Ofgem: Business Customers Price Control Research

Report on findings

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1. Executive Summary

Background

The current round of price controls for the transmission networks (TPCR4) and gas distribution networks (GDPCR1) are due to expire on 31st March 2013 (after a 1 year adaptive rollover of transmission price control). Ofgem are beginning to gather evidence to feed into the next price control reviews (TPCR5 and GDPCR2) which needs to be developed in time for implementation in 2013. This review will apply the principles of RIIO[1] following Ofgem's RPI-X@20 review which specified key 'output measures' for consideration covering environmental obligations, reliability, customer satisfaction, safety, social obligations (which principally cover domestic consumers) and connections.

To contribute to this evidence Ofgem, commissioned Opinion Leader to conduct two pieces of research with consumers. Firstly, a workshop of the Ofgem Consumer First Panel focused on gas and electricity networks in summer 2010. Secondly, Ofgem commissioned Opinion Leader to carry out research with business consumers to investigate their opinions of and future priorities for gas and electricity networks. This report provides detailed findings from this second phase of research with business customers, and where appropriate draws comparisons with findings from the domestic consumer research.

The overall objective of this piece of research was to gather the views of a broad cross section of business consumers of gas and electricity, specifically:

- Current awareness and knowledge of networks and network companies
- Perceived importance of the role of network companies, and the relative importance of gas and electricity networks among businesses
- The impact of network activities on businesses
- Spontaneous priorities for networks from a business customer perspective
- The relative priorities assigned by businesses to the various RPI@20 output measure

Cutting across all of these objectives we also aimed to assess the responses of business customers in relation to those already gained from domestic consumers in previous research.

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[1] 'On 4 October 2010, the Gas and Electricity Markets Authority (GEMA) published its 'Decision' document to implement a new regulatory framework, known as the RIIO model (revenue = incentives+innovation+outputs). The RIIO model has been designed to promote smarter gas and electricity networks for a low carbon future. All future price controls will incorporate the RIIO brand as follows:

- The next full transmission price control review (formerly TPCR5) is now RIIO-T1
- The next gas distribution price control review (formerly GDPCR2) is now RIIO-GD1
- The next electricity price control review (formerly DPCR6) is now RIIO-ED1

Comparison with domestic consumers

The research took account of the views of business sizes ranging from micro (1-9 employees) through to large (250+ employees). Overall, levels of knowledge, opinions of current service levels and priorities for network companies in the context of the next price control were broadly the same for businesses as they were for consumers. And across the different sizes of business, again views were broadly similar.

However, business customers did differ from domestic consumers in that the focus on reliability was somewhat amplified given the potential effect of power cuts on a business's bottom line. There were also a number of businesses that had been in contact with network companies regarding connections. As many had found this to be a frustrating experience, it did tend (among these participants at least) to lead to poorer perceptions of levels of service, and therefore poorer overall impressions of network companies.

We also saw (in larger businesses in particular) a higher level of knowledge from some participants as a result of:

- A higher level of interaction with network companies making them more aware of the names of these companies
- Higher energy use (for example, high voltage connections to the distribution network) requiring a need to engage with how the local infrastructure operates
- Being more technically aware and interested in general (e.g. those in engineering professions or those involved in facilities management)

Knowledge and awareness of network companies

Perceptions of the transmission and distribution process, and of network companies

Business perceptions of the transmission and distribution process were largely of the view that it is a 'background' service. It is understood to be a critical part of the GB infrastructure, but for most the process of distributing gas and electricity and the organisations involved is rarely thought about.

In line with domestic consumers, business consumers indicated that their attention was only generally drawn to network companies when problems occurred (e.g. interruptions to supply, engineering works and roadworks) or if there was a need to contact a company for a new connection/alteration. Few were able to correctly name network and distribution companies, though many mentioned National Grid as having a role. Most participants only have a clear knowledge of who their supplier is, with no clear view about the rest of the energy supply chain.

Views on network performance

From a business standpoint, participants felt that network companies are most appropriately judged on:

- Reliability
- Cost efficiency
- Customer service
- Safety

These views are driven by what businesses expect from their energy supply – to be reliable and reasonably costed, with responsive customer service if this is ever required. For the most part, participants were generally positive about performance of the network companies in that few had experienced frequent power cuts or gas outages.

