoserve

Chapter Summary

This chapter sets out the proposed framework for the review of xoserve. We propose to review xoserve and the services it provides in light of the significant industry change that is needed to accommodate smart metering. We suggest radical changes to the ownership and funding of xoserve may be needed and we invite views on the scope of the review.

Question 1: Do you agree with the scope and the timing of the review?
Question 2: Are there any issues with xoserve that we have not considered that you think are relevant to a review?
Question 3: Do you think xoserve will be able to deliver the requirements for the smart metering programme and Project Nexus?

Introduction

4.1. The industry relies upon the GDNs and National Grid Gas (NGG) National Transmission System (NTS) (collectively known as Gas Transporters (GTs)) to provide wider data services such as billing shippers for use of the transportation network, managing the booking of capacity on the gas distribution network, running the industry settlement systems and managing the change of supplier process. Following the sale of the four distribution networks by National Grid in 2005, an agency was needed to provide a common system and service interface between multiple network transporters and the industry, mainly shippers and suppliers.

4.2. xoserve fulfils the role of the agency on behalf of the GTs in accordance with the terms of the Agency Services Agreement (ASA).[44] The ASA details the services to be provided by xoserve and the service standards to be achieved. It also sets out the arrangements by which xoserve charges GTs for its services. GTs pay these charges using price controlled revenue.

4.3. We stated in our July open letter[45] that we had concerns about the quality of service and value for money that users receive from xoserve. We outlined that we will review the performance of xoserve and consider other governance and funding arrangements, such as the potential of more contracting out.

4.4. Since the publication of the open letter we have considered the scope of a review of xoserve. This chapter outlines our proposed way forward, taking account feedback to our open letter and recent industry developments.

[44] Which can be found on the Joint Office of Gas Transporter website at: http://www.gasgovernance.co.uk/Misc
[45] http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=232&refer=Networks/GasDistr/RIIO-GD1/ConRes

Background

Current funding arrangements – User Pays

4.5. At the last price control we introduced a new funding mechanism called 'User Pays'. This was introduced to improve incentives for GTs to be proactive with users in the services they offer via xoserve and to encourage users to consider more carefully the costs they impose when they ask xoserve for additional services.

4.6. Under this approach, regulated services provided by xoserve are classified as either Core services or User Pays services where:

- **Core services** - regulated services that it is appropriate to fund using price control allowed revenues. The costs associated with these are spread across all customers through gas transportation charges.
- **User Pays services** – regulated services that are appropriate to fund using charges levied directly upon the user(s) requesting the service. These are classed as excluded services under the price control.

4.7. We considered that this funding model would have the following benefits:

- GDNs and NGG NTS (xoserve) would have an incentive to enter into dialogue with users to provide additional services and respond to their needs due to the opportunity to earn additional revenue above their costs
- it gives users an incentive to manage the costs they impose on xoserve because they would pay for the additional services they request / use
- xoserve's cost forecasts include a significant amount of expenditure on an upgrade of UK-Link. User pays would help to make sure that the incremental capacity of these new systems is given to those who value it most.

Impact of User Pays

4.8. We want to review the extent to which the benefits of the User Pays model have been delivered.

4.9. There is some evidence that the arrangements have encouraged users to consider the costs they impose on xoserve when bringing forward code modifications. However, users are not at all satisfied that the arrangements have succeeded in encouraging the GTs to be more responsive to their needs. Overall feedback is that the User Pays model has not had the desired effect of removing the incentives on GDNs to block changes to control costs. Neither do users consider the ability of the supplier to pay for changes has provided sufficient incentives for xoserve to bring forward new services. ICOSS went as far to say that they considered the level of service provided to shippers had deteriorated since the introduction of User Pays. xoserve's own shipper customer satisfaction survey also indicates a decline in customer satisfaction following the implementation of User Pays. [46]

[46] Provided in accordance with Part 2 (14) of the ASA.

Support for smart meters and Project Nexus

4.10. Project Nexus was established by xoserve following the provision of funding in the last price control to replace many of xoserve's core systems. It is widely recognised that the processes related to settlements and switching will need to be substantially revised to meet the demands of the smart meter programme and widespread use of Automatic Meter Reading (AMR) in the non-domestic market. Project Nexus is currently establishing users' requirements.

4.11. In respect of the settlements functions, there appears to be a consensus emerging amongst shippers as to how they would expect future systems to operate to maximise the benefits of the investment in new metering technology. There is an expectation that new arrangements will overcome the limitations of the existing UK Link systems.

4.12. The Smart Metering Implementation Programme has signalled that xoserve's systems are likely to be on the critical path for the development of the Data and Communications Company (DCC) that will be essential for the timely deployment of smart meters. Although the scope of the DCC is still being considered, it is anticipated that system interfaces will need to be built between the DCC and xoserve to enable the DCC to manage access control for smart meters.

4.13. These are major change programmes that will impact the whole industry. There needs to be a high level of confidence in xoserve to deliver the necessary systems and processes on time and to specification. This may mean that xoserve will have to respond quickly to the requirements of the DCC and to enable UNC Code changes derived from the Project Nexus work. Complaints from shippers noted above suggest that the GDNs do not have a good track record in providing the quick response that is likely to be required.

Support for Independent Gas Transporters

4.14. One of the considerations in the establishment of the agency services at the time of the network sales was whether the new arrangements might facilitate a single service provider for all gas transporters, including IGTs.

4.15. Shippers have indentified the additional cost and complexity they face in having to deal with individual IGT systems and processes. There have been discussions between industry parties as to the viability of services for IGTs being delivered by xoserve using common UNC standards. To date that has been little progress. We would welcome views as to whether this is a desirable objective, and if so how it could be taken forward.

Industry review of xoserve services

4.16. The industry has initiated a review of xoserve under the UNC.[47] The review will examine the following issues:

- UNC processes for User Pays services and the funding

[47] UNC review group 0334: Post Implementation review of Central Systems Funding and Governance Arrangements http://www.gasgovernance.co.uk/0334

- comparison of electricity and gas services
- identify areas of best practice
- comparison of best practice with other sectors.

4.17. The aim of the review group is to assess the current funding arrangements for the User Pays model, identify areas of best practice as well as areas of improvement. The group will focus on short term solutions and whether lessons can be learned from other sectors. The group will also consider more fundamental reforms such as the scope for competition for some services.

4.18. We welcome the scope and timing of this review. The review group will provide recommendations to the UNC panel on what improvements can be made. The first meeting of the UNC review group was held on the 22nd November 2010 and is set to run for a period of six months. We expect the recommendations of these reviews to inform the work we intend to do in advance of concluding RIIO-GD1, which is explained below.

Our review of xoserve

4.19. As part of RIIO-GD1, we need to establish the level of funding that the GDNs should be given for the core services they provide through xoserve. However, we are keen also to take a look at the governance and ownership arrangements to assess whether they are appropriate given xoserve's role in the major industry change programmes noted above. It is not our intention, through this review, to consider the broader landscape of data services in the industry post smart metering. Our overall aim is to deliver value for money in core services, while ensuring that there are arrangements in place to ensure that the needs of users are met and the agency is responsive to (and does not hold up) the major industry change programme related to smart metering.

4.20. The review will draw on lessons in other sectors (eg GB electricity sector) and will consider alternatives to the current funding, governance and ownership arrangements. For example, we will consider whether there is merit in a model where xoserve is owned and governed by the industry at large, rather than the GTs only.

4.21. In reviewing the revenues that are required to deliver core services (including the cost of replacing xoserve's database UK Link), we will take into account the functionality that might be required to address the smart metering implementation plan (SMIP). We will also take into account the extent to which xoserve's core services will be transferred to the DCC as the smart-metering roll-out takes place.

4.22. We acknowledge there is an element of uncertainty on what the demands of smart metering will be on core data services into the future. We will need to think about how we handle this uncertainty in setting allowances for xoserve for the RIIO-GD1 period.

4.23. We allowed funding of £134.2m[48] for xoserve for GDPCR1 (2007-2013), representing less than one per cent of total allowed revenues. Given the small proportion of funding xoserve represents as a total of industry revenues, and the discrete nature of the services GDNs are required to provide, we propose to conduct the review of xoserve

[48] Gas Distribution Price Control Review Final Proposals: Supplementary Appendices, 3 December 2007 (page 53 to 60 table A7.1, A7.4, A7.7, A7.10. A7.13, A7.16, A7.19 and A7.22)

on a separate timescale to the main review. This will enable us to take into account the recommendations of the UNC review, as well as developments with regard to the smart metering roll-out and findings from xoserve's own review. We expect to set out our recommendations for the governance and funding arrangements for xoserve towards the end of 2011, with a provisional recommendation in the summer and firm recommendation in the autumn.

4.24. We would welcome respondents' views on the scope and timing of our proposed review, and the issues to be covered by our review.

5. Social obligations

Chapter summary

This chapter sets out the approach we intend to take in relation to two key social issues. One is associated with the provision of network extensions for fuel poor customers that are currently off the gas grid. The other relates to the activities of the network companies in addressing risks associated with carbon monoxide (CO) poisoning.

Question 1: Is the fuel poor network extension scheme still the most appropriate way to assist the fuel poor?
Question 2: Which is the best mechanism for delivering fuel poor network extensions?
Question 3: Are there other incentives or mechanisms we could put in place to play a role in delivering non-gas solutions?
Question 4: Is it appropriate to fund GDNs through the price control for their activities in relation to reducing risks of CO poisoning?
Question 5: Are there any identifiable output targets that could be associated with reducing CO poisoning risks?
Question 6: Are there any other social issues for which we should be setting outputs?

Introduction

5.1. In the July Open Letter we consulted on two social issues that we were considering to include in the scope of RIIO-GD1. These are the Fuel Poor Network Extensions scheme, where companies provide assistance to vulnerable customers connecting to the gas network. The second relates to CO poisoning and what the companies can do to help address the risks associated with it.

5.2. These are both important social issues that we are keen the network companies help address. We have not received representations to suggest the GDNs should be addressing other social issues. However, we invite respondents' views on whether there are other issues we should focus on.

Fuel poor network extensions scheme

5.3. The fuel poor network extensions scheme aims to help certain vulnerable customers by allowing them to switch fuels. It does this by providing funding to GDNs to connect vulnerable customers who are off the gas grid. For each connection, funding is capped at the present value (PV) of transportation income that a GDN expects to receive from each connecting customer. The GDN receives this funding at the end of the price control period where it is added to the Regulatory Asset Value (RAV). [49]

5.4. To administer the scheme the GDNs have formed partnerships with third parties who provide funding for the provision and installation of in-house appliances and central heating. The partners also provide an important role of identifying who is eligible for the scheme.

[49] A more detailed description of the mechanism can be found on page 6 of the Gas Distribution Price control review Initial Proposals Document – Impact Assessment Appendices

5.6. The scheme was introduced under the current price control and has proved successful in connecting vulnerable customers. We have considered whether the scheme is still the best way network companies can help these customers and whether it provides the best value for money for all customers.

5.7. We continue to believe that this is an important social obligation and one that should be reflected in our proposals for RIIO-GD1. However, we plan to keep the scheme under review to ensure that vulnerable customers are not left with a more costly energy solution. We recognise that the price of gas is subject to change and subsidies are becoming available for micro-generation and renewable heat schemes from the Renewable Heat Incentive (RHI). This could mean the cost of extending the gas mains becomes more costly relative to alternative heat sources over the price control period.

5.8. We understand there are also a number of supplier-led initiatives under development, like the Green Deal as well as amendments to CERT. These include provisions within the forthcoming Energy Bill for energy companies to reduce home heating costs which can be targeted to certain customer groups.

5.9. Circumstances have changed in other ways since the scheme was introduced. For instance, we have also received requests to connect Combined Heat and Power (CHP) plants under the scheme which would provide heating to communities. We will be looking into the practicalities of how best to address this in 2011.

Performance under the scheme to date

5.10. The GDNs have connected approximately 10,000 homes within the first 12 months of the scheme going live. With three more years left of the current price control we expect the connections to continue to increase far in excess of the 20,000 that were anticipated to be contacted over the whole of the current price control (2007-2013).

5.11. The current scheme to date has cost in the region of £15m across all network companies. As noted above, the connection costs (net of any contribution by the connecting customer) are funded through the GDN's RAV.

Suitability of the scheme

5.12. We need to ensure the scheme will continue to provide the best value for money for all customers over the price control period for RIIO-GD1. We are particularly keen to understand whether emerging alternative heating technologies may become cheaper over this period relative to the overall costs of extending the gas mains.

5.13. In light of this, we need to ensure that the scheme provides the right incentives to minimise the lifetime costs to fuel poor customers.

5.14. We also recognise that there may be a natural limit to the continuation of the scheme if the cost of connection increases over the next price control period. This would require more contributions from customers to cover costs over and above the allowance GDNs receive from the PV of transportation income. This in turn, may reduce the demand for connections over time.

Information provisions

5.15. We will track developments in the lifetime cost of different household energy solutions during the remainder of this price control review. We expect to undertake a study in 2014 to assess whether the scheme is still the cheapest method of assisting vulnerable customers. To do this, we will expect GDNs to provide information on connection costs and what fuels customers are switching from (sourced from their partners).

5.16. We welcome views and ideas from correspondents on how we capture this information and whether there are other incentives or mechanisms we could put in place to encourage the GDNs to play a role in delivering non-gas solutions. We discuss the potential for the role of GDNs to change in tackling fuel poverty in the DRS section of the document.

Funding mechanism for RIIO-GD1

5.17. The current price control contains a mechanism designed to incentivise and fund the extension of the gas networks to connect the fuel poor. We have concerns that this mechanism is too complicated and may be over-rewarding the GDNs for carrying out this activity. We are therefore proposing alternatives to this mechanism.

5.18. Our proposed alternatives to the current mechanism are summarised as follows:

- **Option 1:** An approach where the GDNs set out a policy outlining the circumstances under which they will undertake network extensions and as part of their business plan estimate the cost of complying with this policy. We would expect the GDN policy to define an appropriate output measure (eg in terms of the number of fuel poor households connected), and the required revenues to achieve the proposed outputs. If accepted, the GDNs would then be required to comply with this policy and expenditure in the area would be treated the same as other areas, ie subject to the efficiency incentive rate to improve delivery of the policy.

- **Option 2:** A simpler approach whereby the GDNs will be allocated an annual budget on a 'use it or lose it' basis to spend on connecting eligible customers under the scheme. This would not require the GDNs to outline a policy which they would be held to and it would ensure that customers are protected by the cap on spending in this area. This approach is similar to the undergrounding scheme in electricity distribution.

5.19. Option 1 has the benefit of providing GDNs with the freedom to develop their own policy. It would incentivise efficient delivery as we would agree an ex ante funding allowance and the GDN would be responsible for delivering defined outputs. GDNs would have an incentive to minimise costs as they would be able to retain any under spend, subject to the efficiency incentive rate.

5.20. Option 2 would require GDNs to propose the likely annual expenditure levels on the scheme for the annual use it or lose it allowance to be set. It has the benefit of providing greater certainty on what the costs of the scheme will be over the price control period. It is also very simple to administer.

5.21. Our current view is the Option 2 would provide the best funding mechanism as it will impose lower regulatory costs on us and the GDNs, and potentially represents a more proportionate approach given the relatively low levels of capital expenditure in this area. However, we would welcome respondents' views. With regards to option 2, we are also interested in views on the level of the annual.

Interactions with other government initiatives

5.22. We do not see network extensions as a stand-alone policy for assisting vulnerable customers. The present scheme relies on government initiatives to provide funding for in-home appliances and central heating so that customers are able to use their gas connection. We consider that these associated arrangements are still the most appropriate method of providing this assistance. We shall keep the qualifying criteria under review to reflect any changes in the government initiatives.

Carbon Monoxide (CO)

5.23. CO is a colourless and odourless gas that is produced when burning carbon fuels. CO presents a serious risk to public safety because it is normally undetectable, and can cause death, acute injury or chronic health problems. According to the HSE statistics around 20 people die each year from CO poisoning. There are also significant numbers of short and long term injuries caused by CO. CO poisoning incidents are generally related to faulty appliances, incorrect usage or poor ventilation conditions.

5.24. We believe that the GDNs have a role to play in reducing the risks associated with CO poisoning. We therefore propose to consider funding CO safety schemes for RIIO-GD1, provided they are well-justified.

5.25. During the last Gas Distribution Price Control (GDPCR1), we considered whether GDNs should be required to address CO gas safety within their wider emergency service activities. In our Final Proposals document we stated;[50]

" *Ofgem will set up a working group with specific terms of reference and timeframes to encourage the GDNs, GTs and other stakeholders to take ownership of the issues and further consider whether changes to operating practices and procedures are appropriate for FCOs attending a gas emergency. This could include any other CO initiatives that may be of overall benefit. The working group would be expected to make specific proposals with robust cost, benefit and consequential analysis that could then if appropriate be reviewed by Ofgem."*

5.26. Since Final Proposals, the GDNs have proposed a number of trials of CO safety schemes encompassing a range of different interventions. The proposed trials include:

- using GDN first call operatives (FCO) to issue and install CO alarms to vulnerable customers
- posting CO alarms to vulnerable customers (as determined by priority services registers)
- working with the local Fire and Rescue Services (FRS) to issue CO alarms on FRS Home Safety Visits and at FRS shopping centre events.

[50] http://www.ofgem.gov.uk/Networks/GasDistr/GDPCR7-13/Documents1/final%20proposals.pdf

5.27. We expect the GDNs to implement their proposed trials in the next few months and we will require GDNs to undertake an assessment of the viability of the proposed schemes during 2011. Working with the GDNs, we will then determine the way forward for GDNs to address CO safety issues during RIIO-GD1.

5.28. We also expect to draw lessons for RIIO-GD1 from Scotia's initiative to equip their FCOs with personal atmosphere monitors (PAMs) that detect CO in customers' property. We also expect companies to set out in their business plans the results of their stakeholder engagement in relation to CO safety issues, which we will draw-on to develop the most viable CO schemes.

5.29. We do not expect GDNs to include details on the costs of such schemes in their July 2011 Business Plan, as the outcome of the trials may not be known by then. However, we expect to agree to the roll out of any successful trials in time for companies' Final Business Plan submissions in mid-2012.

5.30. We will also work with the GDNs to identify relevant output measures. Where we can, we will seek to develop associated output measures and incentive mechanisms for the viable safety CO schemes. Depending on the outcome of the trials, prospective output measures might include:

- awareness of CO issues within their customer base, as measured through customer surveys
- CO related emergency calls attended
- CO identified - as a result of an internal gas escape report by customers
- number of visits made and the issues identified.

5.31. In relation to these issues, we would welcome respondents' views on whether we should fund CO safety schemes within the price limits. We would also welcome respondents' views on the development of prospective output measures.

6. Connections

Chapter summary

In this chapter, we set out a number of proposals for consultation in relation to the connections standards of performance that we introduced at GDPCR1, including whether we should: extend these standards to distributed gas customers; introduce additional standards; and the penalty payments and timeframes associated with existing standards. We also invite views on whether we should introduce regulated margins for gas connections, drawing on our approach for the DNOs at DPCR5.

Question 1: Are the current arrangements for charging margins in gas connections appropriate? Is there a need to introduce regulated margins for potentially contestable market segments for the gas connections market (as we did for electricity at DPCR5)?
Question 2: Are there market segments where competition works sufficiently well, where we should consider excluding these market segments from the guaranteed standards regime?
Question 3: What, if any, new standards do you consider are required to ensure that gas connections customers receive a good standard of service?
Question 4: Should we extend existing standards to distributed gas customers? We would also welcome views on whether any new service standards should be introduced for distributed gas, and whether we should revisit this issue during the price review (once the market has developed)?
Question 5: Should we change any of the existing standards' timescales, penalties, or caps on the penalties (for example, to bring them into line with the guaranteed standards in electricity)?

Background

Gas connections standards of performance

6.1. At GDPCR1, we introduced mandatory Gas Performance Standards[51] in relation to gas connections.[52] Amongst other standards of performance, these set out the requirement on Independent Gas Transporters (IGTs) and GDNs to quote for work and to complete works within specified timeframes. The standards also set out financial penalties for payment to customers where the GDN fails to meet the prescribed service standard.

6.2. Standard Special Licence Condition D10 (SSLC D10) requires GDNs to meet the connection service standards in at least 90 per cent of all cases. It also obliges GDNs to have in place a price accuracy review scheme, to allow customers a second opinion on connection quotations, and to annually audit compliance with SSLC D10.

6.3. The connection services that GDNs provide to some customer groups: gas suppliers, shippers, Independent Connection Providers (ICPs) and IGTs are not covered by the Gas Standards of Performance Regulations. However, we agreed with GTs to extend the connections guaranteed standards to apply to customer groups not covered under the

[51] The standards are set out in the Gas Standards of Performance Regulations.
[52] Guidance on standards of performance and standard special licence condition D10 http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=222&refer=Networks/GasDistr/QoS

regulations through a voluntary scheme. The 90 per cent performance benchmark does not apply to services covered under the voluntary scheme.

6.4. GDNs continue to perform well against the gas connections guaranteed standards. In 2009-10 they met the standards on 99 per cent of occasions.

Electricity connections: standards of performance and regulated margins

6.5. At DPCR5, we introduced Guaranteed Standards of Performance covering electricity connections. The electricity standards differ from those in gas in a number of ways (including the standards, timeliness of delivery, and associated penalties). We also allowed DNOs to charge a regulated margin in potentially competitive markets in order to promote competition in connections. We propose to consider whether we can draw lessons on our approach to connections policy for DPCR5 in developing our proposals for RIIO-GD1.

Our proposed approach for RIIO-GD1

6.6. We set out a number of issues for consultation in relation to gas connection services. These issues include whether we should: (i) introduce regulated margins to promote competition in potentially contestable markets; (ii) re-define the market segments covered by the connection standards; (iii) extend existing standards to distributed gas customers; and (iv) revise the standards timescales and penalties. We discuss these issues in turn below.

Market segmentation and regulated margins

6.7. At DPCR5, we were concerned that competition was yet to develop effectively in all parts of the electricity connections market and in most DNO regions many customers did not have an effective choice. In order to address our concerns, we undertook analysis of the electricity connections market to identify which market segments were potentially competitive but where competition had been slow to develop. The segments identified are shown in the table below. Those electricity connections market segments that we identified as potentially competitive are shown in italics.

Table 6.1: Gas and electricity market segments

Electricity	Gas
Small scale LV domestic connections 1-4 premises	Domestic new build low pressure
One off industrial & commercial single or three phase whole current metering	Domestic new build medium pressure
Other LV with only LV work	Domestic existing low pressure
LV or HV end connections that involve HV work	Domestic existing medium pressure
LV and/or HV connections involving EHV work	Non Domestic low pressure
EHV and 132kV customer connections	Non Domestic medium pressure
Generation with works limited to LV	Non Domestic Intermediate pressure
Generation with works above LV	Non Domestic local transmission system

6.8. For contestable services in potentially competitive segments, we allowed DNOs to charge a regulated margin (of four per cent) in order to provide more headroom to

facilitate the development of competition. We will also allow DNOs to charge unregulated margins in competitive segments where they can demonstrate that competition is effective and where they meet a defined competition test.

6.9. At GDPCR1 we allowed GDNs to charge margins for new housing and large non-domestic segments of the gas connections market.[53] We considered that in these markets GDNs faced effective competition which would limit the margins GDNs could charge. We explained that margins would be removed for connections to existing housing or smaller non-domestic sites where effective competition had not developed. For RIIO-GD1, we need to consider whether this approach to connection margins remains appropriate.