Spontaneous priorities for network companies

Overall priorities for moving gas and electricity

Business consumers had similar priorities for the network company role of moving gas and electricity as domestic consumers:

- Consistency of supply
- Low cost/high efficiency
- Safety
- Protecting the environment
- Extending the network

The main differences here in comparison with domestic consumers was that safety was seen as more of a hygiene factor for businesses – and many indicated that it is something that is required by law in any case. For some of the rural businesses in Wales and Scotland, there was also mention of extending the gas networks, as many were aware that not all parts of the country are connected.

Aims for network companies

Business consumers are generally keen to see network companies operating with a view to:

- Efficient and effective customer service and cost management
- A 'responsible' attitude to both customers and the environment

Overall, prior to considering elements of the price control in detail, the sentiment was that network companies should be fair, open and transparent. Good practice would dictate these organisations should be taking steps to reduce their impact on the environment in all that they do as well as ensuring that the infrastructure is ready to face the challenges of the future from the point of view of both technology and security of supply.

Considered prioritisation of price control elements

Where business participants were asked to outline their priorities for the price control (using either an online survey tool or using a series of 'counters' for distribution across a number of price control elements), priorities fell into four distinct strata. These were apparent once the total number of 'votes' or 'counters' attributed to each element were collated and considered qualitatively:

- The highest **strata** of outputs are those involved with **minimising disruption to service**. Included in these are those elements aimed at maintenance, restoration of supply as well as those to do with consideration of customers. Safety is a subsidiary point to many of these elements, but tended not to be the driving motivation.
- The second strata includes those outputs relating to minimising negative impacts on the environment
- The third strata is made up of those outputs related to social obligations
- The fourth, and least important strata, includes outputs involved in the making of new connections to the network (though this is perhaps because it is not relevant to all businesses)

Larger businesses tended to prioritise issues around health and safety and environmental issues more highly than smaller businesses. This may be as a result of the more narrowly focused roles of large business participants (i.e. focusing on facilities management). Smaller businesses, especially those in rural areas, were more likely to prioritise issues with a social focus – this is likely to be due to their having a closer relationship with local communities given their size and locations.

2. Introduction

Background

Ofgem is the regulator of gas and electricity markets in Great Britain. Its primary objective is to protect the present and future needs of energy consumers.

Gas and electricity transmission networks (the high voltage wires and high pressure pipelines that transport gas and electricity over long distances) and gas network companies (the low pressure networks that transport gas to customers) are run by monopoly companies, and as such are subject to price control by Ofgem which ensures that network companies have sufficient revenue to conduct their activities efficiently. The costs of these activities are passed on to business and domestic consumers through their bills.

The current round of price controls for the transmission networks (TPCR4) and gas distribution networks (GDPCR1) are due to expire on 31st March 2013 (after a 1 year adaptive rollover of transmission price control) and Ofgem are beginning to gather evidence to feed into the next price control reviews (TPCR5 and GDPCR2) which needs to be developed in time for implementation in 2013. This review will apply the principles of Ofgem's RPI-X@20 review which specified key 'output measures' for consideration covering environmental obligations, reliability, customer satisfaction, safety, social obligations (which principally cover domestic consumers) and connections.

To contribute to this evidence Ofgem commissioned Opinion Leader to conduct two pieces of research with consumers. Firstly, a workshop of the Ofgem Consumer First Panel focused on gas and electricity networks in summer 2010[2]. Secondly, Ofgem also commissioned Opinion Leader to carry out research with business consumers to investigate their opinions of, and future priorities for, gas and electricity networks. This report provides detailed findings from this research, and where appropriate draws comparisons with findings from the domestic consumer research.

[2] The Ofgem Consumer First Panel is a standing panel of 100 consumers in 5 locations across Great Britain. It meets 3/4 times per year to discuss a range of issues relating to gas and electricity. The discussion of gas and electricity networks took place at the fourth workshop of the 2009/2010 Panel June/July 2010. The findings of this research can be found have been published separately.

Objectives

The overall objective of this piece of research was to gather the views of a broad cross section of business consumers of gas and electricity. These will feed into the development of the next transmission and gas distribution price controls which are to be concluded before 2013.

Specifically this research aimed to assess:

- Current awareness and knowledge of networks and network companies
- Perceived importance of the role of network companies, and the relative importance of gas and electricity networks among businesses
- The impact of network activities on businesses
- Spontaneous priorities for networks from a business perspective
- The relative priorities assigned by businesses to the various RPI-X@20 output measure

We also aimed to assess the responses of business customers in relation to those already gained from the domestic sector in previous Panel research.