6.10. The market for gas connections is more competitive than the market in electricity. The 2009-10 Connections Industry Review (soon to be published) shows that the market share of new entrants in the gas connections market exceeded the market share of the GDNs in 2009-10. By contrast, market penetration of new entrants in the metered electricity connections market was only 13 per cent.

6.11. Table 6.1 shows the gas market segments we identified in the Connections Industry Review. This shows different levels of competition for different market segments. For example, competition is limited for connections to existing domestic customers. This is potentially related to the Domestic Load Connection Allowance ('DLCA') which requires GDNs to provide part of the connection free of charge. By contrast, for non-domestic customers, our analysis shows that 61 per cent of all non-domestic connections services were completed by non-incumbents.

6.12. Our analysis has also shown that GDNs performance against the gas connections standards was far better than the performance of DNOs for their equivalent standards, potentially related to the greater level of new entry in gas connection markets. In general, our concerns about the level of competition in gas are less acute than in electricity.

6.13. We would welcome respondents' views on whether the current margin arrangements in gas are appropriate. We would also welcome respondents' views on whether there are specific market segments that are potentially competitive but where competition has been slow to develop, and where the introduction of a regulated margin approach (as at DPCR5) might facilitate competition.

Market segments covered by the standards

6.14. We need to consider whether there are market segments for connection services where competition works sufficiently well such that consumers no longer require the protection afforded by the standards of connection. Currently there are three customer types excluded from the connection standards. These are:

- developments of 5 new build domestic or non-domestic premises (where there is no existing connection to the GDN's pipeline system)
- premises to which gas will be conveyed at more than a seven bar gauge (intermediate pressure customers)
- complex and excluded connections.

[53] Publication 125/07 – Gas Distribution Price Control Review – Initial Proposals Document 29 May 2007, p.12

6.15. Our analysis shows that competition in these markets is well developed: in 2009-10 88 per cent of connections to new domestic premises were completed by new entrants, and GDNs report that 50 per cent of intermediate pressure connections (or seven bar gauge and above) were completed by new entrants[54]. We invite respondents' views on whether there are markets segments where there is effective competition such that consumers no longer require the protection of connections standards.

New standards

6.16. We would also welcome respondents' views on whether we need to introduce any additional connection standards to ensure customers receive a good service. We have not identified the requirement for any specific new standards through our stakeholder engagement process. We note that the electricity guaranteed standards includes a standard covering the commencement of connections work on a date agreed with the network operator, which is not part of the gas connection standards.

6.17. We would welcome respondents' views on whether there are additional standards that would contribute to a continued improvement in the GDNs level of service and that would provide important additional protection to customers.

Standards for distributed gas

6.18. During the next price control period, we expect the market for distributed gas to develop. The current standards do not apply to distributed gas. We would welcome respondents' views on whether we should extend the existing standards to this customer class.

6.19. We consider there are two options for taking this forward.

- **Option 1:** GDNs could agree to extend the current voluntary scheme to gas entry customers. This would afford customers the protection of the standards but performance against the standards would not be included in GDNs' SSLC D10 compliance.
- **Option 2:** Alternatively, we could introduce a Direction that allowed gas entry customers to be recognised under the standards, which would mean GDNs' performance in relation to gas entry customers would count towards their performance in SSLC D10. This was the approach we adopted for extending standards to distributed generation in electricity at DPCR5.

6.20. Within our working groups, we have also discussed the development of additional connection standards for distributed gas to ensure that the market is served well. The GDNs' view is that they do not currently have sufficient experience of this customer group to identify any new standards, but they consider we should revisit the issue midway through the RIIO-GD1 period.

6.21. We would welcome respondents' views on whether we should extend existing standards to distributed gas customers. We would also welcome views on whether any new service standards should be developed for distributed gas, and whether we should revisit this issue during the price review (once the market has developed).

Consistency with electricity connection standards' timescale and penalties

6.22. There are a number of differences between the gas and electricity connection standards. With regards to timescales, we note that in most cases the timescales for meeting the standards in gas are more stringent than in electricity. With regard to penalties the picture is more mixed: with both higher and lower penalties in gas for similar standards. However, in gas there are currently caps on the penalties, where no equivalent caps exist in electricity.

6.23. We do not propose to change the standards unless there is clear reason for doing so. We would welcome respondents' view on whether we should bring any of the timescales or penalties in gas in line with those in electricity. We also invite views on whether we should retain the cap on penalties in gas.

6.24. We set out the full list of gas and electricity standards, and the associated penalties and timescales in Appendix 3.

7. Safety

Chapter Summary

This chapter sets out our proposed primary outputs and secondary deliverables for safety for gas distribution during RIIO-GD1. We also set out our proposals on how incentives should be applied to these.

Question 1: Do you have any views on the primary output and secondary deliverables for gas distribution safety including whether:
(1) these are the appropriate areas to focus on?
(2) there are any other areas that should be included?
(3) the performance of the GDNs in undertaking their maintenance programmes should be used as a secondary deliverable for reliability?
(4) you agree with our approach to changing the revenue driver for repex from length of main decommissioned to a volume driver of risk removed?

Question 2: Do you agree with the proposed approach of not imposing further incentives relating to safety?

Overview

7.1. The Health and Safety Executive (HSE) is the primary safety regulator for the gas networks in Great Britain, and we have set out proposals for safety outputs measures that are consistent with the HSE obligations. We have not sought to introduce output measures above and beyond the obligations set by the HSE. In most cases, the overall effect of the proposed output measures is that the GDNs will need to include in their annual reports to us, information to demonstrate their compliance with the HSE obligations and the safety case they have agreed with the HSE. Responsibility for ensuring compliance with these obligations, and taking associated enforcement action, rests primarily with the HSE.

7.2. As there are statutory requirements on GDNs to meet the safety standards established by the HSE we do not consider it is appropriate to apply incentives to the safety outputs (with the exception of arrangements relating to the mains replacement programme which is discussed below). In accepting the price control package, the GDNs will be agreeing that we have allowed them sufficient money to comply with their safety and other statutory and licence obligations.

7.3. Following the July open consultation letter,[55] in which we invited interested parties to signal if they would like to be involved in working groups to develop the outputs, the following parties have been engaged in the discussions at the safety and reliability working group meetings:

- Ofgem
- HSE
- All GDNs
- Centrica/Frontier
- Consumer Focus.

[55] http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/ConRes/Documents1/GDPCR2%20%20July%202010%20Open%20Letter%20FINAL.pdf

7.4. The working group considered the impact of the statutory requirements on the GDNs and in addition highlighted a number of additional safety outputs which they considered have direct impacts on customers. The primary outputs and secondary deliverables we intend to monitor are set out in Table 7.1.

Table 7.1: Summary of safety primary outputs, secondary deliverables and incentive mechanisms by output category in gas distribution

Output category	Primary output	Secondary output	Incentive mechanism	Contributes to…
Network Safety: Ensuring a safe network				
Mains replacement	level of risk removed	Gas-in-buildings; number of fractures; length of main off-risk. Asset health and risk metrics	Propose to use a revenue driver based on risk removed rather length of mains abandoned.	consumer interest
Emergency response	% uncontrolled gas escapes attended to within one hour; % of controlled gas escapes attended to within two hours	-	None – Requirement to comply with safety case/licence requirements.	consumer interest
Repair	Management of repairs: Time taken to complete repair by risk category	% preventions undertaken within 12 hours	None – Requirement to comply with safety case/licence requirements.	consumer interest
Major Accident Hazard Prevention	Gas Safety (Management) Regulations(1996) (GS(M)R) safety case acceptance by HSE; Control of major accident hazards (1999) (COMAH) safety report reviewed by HSE		None – Requirement to comply with safety case/licence requirements.	consumer interest

7.5. One of the most profound changes that we are proposing that is relevant to both safety and reliability is to introduce a requirement for a broader approach to asset management. This is discussed further in Chapter 9.

7.6. As highlighted by the HSE at the safety and reliability working group, the HSE requires the GDNs to reduce the level of risk arising from iron gas mains in close proximity to properties. This requirement has led to the GDNs agreeing a mains replacement programme with the HSE. We consider it is appropriate to introduce a primary safety output measure to reflect reductions in the level of risk arising from iron gas mains. We seek views on our proposal to change the existing revenue driver – which is based on the length and diameter of mains and number of service pipes replaced – and replace this with a mechanism that incentivises companies to seek the least cost way to reduce iron mains risk (eg through spray lining rather than additional main laying). We note, however, that the extent to which the companies can adopt such innovative measures will rely on them demonstrating to the HSE that this is an effective

alternative way of removing risk. The proposed secondary deliverables provide supporting information on the number of fractures and instances of gas in buildings. Further details are provided in the chapter on a broader approach to network risk.

7.7. The primary output measure for the emergency service is to attend 97 per cent gas escapes within one or two hours as currently set out in the GDNs' licences.

7.8. The other output measures proposed by the working group, in relation to 'Repairs' and 'Major Accident Hazard Prevention', are based on compliance with the HSE approved 'safety case'.

7.9. The following section provides background and context to setting safety outputs. We then present our proposed primary output and secondary deliverables and the reasons for these. Finally, we discuss the incentive framework for delivering these outputs.

Background and context to setting safety outputs

7.10. The GDNs are subject to a range of legal safety obligations. In the case of gas distribution, the GDNs must comply with:

- The Gas Safety (Management) Regulations that stipulate that the GDN must produce a safety case which describes how they will manage the gas network and how they will deal with emergencies. This safety case is subject to acceptance and routine inspection by the Health and Safety Executive (HSE).
- The Health and Safety at Work Act makes provision for securing the health, safety and welfare of persons at work and for protecting others against risks to health or safety in connection with the activities of persons at work.
- The GDN must also provide the HSE, the Scottish Environment Protection Agency (SEPA) and/or the Environment Agency (EA) with a risk assessment in accordance with the Gas Safety (Management) Regulations, Control of Major Accident Hazard (COMAH) regulations and the Pipeline Safety Regulations.

7.11. The HSE regulates the GDNs compliance with these requirements and is responsible for taking enforcement action and levying penalties where appropriate.

Primary outputs and secondary deliverables

7.12. Table 7.1 summarises our proposed safety outputs for RIIO-GD1.

7.13. The RIIO principles suggest that primary outputs should be material, controllable, measurable, comparable, applicable and legally compliant. In the case of safety outputs we consider that legal compliance is the most important of these principles and propose a number of primary outputs, in the areas of mains replacement and major accident hazard prevention, consistent with this.

7.14. We note that the HSE is the principal safety regulator and we consider it important to support, rather than duplicate their functions. This output is measurable (a GDN is either legally compliant or they are not) and comparable (GDNs must all abide by the same legislation).

7.15. It is our view that the primary outputs should not stipulate an exhaustive list of legislative requirements but refer to overall legal instruments such as the Gas Safety (Management) Regulation and the associated GDN safety cases. This will ensure that the primary output remains relevant should there be changes to the detail of these instruments during the price control period.

7.16. In developing the primary safety outputs the working group was keen to identify key GDN safety activities that interacted most with customers. The three activities that provided significant safety outputs and resulted in significant interaction with customers were:

- undertaking mains replacement
- carrying out the gas supply emergency service
- completing follow up repairs.

7.17. In developing the primary outputs the working group identified the key outcomes of each of the activities.

Mains replacement

7.18. For mains replacement the primary output from undertaking this activity is a reduction in network risk associated with the abandonment of iron mains. The level of risk associated with iron mains is consistently modelled by the GDNs and has been since 2002. The mains replacement programme is aimed at removing all iron mains within 30 metres of a property over 30 years, the '30/30 programme'. We have a good understanding of the relative performance to date in removing risk and the associated costs. We therefore consider that the primary output measure should be the risk removed under the Mains Replacement Prioritisation System (MRPS) modelling.

7.19. As discussed further below we consider that it is appropriate to revise the existing revenue driver so that allowed revenues vary in line with the level of risk removed rather than the length of mains abandoned. This provides the appropriate incentive on the companies to be more innovative and look for alternative methods of reducing the risk associated with iron mains which are approved by the HSE. If the GDNs are able to successfully develop new methods, agree them with the HSE and implement them they may earn significant additional returns under the cost incentives.

7.20. We consider that the GDNs should be required to report their performance against a number of secondary deliverables including the number of incidents of gas in buildings and the number of mains fractures. As some of these measures are lagging indicators of network safety we are also looking to support these by asset health and risk metrics. This is an important part of looking for the GDNs to move to a more holistic approach for asset replacement. Further details on the asset health and risk metrics are set out in Chapter 9.

Emergency Service

7.21. The primary output for emergencies is linked to the GDNs' licence requirements to attend 97 per cent of uncontrolled gas escapes in one hour and 97 per cent of controlled

gas escapes within two hours.[56] The GDNs have highlighted that achieving these targets throughout their geographic areas 24 hours a day, 7 days a week is a principal cost driver for their emergency business driven by geographic location of staff and resources.

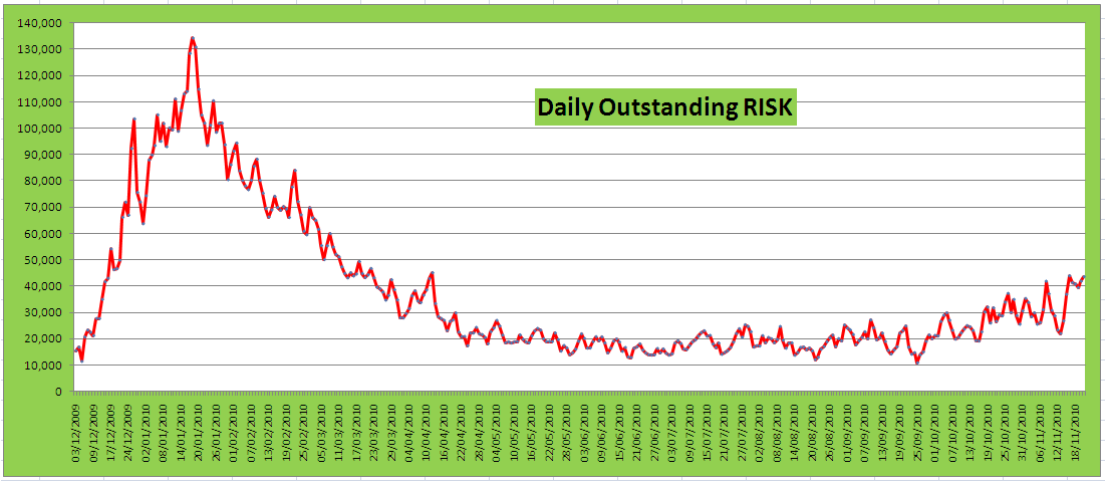
7.22. We therefore consider that monitoring compliance with the licence obligation is a key output of the emergency service for RIIO-GD1. We do not propose any additional incentives in this area.

Repair

7.23. For the repair activity we have looked to develop a primary output around a repair risk score for a GDN which considers how the GDN manages the risk associated with outstanding gas escapes. We have looked to develop an output that considers the GDNs' performance on completing repairs to gas escapes on an annual basis which will then provide longer term information on each company's performance.

7.24. The following graph provides an example of how the daily outstanding risk associated with repairs varies through the year for a GDN, with the highest level of daily risk occurring in the winter months and a corresponding lower risk score in the summer, driven by the lower volume of public reported gas escapes (PREs) and repairs.

Figure 7.1: Annual risk profile associated with repairs



7.25. The risk levels presented in Figure 7.1 are a measure of the daily risk imposed by any outstanding gas escapes. At the start of each day the GDN's assess the risk of their outstanding gas escapes. Each escape is scored taking into account factors such as mains pressure, type of ground and proximity of buildings. The scores of each of the outstanding escapes are then added together to present a cumulative risk score for each day, which is presented in the graph. The measure itself differs between GDNs, and is agreed individually with the HSE, but overall the value is a number that represents the risk of a gas incident occurring.

7.26. The area under the graph represents the aggregated or accumulated risk over twelve months. By comparing the GDNs' performance year on year and considering

[56] Standard Special Condition 10 of the Gas Distribution licences.

inter-GDN comparisons we will be able to understand how the GDNs are managing the risk associated with their repair activity.

Major Accident Hazard Prevention (MAHP)

7.27. We propose that the appropriate primary output for major hazard prevention is compliance with the existing safety requirements which are set out in legislation and monitored by the HSE.

7.28. The GDNs have scheduled annual inspections and maintenance programmes which form part of their MAHP plans. They suggest that we should put in place a secondary deliverable considering how the GDNs perform relative to their planned programmes. The measure would therefore be the percentage of completed maintenance and inspections versus the GDN's target at the start of the year.

7.29. We consider that undertaking maintenance is more of an input measure than an output and have not included it as a secondary deliverable at this stage. However, the maintenance of the GDNs' key assets is a significant cost activity undertaken by the GDNs in order to maintain network reliability. The level of this activity is arguably not that well covered by the primary output. We would welcome views on whether the performance of the GDNs undertaking their maintenance should be used as a secondary deliverable.

Incentives

7.30. We do not propose to attach financial incentives to the primary safety outputs as the businesses are incentivised by other agencies and mechanisms (the HSE and legal obligations). For example, GDNs face possible legal action (including criminal sanctions) if they do not comply with relevant legislation.

7.31. As HSE is the principal safety regulator we consider it important to support, rather than duplicate, their functions. We envisage that our strong bilateral engagement, developed through the RIIO-GD1 consultation process, will be ongoing so that:

- the HSE can continue to assist Ofgem to understand the safety obligations that the businesses have, so that Ofgem can take a view on efficient costs of safety obligations in price controls
- Ofgem can assist the HSE in quantifying the efficient cost of its current and proposed safety requirements, so that the HSE can appropriately take account of these costs in assessing regulatory options and proposed safety cases.

7.32. At the Price Control Review Forum (PCRF), it was noted that additional financial penalties beyond those imposed by other agencies and mechanisms could be applied. These additional penalties would largely replicate the reputational and financial damage that a competitive firm may suffer from not meeting its legal safety requirements.

7.33. Our initial view is that it is not appropriate for us to apply further penalties on the primary output beyond those imposed by other agencies. In deciding on a penalty to impose on any business, the relevant agency (be that the HSE or a court) will take into account several factors including the impact on the public as well as the degree to which the penalty should act as a disincentive for future poor performance. A court would have

regard to the degree of reputational and financial damage suffered by the business. We are also concerned that, in cases where a penalty has not yet been imposed on the business (for example in the case of criminal sanctions), it could also place Ofgem in a position of pre-empting the decision of the relevant agency.

7.34. We discuss our approach to secondary deliverables for asset health, criticality and risk in Chapter 9.

8. Reliability

Chapter Summary

This chapter sets out our proposed primary outputs and secondary deliverables for reliability during RIIO-GD1. We also set out our proposals on how incentives should be applied to these.

Question 1: Do you have any views on the primary output and secondary deliverables for gas distribution reliability including:
(1) whether these are appropriate areas to focus on?
(2) whether any other areas should be included?
(3) whether it is appropriate to remove the cap on the guaranteed standard for supply restoration and change the level of payments?
(3) the appropriate form of secondary deliverable on the time taken to address network faults?
(4) whether there should be a secondary deliverable associated with offtake meter errors?
Question 2: Do you agree with the proposed approach to reliability incentives?
Question 3: We would welcome respondents' views on our proposal to require GDNs to develop their approach to valuing interruptible capacity to include a real option value, and views on how to achieve this.

Overview

8.1. The gas distribution safety and reliability working group was tasked with developing a set of primary outputs and secondary deliverables to provide clarity to GDNs and other stakeholders on the way that reliability performance will be assessed and used to incentivise delivery of outcomes for RIIO-GD1. The working group has examined outputs proposed by Frontier Economics[57] as well as those included in current incentive schemes. There are several key areas which have been considered associated with the reliability of the gas distribution networks:

- loss of supply and the associated condition of the network
- the level of capacity that is provided and the utilisation of that capacity
- network reliability relating to faults repairs and offtake meter accuracy
- records and network data accuracy.

8.2. Our proposals for primary reliability outputs and associated secondary deliverables are summarised in Table 8.1 below. One of the most profound changes that we are proposing that is relevant to both safety and reliability is to introduce requirement for a broader approach to asset management. This is discussed further in Chapter 9.

[57] Frontier Economics, RPI-X@20: Output measures in the future regulatory framework, May 2010.

Table 8.1: Summary of reliability primary outputs, secondary deliverables and incentive mechanisms by output category in gas distribution

Output category	Primary output	Secondary output	Incentive mechanism	Contributes to…
Reliability: Ensuring a reliable network, and adaptation to climate change.				
Loss of supply	The Number & duration of interruptions disaggregated by cause (excluding large events)	Asset health and risk metrics	Primary output incentivised as part of Guaranteed Standards. Secondary output incentivised by ex-post review of performance against target health index	Consumer interest/secure supply
Network capacity	Achieving 1:20 obligation	Asset utilisation/capacity charts	Ex-post review of asset utilisation against target utilisation index.	Consumer interest/secure supply
Network reliability	Maintaining operational performance	No. & value of off-take meter error reports; Fault/Duration measure	None – reputational incentive only through reporting on performance	Consumer interest/secure supply
Records and data accuracy	Maintaining network records	% of mains records updated within 42 days; No. of third-party reports on mains location (DR8).	None - reputational incentive only through reporting on performance	Consumer interest/secure supply

Loss of supply

8.3. We propose that the number and duration of supply interruptions should be our primary output measure relating to loss of supply. This should be disaggregated between planned and unplanned interruptions, those unplanned interruptions relating to third-parties and water ingress and unplanned interruptions relating to failure of GDN equipment. We also consider that GDN reporting on loss of supply should separately identify smaller and larger interruption events.

8.4. Loss of supply is, however, a lagging indicator of network reliability. We will ensure the long-term delivery of primary outputs through secondary deliverables relating to asset health and risk metrics. Although the use of the asset health and risk metrics are highlighted as a secondary output for loss of supply they are actually wide ranging, potentially encompassing elements of safety, reliability and environmental. These secondary deliverables are a very important part of our proposals and are aimed at giving the GDNs strong incentives to innovate to find the long term least cost way of providing the reliability customers value. More discussion of our approach to developing asset health and risk metrics is set out in Chapter 9.

Supply interruptions

8.5. There has been extensive discussion in the Safety and Reliability working group as to whether the number and duration of supply interruptions are an appropriate primary output measure or whether we should be focusing on the associated secondary deliverable. The GDNs have highlighted concerns with regards to controllability of interruptions on their networks. GDNs have explained that the electricity DNOs' customers experience significantly more minutes lost due to supply interruptions than on the GDNs' networks. For this reason, one off major supply losses have a much more material impact on the overall performance of the GDNs. They propose that incidents over 250 customers should be excluded from any output measure.

8.6. We recognise that there are limits on the controllability of interruptions on gas distribution networks, that unplanned interruptions occur much less frequently than in electricity and that they are potentially more volatile as large events may dominate overall interruptions in any one year. For these reasons we are not proposing to introduce a financial incentive on the number and duration of interruptions (along the lines of the Interruptions Incentive Scheme (IIS) in Electricity Distribution). We intend instead to rely on the existing Guaranteed Standard on supply interruptions which requires GDNs to restore customers' supplies within 24 hours following a supply interruption. They are required to pay domestic customers £30 (small non-domestic customers £50) where they fail to achieve and further payments of the same amount for each additional 24 hours until supply is restored up to a cap of £1000.

8.7. However, it is important that the GDNs have a sufficiently strong incentive to restore customers' supplies promptly when such interruptions occur. We are therefore considering whether it is appropriate to increase the level of payments under the standard, or whether we should remove the cap.