Method

We conducted a series of 4 x 2 hour focus groups in Scotland and Wales and 40 x 1 hour telephone depth interviews with businesses across Great Britain. Telephone depth interviews were used to provide a geographical spread of small businesses across England, and to allow more senior people in medium and large businesses to contribute at times convenient to them (experience shows that it is harder to convene groups with senior individuals from larger organisations).

The discussion guides, information provided to participants and other materials and tasks used over the course of the discussion were kept as consistent as possible across the two data collection methods. Similarly they were consistent with the materials used in the research conducted with the Ofgem Consumer First Panel (discussion guides and materials for this piece of research can be found in the appendix). The materials and exercises used are shown overleaf.

Task	Telephone depth interview material	Group material	Consumer First Panel material
Information on networks[3]	Voiceover recorded presentation played via YouTube	Voiceover recorded presentation	Presentation from Ofgem representative

[3] Presentation was identical in all cases (see appendix)

Task	Telephone depth interview material	Group material	Consumer First Panel material
Idealisation exercise – developing a network company mission statement	Verbal response to projective technique	Self completion form completed in pairs	Self completion form completed in pairs
Introduction to RPI-x@20 outputs	Handout sheet talked through with interviewer	Handout sheet talked through with moderator	Handout sheet talked through with moderator and Ofgem representative
Prioritisation of RPI-x@20 outputs	Online survey placing 10 virtual counters on a grid of outputs	Placing 10 counters on wheel of outputs in small groups	Placing 10 counters on wheel of outputs in small groups

Sample

All business people recruited:

- Worked for businesses with both gas and electricity supplies
- Was the person best placed to discuss the overall importance of gas and electricity supplies to their business

Across the sample we recruited:

- From a range of sectors including catering, offices and manufacturing. Energy intensive industrial sectors such as Steel, Chemicals, Paper, Cement, Glass, Ceramic manufacturing, Aluminium and industrial gases were not included (though they are represented through other Ofgem fora including the Large User Group and Consumer Challenge Group)
- Seven businesses involved in new connections to the network

Focus groups

The 4 x 2 hour focus groups were structured as follows:

- Location
  - 2 x Wales
  - 2 x Scotland
- Business size
  - 2 x Micro business groups (1-9 employees)
  - 2 x Small business groups (10 – 49 employees)

Telephone depth interviews

The 40 x 1 hour telephone depth interviews were structured as follows:

- Business size
  - 10 x large businesses (250+ employees)
  - 20 x medium businesses (50 – 249 employees)
  - 5 x small businesses (10 -49 employees)
  - 5 x micro businesses (1 - 9 employees)
- Location
  - Medium and large business interviews spread geographically across England, Scotland and Wales
  - Micro and small interviews spread geographically across England
- Urban/rural (medium/large business quota only)
  - 10 x rural (3 large, 7 medium)
  - 20 x urban (7 large, 13 medium)
- Half hourly metered[4]
  - 19 half hourly metered (9 medium, 10 large)

[4] For businesses that have a peak load at any time during the day of more than 100kWh, they will have 'half hourly meters' that record the amount of electricity that is used on their premises each and every half hour during the day and night. These records are sent automatically via a data line back to their energy supplier. The actual data collected is termed as interval energy data and contains information that that can help a business determine what and how the electric supply is used, and provide more accurate bills..

Context

The fieldwork took place between 9th September and 13th October. Here we highlight the media coverage of relevant news from the energy sector in order to provide context and identify any potential influential stories and issues. The overarching theme surrounding the energy sector visible through the press coverage is investment with the aim of improving the sector's functionality; this in turn is reflected in the potential energy price rise.

In the few days directly preceding the workshops and throughout their duration there were several stories related to energy bills.