8.8. We recognise that larger events may have a much larger relative effect on the overall number and duration of interruptions than in electricity distribution. We are requiring such incidents to be reported separately. However, it is important that companies take appropriate steps to manage the risk associated with such supply interruptions both before and after the event. All GDNs should provide additional details of any larger events that occur during the year as part of their annual reporting. We also consider that as part of the work on the development of secondary deliverables associated with network health and risk that companies develop appropriate risk metrics associated with large events and consider how best to manage such risks. We would welcome views on how this is best achieved and also on the appropriate threshold for larger events.

Asset health

8.9. We propose an incentive framework for asset health (secondary deliverables) that will require the GDNs to demonstrate how their expenditure is linked to managing network risk both at the beginning and end of the price control period. We will undertake a performance assessment at the end of the period to determine whether the GDN has performed satisfactorily and delivered the level of asset health related network risk it agreed to deliver over the course of RIIO-GD1.

8.10. We will consider applying financial penalties in cases where there is a material under-delivery against the output target. We will also consider applying a reward for over-delivery where there the incremental outputs provide a clear benefit to consumers.

8.11. As an alternative to applying a penalty or reward, we could adopt the output performance level at the end of RIIO-GD1 as the starting point for RIIO-GD2. In this case, any shortfall in delivery of outputs during RIIO-GD1 would be funded by the GDN during RIIO-GD2. Equally, any over delivery would give the company a 'head start' against its targets for the RIIO-GD2 period.

8.12. This framework will ensure that the delivery of primary outputs in future periods is not put at risk by a failure to deliver a suitable level of asset health and risk at the end of the current price control period.

8.13. The secondary deliverables we propose will encourage the GDNs to improve the way that they plan and operate their networks and to find the least cost long term solution to providing reliability. In the absence of an incentive framework on these asset health and risk metrics, GDNs may be incentivised to defer expenditure in replacing assets and customers may end up paying more than necessary for a reliable network.

8.14. We propose that the framework for secondary deliverables should build on what was implemented for network output measures as part of DPCR5. As part of this framework we will ask GDNs to set out in their business plans their views on asset health, criticality and replacement priorities at:

- the start of RIIO-GD1 effectively reflecting the GDN's view on the current condition, risk and replacement priorities of the network
- the end of RIIO-GD1 with no intervention, effectively reflecting the GDN's view on asset degradation over the period
- at the end of RIIO-GD1 with investment as proposed in their well-justified business plan.

8.15. We propose conducting an outputs assessment at the end of RIIO-GD1 and will consult on the outcome as part of the RIIO-GD2 process. The purpose of the performance assessment will be to determine whether or not a GDN has satisfactorily delivered a package of secondary deliverables consistent with the change in the level of risk agreed through the RIIO-GD1 settlement.

8.16. For example, we will ask the GDNs to describe the asset management decisions made during RIIO-GD1 and provide evidence of the impact on these secondary deliverables. The onus will be on the GDNs to justify that they have delivered a package of outputs consistent with the agreed change in the level of network health and risk metrics.

8.17. We will then assess the efficiency and efficacy of the asset management decisions taken by the GDNs. If we determine that a GDN has not satisfactorily met its outputs forecast, financial consequences will apply at RIIO-GD2. If we determine that a GDN has delivered over and above what they forecast for RIIO-GD1 and that this is in the best interest of consumers, they may be rewarded, potentially through setting the assumed starting level of risk at the start of RIIO-GD2 at a higher level than the risk achieved for the purposes of the price control.

8.18. We consider that network resilience is one of the areas that should be captured by GDNs as part of the development of asset health and risk metrics. If they are proposing significant expenditure in these areas over and above that proposed by government they should be setting out and be prepared to commit to outputs or secondary deliverables in return for the associated allowed revenues. An example of this is flood prevention where we would expect to see the benefits of investment in flood prevention schemes reflected in the GDNs' targets for the level of risk on the network.

Network capacity

8.19. There is general support in the working group for the primary output on capacity being the requirement to meet peak customer demand on a one in twenty winter day. In the past this has been a key driver of network expenditure in the context of growing demand, but the initial forecasts by the GDNs suggest that this is less significant in RIIO-GD1 due to the recession and declining demand. However, there may still be a need for additional capacity in a number of regions where capacity is more constrained.

8.20. Where GDNs have evidence that peak demand is likely to outstrip capacity the GDNs' have three main options. These are: reinforcing their own network assets, purchasing rights to take gas from the national transmission system (NTS exit capacity), and purchasing rights to interrupt gas supplies to customers connected to their networks.[58]

8.21. Our approach to capacity availability outputs is to ensure that in meeting their one in twenty peak day requirement the GDNs have the incentive to deliver the appropriate balance between all types of capacity. In conjunction with the GDNs, we intend to develop secondary deliverables for the availability of capacity on their networks. We also intend to consider how the price control arrangements and other aspects of the regulatory and commercial framework provide GDNs with the incentive to deliver capacity availability at the best value for gas customers.

8.22. The key aspects of the regulatory framework that we are reviewing are: the cost sharing factors applied to different types of expenditure; any barriers to efficient capacity availability decisions caused by the interaction of the gas distribution and gas transmission regulatory regimes; and the role of demand forecasting in planning capacity availability.

8.23. In their business plans we would expect the GDNs to provide evidence that they have considered all options for investing in additional capacity and also that they have considered the impact of alternative plausible demand scenarios on the plan. Allowances for expenditure on capacity will be linked to the quality of evidence provided in the business plans.

Developing output measures

8.24. We are working with the GDNs and the National Transmission System (NTS) to develop appropriate capacity output measures though a capacity working group.[59] We

[58] Interruptible capacity contracts which provide the customers with a discount from transportation charges in return for agreements to be interrupted when requested by the distributor.
[59] Meeting notes and slides from the group can be found on our websites: http://www.ofgem.gov.uk/Networks/GasDistr/RIIO-GD1/WorkingGroups/Pages/WG.aspx

are looking to put in place both output measures for baseline capacity availability and capacity utilisation on GDN networks. Any output measure(s) will need to take into account all types of capacity whether it be additional network capacity, storage, NTS exit capacity or interruptible capacity. The measures should capture capacity availability for each of the entry zones into the GDN networks. The group will continue to meet between now and the publication of our strategy decision document in March and we will publish our decision on output measures for capacity availability in the document.

8.25. With regard to providing network capacity, we will seek to introduce a mechanism to encourage GDNs to strike the right balance between taking the steps required to ensure they meet the one in twenty winter requirements while avoiding investing in capacity which is subsequently redundant (eg because of optimistic demand forecasts). We are interested in stakeholder views on whether we can identify meaningful network capacity output measures to assess, on an ongoing basis, whether companies are achieving (or over achieving) the one in twenty winter peak day security standard. We are considering constructing a load index across the different asset categories where the observed load is weather adjusted to reflect the one in twenty winter peak day standard. We note that GDNs are forecasting relatively low levels of load related capex over the forthcoming price review following the reduction in gas consumption during the recession.

Equalisation of incentives across different types of capacity expenditure

8.26. To ensure that GDNs have the appropriate incentives to make efficient decisions in providing additional capacity it is important they will gain (lose) the same proportion of any overspend (underspend) for all types of expenditure. If there are differences in the marginal incentives for expenditure on different types of capacity then there might be circumstances where the most efficient capacity investment decision is not the one that provides the best financial return for the GDN.

8.27. We therefore intend to ensure that the marginal incentive rates for each type of capacity expenditure, whether this be opex or capex,[60] is the same. This would signal a difference from the current arrangements where there are different marginal incentive rates for interruptible capacity contracts and expenditure on NTS exit capacity.[61] This is consistent with our views on equalising incentives across all types of expenditure which we outline in more detail in 'Supplementary annex: Business plans, proportionate treatment, and efficiency incentives.'

8.28. We are also looking to put in place appropriate incentives for the GDNs to meet network capacity requirements through either own-network capex solutions, NTS exit capacity or interruptible contracts. We have highlighted to the GDNs that there are a number of areas of the existing commercial arrangements which can be improved to deliver more efficient capacity management. We have noted that improvement could be made in the measure of capacity used in calculating transportation charges and some aspects of the methodology used by the GDNs to contract for interruptible capacity.

[60] Expenditure on interruptible capacity is currently treated as opex.

[61] Either approach would be different from the approach at GDPCR1 where, because of the uncertainty about the introduction of new arrangements for contracting for interruptible capacity and booking NTS exit capacity, it was necessary to have separate expenditure allowances for different types of capacity expenditure. Different marginal incentive rates were applied to the separate allowances.

8.29. We propose to require companies to consider the inclusion of a real option value within their methodology for determining the value of interruptible capacity so that the interruptible contract price properly reflects the uncertainty surrounding gas demand and the useful lives of gas networks. One possible approach to determining the option value would be to draw on future scenarios for gas flows on the gas distribution network and network assets' economic lives, and derive an option value based on expected probabilities of these different outcomes. Alternatively, we could implicitly include an adjustment for uncertainty by using a shorter asset life assumption in deriving the value of interruptible capacity. This is also a potentially simpler approach. We would welcome respondents' views on our proposal to require GDNs to develop their approach to valuing interruptible capacity to include a real option value, and views on how to achieve this.

8.30. In their business plan companies should consider how changes to the commercial arrangements might affect their investment plans.

Interaction with the NTS

8.31. To deliver their one in twenty peak day requirement at the best value for customers the GDNs need to make the best decision, using the information available at the time, between the different types of capacity provision. In some cases the most efficient solution available to the GDNs to secure additional capacity is to purchase NTS exit capacity. This would be where the charges for booking additional capacity that is already available on the NTS or where the provision of incremental NTS capacity is better long term value for customers than the other options available to the GDNs.

8.32. We consider that it would be appropriate for National Grid Gas (NGG) and the GDNs to make explicit consideration of optimising investment efficiency across the NTS/GDN interface in formulating their business plans. The current Unified Network Code (UNC) arrangements do not allow GDNs to signal a willingness to pay for additional NTS flexibility capacity. This has the potential to inhibit coordinated investment efficiency across the integrated GB gas pipeline system. In our view it is important that GDNs are able to compare the efficiency of additional NTS flexibility capacity alongside other capacity management options.

8.33. We also note that the commercial arrangements applying to the allocation of NTS entry and exit capacity may not fully indicate the type of investment required to meet wider system flexibility needs. As part of thinking about future system flexibility requirements we consider that it is important that NGG considers whether the commercial regime and charging arrangements are providing them with enough information about NTS users' flexibility needs or providing NTS users with appropriate charging signals regarding the efficient use of capacity. If significant costs are demonstrated to be imposed on the system by forecast changes in users entry or exit flow requirements, it is appropriate that users of the system who benefit from this investment, contribute to funding it.

Role of demand forecasting in business plans

8.34. Given the uncertainty surrounding the future of gas demand, accurate and reliable demand forecasts and consideration of alternative plausible demand scenarios is important for the production of well-justified business plans. In the context of work we

undertook in reviewing allowances set under the capacity outputs incentive, we identified some possible weaknesses in the GDNs demand forecasts.[62]

8.35. Through the working group we will explore explanations for the possible weakness and, just as importantly, the potential materiality of inaccuracies in demand forecasts on projected business plan expenditure. We will also undertake work of our own to review the GDNs' gas demand forecasting methodologies.

Network reliability

8.36. We propose that the primary output associated with network reliability should be to maintain levels of operational performance. We consider that this should be supported by a number of secondary deliverables.

8.37. We propose a secondary deliverable on offtake meter errors as this area of network performance has been identified as a significant issue by suppliers. The GDNs have recently reported a series of measurement errors where there has been an under measurement of the gas that has entered the Local Distribution Zone (LDZ) system. We understand that over the past 18 months, errors have been found on over a third of the NTS off-take meters with some five TWh of under measurement compared to some 0.02TWh of over measurement.

8.38. As a consequence of these measurement errors, some suppliers may be responsible for a larger proportion of charges under the settlement process than should be the case. We are concerned that there are not currently sufficient incentives on the GDNs to address the issue as their price control revenues are not affected by such errors.

8.39. The GDNs have highlighted that not all offtake meter errors are within their control and that some errors are caused by contaminants that entered the GDNs' meters from the NTS. We have asked the GDNs to provide further information on the source of the meter errors and will consider the historical information we receive form the GDNs on the cause of the meter errors in developing this measure further.

8.40. Subject to the availability of good quality meter error data and on the successful separation between controllable and non-controllable errors, we are considering the possibility of introducing an explicit incentive on meter error reduction. Wholesale error data should be submitted in terms of energy (GWh or MWh) and ideally cost, when this becomes available.

8.41. We are also proposing to include an output measure around the number of network faults on the GDN's network by risk category and the time taken to rectify them. The output measure around this area is still being developed by the working group.

[62] The capacity outputs incentive was put in place at GDPCR1 to set allowances for expenditure on interruptible and NTS exit capacity. We outline the possible weaknesses in more detail in our published minded to decision on the incentive. This is published on our website: http://www.ofgem.gov.uk/Networks/GasDistr/GasDistrPol/Documents1/Capacity%20Outputs%20Incentive%20Open%20letter%20Consultation_Final.pdf.

8.42. Following the last working group meeting, the GDNs provided a selection of fault categories and common descriptions, which could give rise to a consistent measurement approach. We are working with the GDNs to define the detailed measures from an asset/component perspective, and the associated timescales to measure fault resolution against. We would welcome views on this approach and whether particular fault data is more relevant than others in measuring network reliability.

Records and data accuracy

8.43. We are also consulting on introducing a primary output associated with maintaining network records. This primary output measure has two distinct benefits, firstly ensuring the GDNs update system records on a timely basis which ensures a true and accurate record of the assets being installed.

8.44. The second benefit is to third party connections companies wishing to connect to the GDNs assets. The GDNs provide data such as pipe location, diameter and pressure tier to facilitate third party connections. The accuracy of this data has an impact on connection companies since poor records may result in a company having to abandon a planned connection job if they do not have the correct materials on site which would have been planned using the GDNs' data.

8.45. Where a third party company identifies a problem with the GDNs' records it completes a report, referred to as a DR8 report, which provides the GDNs with a record of the error. We believe monitoring these two elements provide us with a good indication of the long term performance of the data accuracy undertaken by the GDNs.

9. Broader approach to asset risk management

Chapter Summary

This chapter sets out our proposals for the GDNs to develop improved asset health, condition and risk information. This should facilitate a more robust, holistic approach to asset management by the GDNs and is a key requirement for them developing robust investment plans. We also describe the HSE's ongoing work to review the repex programme and our proposals to develop the incentives for repex and introduce a number of uncertainty mechanisms to manage uncertainty associated with the future programme

Question 1: Do you have any views on our proposed approach to the development of asset health and risk metrics including:
(1) the approach to the assessment of asset health
(2) the number and definition of primary asset categories
(3) the assessment of criticality or consequences of failure
(4) the development of replacement priorities/risk metrics

Question 2: Do you have any views our proposed approach for the revenue driver associated with repex?
Question 3: Do you have any views on our proposed uncertainty mechanisms associated with the repex review?

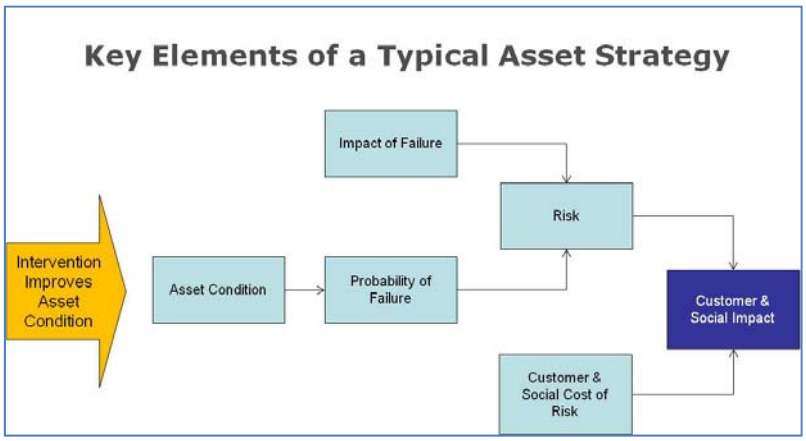
Overview

9.1. A key feature of our proposals for the outputs relating to network safety and reliability is to include secondary output measures around asset health and risk. As discussed in Chapters 7 and 8, we think this is important to encourage the companies to look for ways to deliver long term value for money, and that without these secondary measures there is a risk that they simply focus on how to meet their safety and reliability requirements in a short term least cost manner.

9.2. We have had extensive discussions with the GDNs, HSE and other stakeholders on our work in this area and we are encouraged by the progress that has been made. However, we also recognise that there are significant limitations to the existing data, and that substantial progress needs to be made in improving information about network assets both during this price control review and as part of the forthcoming price control period.

9.3. The GDNs' current approach to asset management is currently focussed principally on iron mains replacement and doesn't take a sufficiently broad view across all asset categories. Figure 9.1 provides the core components of a typical asset management strategy.

Figure 9.1: Key elements of a typical asset management strategy



9.4. We are of the view that the GDNs need to develop their approach to asset management by capturing much more information across a range of assets including information associated with asset health, how they deteriorate and the criticality of those assets in terms of the safety, reliability and environmental consequences if they fail. This is essential for the companies to be able to appropriately plan and prioritise interventions on their network both in terms of asset replacement and repairs and maintenance.

9.5. The initial information that has been provided by the GDNs highlights a significant number of gaps both in terms of the information that is available and how useful it is (ie much of the information is decentralised, in paper format or in archives that are not readily accessible). We consider that a key part of the reason for the relatively slow development in this area is that GDNs have focused their attention on iron mains assets to the exclusion of most other asset types. We discuss the repex programme and how it fits into our views on asset management at the end of this chapter. Table 9.1 presents the GDNs current view on the timescales likely to be required to survey their assets to obtain the relevant condition data and develop the asset management systems for embedding this data into their decision making processes. The GDNs indicate it will take at least another two to three years to collect the asset data required for all of their assets.

Table 9.1: GDN asset data availability and suitability

		NGG	NGN	SGN	W&WU
		Key: Red - 5+yrs Amber - 2-3yrs Green - 12mths	**Key:** Red - 5+yrs Amber - 2-3yrs Green - 12mths	**Key:** Red - 5+yrs Amber - 2-3yrs Green - 12mths	**Key:** Red - 5+yrs Amber - 2-3yrs Green - 12mths
Catergory	**Assets**	**Format - Indicative Delivery**	**Format - Indicative Delivery**	**Format - Indicative Delivery**	**Format - Indicative Delivery**
LOCAL TRANSMISSION SYSTEM	Pipelines	A	A	A	G
	Block Valves	A	A	A	A
	Special crossings	A	A	A	G
	Telemetry & control	A	G	A	A
	Pig Traps		A		
	N2 Sleeves		G		
	Other Sleeves		A		
DISTRIBUTION SYSTEM	Mains	G	G	G	G
	Services	R	A	R	A
	Valves	R	R	R	R
	Special crossings	A	G	A	G
	Mains above 2 bar		G		G
	Services above 2 bar		G		
	Risers	A	A	A	A
STORAGE	Gas Holders	A	G	G	G
	HP Bullets	G	G	G	G
	Telemetry & control	A	G	A	A
PRESSURE REDUCTION INSTALLATIONS	NTS Offtakes	A	A	G	G
	Above 7bar PRIs	A	A	G	G
	District Governors	G	R	A	G
	I&C Governors	G	R	A	G
	Service Governors	R	R	R	R
	Telemetry & control	A	A	A	A
LPG NETWORKS	Tank farms			A	A
	LPG mains			A	A
	LPG services			A	A

9.6. The GDNs have all highlighted that they expect to spend less of their allowances for load related expenditure in the RIIO-GD1 period. Instead, they are looking to address network integrity and the condition of a range of assets, other than the 30/30 iron mains population, including:

- steel pipes
- local transmission system
- gas holders.

9.7. We are concerned that unless there are good output measures in place, a programme that seeks to improve integrity of these assets could lead to an increase in costs for consumers without a commitment from the companies that there will be associated benefits. There is also a danger that companies do not adequately balance and prioritise risk across the various output categories. We want the GDNs to consider where to invest in their network to reduce overall risk to consumers and the appropriate priorities.

9.8. Much of what we discuss in the remainder of this chapter assumes that good data is available for asset management. In practice, output measures may only be possible for some categories of assets once there has been an improvement in the quantity and quality of data available. Where companies are forecasting significant expenditure on

asset integrity, we would expect information to be available so that we can hold them to an output for this part of their cost baselines.

Development of asset health and risk metrics

9.9. We propose to use asset health, criticality and replacement priorities/risk metrics as key secondary deliverables for RIIO-GD1. Although they are highlighted as a secondary deliverable for the reliability output, we believe the use of asset health indices encompasses a number of the output categories including safety, reliability and environmental.

9.10. To facilitate this we need the GDNs to:

- develop asset health measures, criticality and replacement priorities for all of their assets considering safety, reliability and environmental factors
- consider network replacement priorities based on the results of this work
- innovate on risk management techniques.

Development of an asset health index

9.11. An asset health index (HI) provides a framework for collating information on the health (or condition) of network assets and tracking changes in network health over time. We consider it a useful indicator of potential future reliability and safety issues. Asset health, criticality, and replacement priorities should be used by the GDNs to identify and support capital programs for the forthcoming price control.

9.12. We propose that assets are placed into one of the categories shown in Table 9.2, reflecting the condition of the asset. This approach is consistent with that used in the DPCR5 network outputs reporting.[63]

Table 9.2 – Proposed HI definitions for secondary deliverable

HI Band	Definition
HI1	New or as new
HI2	Good or serviceable condition
HI3	Deterioration, requires assessment or monitoring
HI4	Material deterioration, intervention requires consideration
HI5	End of serviceable life, intervention required

[63] For further detail see Chapter 2 'Instructions for completing network outputs reporting' in the document 'Electricity distribution price control network asset data and performance reporting – Regulatory instructions and guidance: Version 1' http://www.ofgem.gov.uk/Networks/ElecDist/PriceCntrls/DPCR5/Documents1/Electricity%20Distribution%20NADPR%20RIGs.pdf

9.13. Criticality provides a measure of the consequence of asset failure. The criticality of an asset is based on system, safety and environmental considerations. These considerations are:

- system criticality is based on the impact of the distribution system not delivering services to customers, and any impact on the safety of the public or the smooth operation of the UK services and economy
- safety criticality is based upon the risk of direct harm to personnel or the public as a result of asset failure (eg conductor drop, asset fire or explosion)
- environmental criticality is based upon the environmental impact caused by asset unreliability or failure, taking into account the sensitivity of the geographical area local to the asset.

9.14. Based upon the rating for each of these categories, a pressure station, pipe, or gas holder can then be given an overall criticality rating (see Table 9.3). We consider that the current definitions are suitable for including criticality as a secondary deliverable. However, for consistency with the other indices, we propose that a C1 rating be defined as low criticality and a C4 rating defined as very high criticality.

Table 9.3 – Criticality definitions

Rating	Definition
C1	Low
C2	Medium
C3	High
C4	Very high

9.15. The replacement priority index is intended to capture how GDNs prioritise asset replacement decisions. It is a function of the asset health and the criticality of the part of the network where the asset is located. Our replacement priority definitions are set out below in Table 9.4 and will be derived from the HI and criticality data.

Table 9.4 Replacement priority

Rating	Definition
RI1	Very low risk
RI2	Low risk
RI3	Medium risk
RI4	High risk
RI5	Very high risk

9.16. GDNs can also provide further information within the commentary in their annual regulatory reports to explain the reasons behind their replacement decisions. GDNs should articulate the case for spending a marginal pound on one asset over another and include information on the risk trade-offs made between the different asset categories.