- The Times (1st September) EDF reported that they plan to put their prices up by 2.6% for 1/3 of its customers. The source of this rise lies in the increase in transmission and distribution prices, which the company eventually had to pass onto consumers.
- The Telegraph (6th September) reported that after National Grid applied to increase gas and electricity prices, it has been discovered that the company's executives have attempted to pass their expenses onto US customers. Ofgem reassured that this situation would not occur in the UK. Daily Telegraph reported on 20th September that Steve Holliday, National Grid chief executive explained this situation with an 'accounting error.'
- The Scotsman (22nd September) reported on Ofgem's consultation regarding the possibility of getting rid of the tiered charging system to electricity companies, which means that Scottish companies would be charged less to connect up to the national network. On 23rd September, The Press Journal, Herald and FT reported further on the topic. First Minister Alex Salmond was quoted saying that the current tariff system for energy companies "makes no sense" because it increases the price of low-carbon energy available from the more remote regions of the British Isles. Ofgem announced Project TransmiT, which will assess whether the ways in which grid costs are distributed among users are in need of reform.
- The Daily Telegraph (5th October) and other papers reported on a £2.5 million project aiming to test the conversion of raw sewage into gas. This process takes 20 days. 200 homes will be supplied within the pilot. National grid estimates that by 2020, 15% of domestic users will be supplied with renewable gas obtained from various sources including sewage.

News stories relating to price control systems within the energy sector:

- The Times (16th September): British Gas' Chief Financial Officer said that "in the last five years, import capacity has tripled" in the gas market. Production in Norway will reach 130Bcm by 2020 and "much of this will be available to the UK" at the Confederation of British Industry (CBI) conference. A diverse supply and timely infrastructure investments have brought greater stability and lower prices to the UK gas market.
- 5th October saw a widespread coverage of RIIO, the new networks price control system rolled out by Ofgem. This programme will cost consumers about £6 per year, said Alistair Buchanan. In general, there is the prevalent opinion among energy experts that the UK energy system needs a "huge revamp" and a £32 million investment is necessary.

3. Business context

Comparison with domestic consumers

The findings of this research with business consumers are broadly similar to those of the domestic consumer research conducted with the Ofgem Consumer First Panel. Business and domestic consumers have similar:

- Levels of knowledge of networks and network companies
- Opinion of current levels of service
- Priorities for networks – both spontaneously and on prompting

However, business consumers differed from domestic consumers in three broad ways:

- An amplification of key priorities compared to domestic consumers
- A poorer opinion of certain activities
- Pockets of higher knowledge levels

Domestic consumers prioritised outputs relating to minimising any disruption to their supply, by keeping the networks operating and restoring supply quickly in the case of an interruption. Whilst this was their primary concern, other elements also received attention, including safety, social obligations and environmental obligations. For business consumers this **focus on reliability was amplified**. Of key importance to business people was their business' health and profitability. As interruptions to supply were seen as having a direct impact on their bottom lines, outputs relating to prevention and correction of interruptions were therefore even more important than they were to domestic consumers. Consequently, concerns around issues such as safety and environmental matters tended to be a lower priority amongst commercial consumers than for domestic consumers.

Among the business sample there were some individuals who had a greater level of familiarity and contact with network companies, either due to contact during the development of connections to the network or contact during interruptions or works. This level of contact tended to lead to a **poorer impression of the performance of network companies** than domestic consumers (and business consumers who lacked this level of contact) generally had.

While business consumers tended to have a similarly low level of knowledge and awareness of networks as consumers, there were a few pockets of higher levels of knowledge among the business sample (see chapter 4 - *Knowledge of networks and network companies* for more detail). Those with better knowledge tended to be characterised by:

- A higher level of interaction with network companies making them more aware of the names of these companies
- Higher energy use (for example, high voltage connections to the distribution network) requiring a need to engage with the how the local infrastructure operates

- Being more technically aware and interested in general (e.g. those in engineering professions or those involved in facilities management)

Use of gas and electricity

All businesses in the sample had premises with both electricity and gas supplies. However, usage of gas and electricity varied across the sample.

Gas was predominately used for heating and hot water in most businesses in the sample, and so was not generally seen as business critical. A few, generally small or micro businesses, used gas for catering and so it was a vital part of their business. Some larger manufacturing businesses used gas in industrial processes (eg……).

> *"We use gas for heating, I mean if there was a gas leak and you couldn't have gas for a week then you could survive and you could boil a kettle for hot water and you could heat the office with an electric radiator or a fan so you could survive without that."*
>
> **(Medium business, Bristol)**

Electricity was seen as more critical to the operation of the business, due to a greater involvement in key business needs and outputs, including:

- Lighting of facilities, both those used by workers and customers. It was therefore critical from a health and safety perspective
- Industrial processes in manufacturing to produce products
- In catering equipment (e.g. freezers)
- IT infrastructure e.g. in financial services and software industries, sales e.g. tills and all forms of business administration

> *"When the electricity goes off here it's a disaster. So we had it last year, when it went off for a couple of days and you know, it was tools down, we couldn't do anything. "*
>
> **(Medium business, Bristol)**

Differences between businesses

As shown above in the section on the sample used in the research, we spoke to a highly diverse range of businesses of different sizes, in different locations and with different levels of interaction with the networks. These differences had significant impacts on the business context of the respondents and their businesses, and on their knowledge of and priorities for the networks.

Size

Businesses varied greatly with size in terms of:

- The person within the organisation best placed to talk about the importance of gas and electricity supplies

- The importance of gas and electricity to the business
- Their overall priorities for networks

A summary of these variations if described in the table below:

	Micro & Small	Medium	Large
Role of participants	Participants tended to be the sole or joint owners of the company. They generally had responsibility for most tasks involved in the running of the business	Participants were often owners or finance directors. They tended to have an entrepreneurial outlook and an extreme focus on growth and profit	Participants tended to be employment managers, HR managers or facilities managers. As salaried staff they were often removed from a direct focus on profit
Importance of gas and electricity	Although an interruption to gas or electricity (particularly electricity) was damaging to the business some felt able to continue, if only in a limited capacity. Few had back-ups in place.	Interruptions seen as damaging to the business if lasting more than a few hours. Many had limited battery back-ups or generators in place.	Interruptions seen as catastrophic for business. Many had limited battery back-ups or generators in place. One had gone to the lengths of investing in a back-up facility insurance from which they could operate in case of interruption.
Priorities	As with all businesses, small businesses had a keen focus on reliability. However, in some cases they had strong community links and so prioritised social factors.	Reliability of supply and low costs were the be-all-and-end-all. Some prioritised environmental factors where 'green' credentials were important in winning new business.	Reliability also key. However, slight distance from focus on profit allowed them to prioritise issues they valued personally in the context of their business, or championed as part of corporate CR policy e.g. environmental and social issues

Involvement with connection

Several of the businesses we spoke to had involvement with new connections to gas and/or electricity networks. Achieving new connections to networks was seen as a highly challenging activity.

Gaining new connections to networks is seen as a business critical activity for those businesses that have actually required connections – without power they can barely operate. It is especially

important to make the successful completion of the connection as promptly as possible. For those in the construction sector who frequently request new connections this is particularly important, as delayed connections can lead to slipped timings and cost overruns.

> *"We're just developing a block of flats now … our gas and electricity are a big priority … two weeks late will cost us tens of thousands of pounds in overall building cost"*
>
> **(Small business, Cardiff)**

Many also discussed the high, (often unexpectedly so), cost of making new connections to a network. Some had been surprised at being asked for tens of thousands of pounds for a new connection. As for many new businesses this is included in part of their set up costs, the impact could be great.

> *"… I mean it's so disproportionate to what anybody could afford; I mean you know it's absolutely ridiculous. Talking to [COMPANY] just to see the price they give you, almost 28 thousand quid …."*
>
> **(Small business, Glasgow)**

Requesting connections was said to involve a high level of contact with network companies. Those involved in organising new connections to the network saw customer service as highly important in these situations. They wanted network companies to be responsive to requests and for staff to take ownership of the process, providing customers with single point of contact for issues.

However, experiences of customer service while requesting connections did not generally live up to this ideal. The small number of people we spoke to with experience of this had found the process of interacting with the network company difficult. They reported being passed from one member of staff to another and waiting for several days and having to chase to get responses to queries.

> *"What you really need is someone at the end of the phone that's accountable and it doesn't happen and the buck gets passed right along the chain"*
>
> **(Small business, Cardiff)**

Rural vs. Urban

Rural and urban businesses had fairly similar overall business perspectives. However, the setting of some of the rural businesses put them more in touch with the natural environment. They tended to be more aware of the visual impact of network infrastructure, particularly electricity pylons, on the natural scenery surrounding them. This was also true of some urban businesses in towns surrounded by countryside. Those in large urban areas tended not to notice network infrastructure as much, feeling that it blended in with the urban landscape.

For some rural businesses involved in tourism, attractive scenery was a part of their product, and so was seen as highly important to protect. Rural businesses therefore tended to prioritise the minimisation of the visual impact of network infrastructure more than urban businesses.

Regional

The businesses we spoke to in Wales and Scotland tended to be in more rural areas and so mirrored some of the concerns relating to environment outlined above. However, their perspectives did not vary greatly from those found in England, and their priorities for the networks were largely the same as those of English businesses.