9.17. The asset criticality measure must be able to rank the criticality of assets, and to assess whether and how the criticality ranking differs across primary assets in order to help GDNs prioritise expenditure across asset categories. An example of how an asset criticality/replacement matrix could be compiled is provided by Table 9.5 below, interacting asset health with criticality ratings to generate replacement (risk) priorities. This matrix should be filled in for all primary asset categories and for as many secondary asset categories as possible, taking into account any materiality thresholds.

Table 9.5 Interaction between asset health, criticality, and replacement

	CI4	CI3	CI2	CI1
HI5	RI5	RI4	RI3	RI3
HI4	RI4	RI3	RI2	RI2
HI3	RI2	RI2	RI2	RI1
HI2	RI1	RI1	RI1	RI1
HI1	RI1	RI1	RI1	RI1

9.18. The asset risk/criticality matrices (incorporating replacement priorities) should be reported by asset category, and the interaction between different asset categories should be made clear.

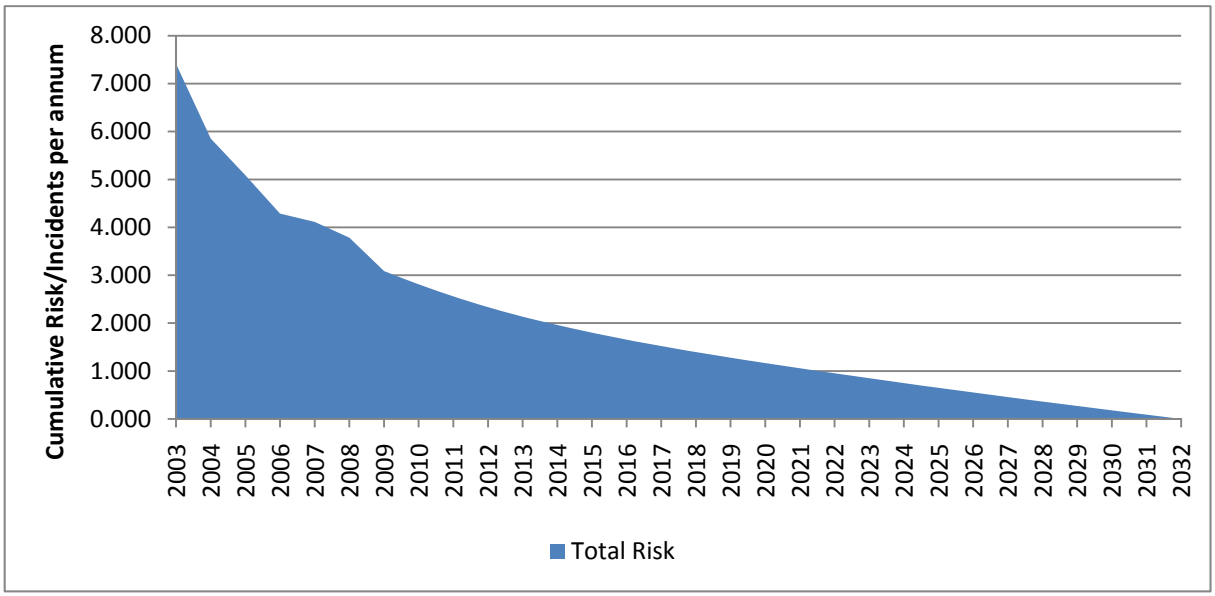
9.19. The asset risk/criticality tables, based on risk removed, should be presented at time zero and projected up to the last year of the price control period for two scenarios: Scenario 1 = no investment; and Scenario 2 = with investment.

9.20. We could make use of NGG-NTS asset criticality/risk indices to inform our definitions for GDNs, and we welcome GDNs' own efforts to look into this possibility. The GDNs currently indicate that it will take at least another two to three years to collect the asset data required for all of their assets.

Encouraging the development of asset management and appropriate management of the repex programme

9.21. The HSE led iron mains replacement programme has resulted in a large proportion of the modelled network risk being removed from the networks over the last eight years. The GDNs have indicated that 65 per cent of the risk associated with iron mains has been removed from the network between 2002 and 2010. Figure 9.2 presents the historical and forecast levels of risk removed from the network assuming the programme continues on the current basis.

Figure 9.2: Historical and forecast risk levels associated with the HSE iron mains replacement programme



9.22. GDNs currently receive allowed revenues related to repex depending on the length and diameter of mains replaced. This means that the only incentive they face is to procure repex services efficiently. We are proposing to change these arrangements so that GDNs' revenues related to repex vary according to the level of risk removed. This should incentivise them to develop innovative approaches to risk removal relating to iron mains, as they will gain significant additional returns under the cost incentive if they can develop a more economic approach.

9.23. Development of such techniques could potentially gain funding under the proposed innovation stimulus, although we are consulting on whether it is appropriate to cast the scope of the innovation stimulus for gas beyond the narrow focus on delivering the low carbon future that has been applied in electricity distribution (see 'Supplementary annex: Business plans, proportionate treatment, and efficiency incentives'). We also consider well justified requests for funding, which are clearly linked to outputs, with regards to innovation on repex techniques and network risk modelling could be supported as part of the baseline allowances.

9.24. We have had early discussions with the HSE on the role of a holistic output approach covering a wider range of asset categories. The HSE are supportive of this approach and consider it should assist GDNs in ensuring they are making appropriate decisions about meeting their responsibilities to manage risk across all their operations.

HSE review of the repex programme

9.25. The HSE and Ofgem are currently undertaking a review of the repex programme. The HSE have appointed CEPA to carry out a programme of research to review:

- whether the objective of avoiding deterioration of the iron system is currently being achieved

- reviewing the initial assumptions and objectives behind the repex programme and whether these are still appropriate
- assessing whether the mains replacement programme is proportionate to the risk involved
- options for delivering risk removal and management more effectively.

9.26. Ahead of our March document, there should be some indication of the likely findings and implications of this review. If the findings of the review suggest fundamental changes of approach are justified, it is unlikely that it will be possible to implement the changes immediately. Changes in legislation or actions from the GDNs may be required and these could take 18 months to two years to implement.

9.27. The outcome of the repex review could therefore have an impact on the RIIO-GD1 process. If the review proposes only minor changes to the repex programme (such as changes to the rate over which the work is completed) this should be easily accommodated by GDNs including alternative repex scenarios as part of their business plan submission in July 2011. However, this will not provide a solution if, in the early part of this year the HSE evidence indicates a substantial change to the programme would be beneficial. In this case, the GDNs may need several months to revise the analysis required to formulate their business plans, and this may mean that they are not able to produce meaningful plans for July 2011. This would rule out the prospect of fast tracking for GDNs.

9.28. One outcome of the repex review may be that the GDNs are given greater flexibility by the HSE to amend their repex plans. For this reason, we have been looking to develop uncertainty mechanisms to allow changes in the GDNs' agreed repex programmes if this is the outcome of the review and/or if the required asset/network risk information is in place.

9.29. Firstly, if GDNs can appropriately demonstrate that risk removal on other assets is of equal or greater benefit to customers as risk removal associated with iron mains and gain agreement with the HSE, we will allow them to substitute some of this work into our repex driver. Under this approach our price control cost baselines would remain unchanged and the GDNs would continue to retain a share of cost benefits under the cost sharing factors.

9.30. If it is not practical for GDNs to demonstrate equivalence of risk across a number of classes the GDNs could still make a case for rebalancing their outputs once they have more advanced asset management systems in place, and assuming it is supported by the evidence and is agreed by HSE. In order to trigger such a reopener the GDNs will need to demonstrate that they have robust information associated with asset health and criticality and that they have integrated it with their planning. They will need to show that they can deliver a plan that delivers material benefits to consumers compared to the existing outputs and baselines. We would also be able to trigger such a reopener if there is a material change resulting from the review. Our initial view is that this would happen at the mid-period review if required.

9.31. This could involve adjusting the targets for risk removal for iron mains and introducing new agreed targets for asset health for some assets. This could potentially require some rebalancing of our cost baselines.

Appendices

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Appendix 1 – Summary of questions

CHAPTER: One

Question 1: We would welcome respondents' views on the approach we have taken to develop the outputs framework.
Question 2: Do any of our proposed output measures present potential difficulties in ensuring the submission of accurate and comparable data?
Question 3: Are there any aspects of our proposed outputs framework where the reporting requirements are likely to lead to disproportionate regulatory costs?
Question 4: Should we introduce an independent examiner for all companies to improve regulatory reporting?
Question 5: Do you have any views on our proposed approach to revising outputs?

CHAPTER: Two

Question 1: Do you agree with our proposal to require GDNs to report the capacity of bio-methane connected as a broad measure of environmental impact but not to adopt an associated financial reward/penalty?
Question 2: Is there any other measure of environmental impact which you believe could be financially incentivised, bearing in mind the need for an output to be measurable and controllable by the GDNs?
Question 3: We would welcome respondents' views on the expected take-up of bio-methane following the introduction of the Renewable Heat Incentive (RHI).
Question 4: Are there any wider-network benefits associated with bio-methane which might imply that we need to change the current connection charging boundary?
Question 5: We would welcome respondents' views on our proposed approach not to recover connection and downstream asset costs through general network charges. In particular, we would like to hear views on the potential rationale for socialising the costs of connecting bio-methane plant, and how we might be able to do this within our vires.
Question 6: Do you agree with our proposed approach of logging-up costs associated with bio-methane connections in the event that the connection boundary changes?
Question 7: Are there other issues we should be considering for the price control in relation to distributed gas (predominately bio-methane)?
Question 8: What information would distributed gas users find useful to help them connect?
Question 9: Do you agree with our proposal to broadly continue with the shrinkage allowance mechanism and Environmental Emissions Incentive (EEI) adopted at GDPCR1?
Question 10: Do you agree with our proposed change to the valuation of carbon for the EEI to bring it in line with DECC's recommended approach?
Question 11: Should we retain a cap and collar on the EEI and at what level should any cap and collar be set? Should we introduce a cap and collar on the shrinkage incentive mechanism, and if so, at what level should any cap and collar be set?
Question 12: Do you agree with our proposal not to adopt a rolling-incentive mechanism for the EEI mechanism?
Question 13: Do you agree with our proposal to require GDNs to report actual shrinkage data when the relevant data becomes available, with the intention that we will use actual shrinkage as the basis for the shrinkage allowance and EEI at future reviews?
Question 14: Do you agree with our proposals to require GDNs to establish a code of practice outlining how they will identify and process unregistered sites? Do you agree with our proposals to require GDNs to report annually on the number of unregistered sites they have processed?

Question 15: Do you agree with our proposal to publish companies' business carbon footprint (BCF) as a league table to provide reputational incentives but not to provide an associated financial penalty/reward?
Question 16: Do you agree with our proposals to publish other emissions and resource use but not to apply financial rewards/penalties?

CHAPTER: Three

Question 1: Are there any aspects of customer service provided by the GDNs not captured by the proposed broad measure?
Question 2: Other than those specified, are there any other customer-GDN contact experiences that should be captured in the customer satisfaction survey?
Question 3: Do you agree with our approach to introduce a financial incentive linked to the successful resolution of complaints?
Question 4: Do you agree with our proposal to introduce a measure associated with resolving complaints alongside the existing guaranteed standards?
Question 5: Should we retain the discretionary reward scheme, given our proposed stakeholder engagement mechanism as part of the broad measure?
Question 6: What interest groups should be considered when designing the customer satisfaction surveys and approach to assessing stakeholder engagement activities?
Question 7: Do you agree with the proposed size and structure of the financial reward/penalty associated with each element of the broad measure?
Question 8: Will the fact that we will not be consulting on the size of the dead band before the end of 2011 prove to be a significant issue for companies/showstopper for fast track agreements?

CHAPTER: Four

Question 1: Do you agree with the scope and the timing of the review?
Question 2: Are there any issues with xoserve that we have not considered that you think are relevant to a review?
Question 3: Do you think xoserve will be able to deliver the requirements for the smart metering programme and Project Nexus?

CHAPTER: Five

Question 1: Is the fuel poor network extension scheme still the most appropriate way to assist the fuel poor?
Question 2: Which is the best mechanism for delivering fuel poor network extensions?
Question 3: Are there other incentives or mechanisms we could put in place to play a role in delivering non-gas solutions?
Question 4: Is it appropriate to fund GDNs through the price control for their activities in relation to reducing risks of CO poisoning?
Question 5: Are there any identifiable output targets that could be associated with reducing CO poisoning risks?
Question 6: Are there any other social issues for which we should be setting outputs?

CHAPTER: Six

Question 1: Are the current arrangements for charging margins in gas connections appropriate? Is there a need to introduce regulated margins for potentially contestable market segments for the gas connections market (as we did for electricity at DPCR5)?

Question 2: Are there market segments where competition works sufficiently well, where we should consider excluding these market segments from the guaranteed standards regime?
Question 3: What, if any, new standards do you consider are required to ensure that gas connections customers receive a good standard of service?
Question 4: Should we extend existing standards to distributed gas customers? We would also welcome views on whether any new service standards should be introduced for distributed gas, and whether we should revisit this issue during the price review (once the market has developed)?
Question 5: Should we change any of the existing standards' timescales, penalties, or caps on the penalties (for example, to bring them into line with the guaranteed standards in electricity)?

CHAPTER: Seven

Question 1: Do you have any views on the primary output and secondary deliverables for gas distribution safety including whether:
(1) these are the appropriate areas to focus on?
(2) there are any other areas that should be included?
(3) the performance of the GDNs in undertaking their maintenance programmes should be used as a secondary deliverable for reliability?
(4) you agree with our approach to changing the revenue driver for repex from length of main decommissioned to a volume driver of risk removed?

Question 2: Do you agree with the proposed approach of not imposing further incentives relating to safety?

CHAPTER: Eight

Question 1: Do you have any views on the primary output and secondary deliverables for gas distribution reliability including:
(1) whether these are appropriate areas to focus on?
(2) whether any other areas should be included?
(3) whether it is appropriate to remove the cap on the guaranteed standard for supply restoration and change the level of payments?
(3) the appropriate form of secondary deliverable on the time taken to address network faults?
(4) whether there should be a secondary deliverable associated with offtake meter errors?
Question 2: Do you agree with the proposed approach to reliability incentives?
Question 3: We would welcome respondents' views on our proposal to require GDNs to develop their approach to valuing interruptible capacity to include a real option value, and views on how to achieve this.

CHAPTER: Nine

Question 1: Do you have any views on our proposed approach to the development of asset health and risk metrics including:
(1) the approach to the assessment of asset health
(2) the number and definition of primary asset categories
(3) the assessment of criticality or consequences of failure
(4) the development of replacement priorities/risk metrics

Question 2: Do you have any views our proposed approach for the revenue driver associated with repex?
Question 3: Do you have any views on our proposed uncertainty mechanisms associated with the repex review?

Appendix 2 – Payments under guaranteed standards

Payments under guaranteed standards in 2009-10

			Payments in 2009-10 (excluding voluntary payments)								
		Description of Standard	NGG EoE	NGG LON	NGG NW	NGG WM	NGN*	SGN (SCOT)	SGN (South)	WWU	Total across GDNs
Connections Standard	GS4	Provision of standard connection quotations =<275kWh per hour	140	250	190	320	740	470	560	1,990	4,660
	GS5	Provision of non-standard connection quotations =<275kWh per hour	870	120	270	1,910	1,710	1,260	1,130	3,490	10,760
	GS6	Provision of non-standard connection quotations > 275kWh per hour	0	0	20	0	20	0	0	180	220
	GS7	Accuracy of quotations	745	0	0	0	0	0	0	0	745
	GS8	Response to land enquiries	780	0	80	0	0	0	0	0	860
	GS9	Offering a date for commencement and substantial completion of connection	8,934	7,630	4,150	2,705	5,980	3,680	1,720	250	35,049
	GS10	Offering a date for commencement and substantial completion of connection	0	240	0	0	0	0	0	0	240
	GS11	Substantial completion on agreed date	17,237	8,160	4,100	8,320	78,862	5,185	16,777	20,920	159,561
	Total		28,706	16,400	8,810	13,255	87,312	10,595	20,187	26,830	212,095
Complaints standard GS14			2220	3940	2160	1220	60	1100	6640	320	17,660

* NGN take a 'pro customer stance' and therefore make some payments where customers are actually exempt from the standards. These payments to exempt customers are included in this data. If uncapped liabilities were introduced they would most likely change their behaviour.

Appendix 3 – Connections standards of service

Table A1 - Comparison of the timeframes imposed by gas and electricity standards of service

Gas Standard			Electricity Standard		
Ref	**Description**	**Standard**	**Ref**	**Description**	**Standard**
GSOP 4 - Regulation 10 (3)(a)	Provision of standard quotations for new connection or an alteration to an existing connection. Connections up to and including 275kWh	Within 6 working days of receiving request	Regulation 5(2)	Provision of a quotation for a single LV single phase service connection	Within 5 working days
			Regulation 5(3)	Provision of quotation for small LV projects	Within 15 working days
GSOP 5 - Regulation 10 (3)(b)(i)	Provision of nonstandard quotations <275kWh for new connections or alterations to existing connections	Within 11 working days of receiving request	Regulation 6(2)	Provision of any other LV demand quotation	Within 25 working days
GSOP 6 - Regulation 10 (3)(b)(ii)	Provision of non standard quotations >275kWh for new connections or alterations to existing connections	Within 21 working days of receiving request	Regulation 6(3)	Provision of an HV demand quotation	Within 35 working days
			Regulation 6(4)	Provision of EHV demand quotations	Within 65 working days
GSOP 8 - Regulation 10 (3)(d)	Responses to land enquiries for new connections or alterations	Within 5 working days	No Standard		
GSOP 9 - regulation 10 (3)(e)(i)	Provision of dates for the substantial completion of work <275kWh	Within 20 working days of receipt of acceptance of a quotation	Regulation 8(2)	Contact customer (post acceptance) about scheduling <5 LV service connections	Within 7 working days
			Regulation 9(2)	Contact customer (post acceptance) about scheduling other LV demand connections	Within 7 working days

Table A1 - Comparison of the timeframes imposed by gas and electricity standards of service. Continued.

Gas Standard			Electricity Standard		
Ref	**Description**	**Standard**	**Ref**	**Description**	**Standard**
GSOP 10 - Regulation 10 (3)(e)(ii)	Provision of dates for the substantial completion of work >275 kWh	Within 20 working days of receipt of acceptance of a quotation	Regulation 9(3)	Contact customer (post acceptance) about scheduling HV demand connections	Within 10 working days
			Regulation 9(4)	Contact customer (post acceptance) about scheduling EHV demand connections	Within 15 working days
No Standard			Regulation 9(5)	Commence LV, HV, EHV demand works at customers site	In timescale agreed with the customer
GSOP 11 - Regulation 10 (3)(f)	Requirement for connection to be substantially complete on date agreed with the customer (Installed, commissioned and left safe).	On date agreed with customer	Regulation 8(3)	Complete service connection works	In timescale agreed with the customer
			Regulation 9(6)	Complete LV works (including phased works)	In timescale agreed with the customer
			Regulation 9(7)	Complete HV works (including phased works)	In timescale agreed with the customer
			Regulation 9(8)	Complete EHV works (including phased works)	In timescale agreed with the customer
			Regulation 9(9)	Complete LV energisation works (including phased works)	In timescale agreed with the customer
			Regulation 9(10)	Complete HV energisation works (including phased works)	In timescale agreed with the customer

			Regulation 9(11)	Complete EHV energisation works (including phased works)	In timescale agreed with the customer

Table A1 - Comparison of the penalties imposed by gas and electricity standards of service. Continued.

GAS			Electricity		
Ref	**Description**	**GSOP Payment**	**Ref**	**Description**	**Payment**
GSOP 4 - Regulation 10 (3)(a)	Provision of standard quotations for new connection or an alteration to an existing connection. For connections up to and including 275kWh	£10 plus further payments of the same amount for each subsequent working day. CAP £250 or the quotation sum whichever is lower	Regulation 5(2)	Provision of a quotation for a single LV single phase service connection	£10 for each working day
			Regulation 5(3)	Provision of quotation for small LV projects	£10 for each working day
GSOP 5 - Regulation 10 (3)(b)(i)	Provision of nonstandard quotations <275kWh for new connections or alterations to existing connections	£10 plus further payments of the same amount for each subsequent working day. CAP £250 or the quotation sum whichever is lower	Regulation 6(2)	Provision of any other LV demand quotation	£50 for each working day
GSOP 6 - Regulation 10 (3)(b)(ii)	Provision of non standard quotations >275kWh for new connections or alterations to existing connections	£20 plus further payments of the same amount for each subsequent working day. CAP £500 or the quotation sum whichever is lower	Regulation 6(3)	Provision of an HV demand quotation	£100 for each working day
			Regulation 6(4)	Provision of EHV demand quotations	£150 for each working day
GSOP 7 - Regulation 10 (3) (c)	GTs must refund any overcharge that has been paid to customers who challenge	Refund any overcharge and pay applicable overdue quotation standard payment until	Regulation 7(3)	Single LV single phase service demand connection quotation challenged and found to be inaccurate	Payment of £250 plus refund of overpayment

	inaccurate quotations for a new connection or alteration.	new quotation issued.	Regulation 7(4)	Small project demand connection quotation challenged and found to be inaccurate	Payment of £500 plus refund of overpayment

Table A1 - Comparison of the penalties imposed by gas and electricity standards of service. Continued.

GAS			Electricity		
Ref	**Description**	**GSOP Payment**	**Ref**	**Description**	**GSOP Payment**
GSOP 8 - Regulation 10 (3)(d)	Responses to land enquiries for new connections or alterations	£40 plus further payments of the same amount for each subsequent working day. CAP £250 for connections <275kWh. £500 for connections > 275 kWh	No Standard		
GSOP 9 - regulation 10 (3)(e)(i)	Provision of dates for the substantial completion of work <275kWh	£20 plus further payments of the same amount for each subsequent working day. CAP £250 or the contract sum whichever is lower	Regulation 8(2)	Contact customer (post acceptance) about scheduling <5 LV service connections	£10 for each working day
			Regulation 9(2)	Contact customer (post acceptance) about scheduling other LV demand connections	£50 for each working day
GSOP 10 - Regulation 10 (3)(e)(ii)	Provision of dates for the substantial completion of work >275 kWh	£40 plus further payments of the same amount for each subsequent working day. CAP £500 or the contract sum whichever is lower	Regulation 9(3)	Contact customer (power acceptance) about scheduling HV demand connections	£100 for each working day
			Regulation 9(4)	Contact customer (post acceptance) about scheduling EHV demand connections	£150 for each working day
No Standard			Regulation 9(5)	Commence LV, HV, EHV demand works at customers site	£20 for each working day

Table A1 - Comparison of the penalties imposed by gas and electricity standards of service. Continued.

GAS			Electricity		
Ref	**Description**	**GSOP Payment**	**Ref**	**Description**	**GSOP Payment**
GSOP 11 - Regulation 10 (3)(f)	Requirement for connection to be substantially complete on date agreed with the customer (installed, commissioned and left safe).	Dependent on contract sum. Daily payments due range from £20 to £150. Cap from £200 to £9000.	Regulation 8(3)	Complete service connection works	£25 for each working day
			Regulation 9(6)	Complete LV works (including phased works)	£100 for each working day
			Regulation 9(7)	Complete HV works (including phased works)	£150 for each working day
			Regulation 9(8)	Complete EHV works (including phased works)	£200 for each working day
			Regulation 9(9)	Complete LV energisation works (including phased works)	£100 for each working day
			Regulation 9(10)	Complete HV energisation works (including phased works)	£150 for each working day
			Regulation 9(11)	Complete EHV energisation works (including phased works)	£200 for each working day