Future concerns

Future concerns relating to energy supplies tended to revolve around functions of generators, suppliers and government rather than anything explicitly to do with networks.

The main concern for the future was the cost of gas and electricity supplies, and this was mentioned more frequently by businesses than by consumers. Participants generally predicted an inevitable increase in the cost of gas and electricity. As for many businesses, gas and electricity accounted for a significant proportion of their overall running costs; any increase in costs was seen as having a potentially severe impact on profitability.

The other main concern was security of future gas and electricity supplies. Several expressed a belief that traditional energy sources (i.e. fossil fuels) are diminishing, and that this may lead to increased prices and a potential shortage of energy in the future. Security of supply was also linked to the perceived risks of obtaining gas and electricity (or source material for electricity) overseas. They felt that in the future other countries might 'turn the tap off' and restrict the flow of these resources to GB. These perceived risks of a dwindling and uncertain supply of resources lead several to raise spontaneously a need for Britain to bring alternative, domestic supplies of gas and electricity online.

4. Awareness and perceptions of networks

Profile of networks

In line with domestic consumers' views, the businesses we spoke to generally saw networks as a 'hidden' service that is not frequently considered on a day to day basis. This was seen as generally as positive as this meant that networks are generally operating consistently well. Overall, networks were seen as something that business customers 'take for granted', in that they just expect gas and electricity to be there when they need it, without thinking about how it arrives at their premises.

> *"If everything's running smoothly then it's not at the front of your mind, it's at the back [OF YOUR MIND]"*
>
> **(Micro business, Glasgow)**

Participants said that their attention was only drawn to networks by negative things including:

- Interruptions
- Disruptive engineering works
- Visible presence of infrastructure in more rural areas
- Contact when making new connections (for those that have a need to do this)

Interruptions were seen as the main issue which draws attention towards networks as they are a failure of the network companies' main role and causes great disruption to businesses, generally a complete cessation of their operations. However this attention is seen as generally limited due to the perceived reliability of networks (see *Views on network performance* below).

Road works could attract attention to networks where they interrupted either the participant's business or their own movements. However the works themselves can stand out to people in some cases due to their scale or visual impact. This is particularly true in rural areas where, as outlined above, the physical infrastructure of networks stood out more to participants than those operating in urban areas.

Knowledge of networks and network companies

Like domestic consumers, business customers generally had a very limited level of knowledge of networks and network companies. However, unlike domestic consumers there was a core of business consumers who showed a greater level of knowledge of the networks or of network companies.

Those with low knowledge tended not to differentiate between different elements of the energy supply chain, confusing networks with suppliers, generators, or both. They were also generally unaware of the names of network companies, generally naming suppliers (British Gas, E.ON, npower) legacy organisations (Transco), or contractors (e.g. Morrison).

"… I know a few names but I don't know what role that they play, so for example National Grid and Powergen, but I wouldn't know which one is a carrier, which is a distributor, I honestly don't know."

(Large business, London)

Participants with greater knowledge fell into the following categories:

- Those with greater contact with network companies
- Those working for businesses that were high users of energy
- Those working in technical roles with a general interest in science/technology issues

Participants that had greater contact with network companies either during interruptions or while requesting a connection to the network tended to be more aware of the names of network companies. However, having contacted a network company during an interruption was not a guarantee of recalling its name, In some cases, consumers naturally assumed they were contacting their supplier. Those who had been involved in requesting a new connection to the network were generally aware of the company involved. However, this did not necessarily mean they had any greater knowledge than the general business consumer of the technical operation of the networks themselves.

High energy users tended to be more aware of the structure of the energy networks. This was sometimes because they connected to the network in non-standard ways (for example, high voltage connections). However, this did not necessarily translate into greater awareness of the companies overall.

Some participants with backgrounds in engineering or technical roles showed a better knowledge of the networks. Such people often had electrical or electronic engineering as part of their role. Hence they were closer to the operation of electrical systems and took a greater interest in them. Some were able to describe the supply process through transmission and distribution and/or accurately name transmission and/or distribution companies. This knowledge referred more to electricity networks than gas networks.

Views on network performance

Measures of performance

Participants felt that, from a business point of view, network performance should be judged by the following measures:

- Reliability
- Efficiency/costs
- Customer service
- Safety

Whilst detailed knowledge of network companies is generally low, participants were able to adequately describe what measures they would use if they were to evaluate performance. Reliability was seen to be the key measure of a network's performance and was the most commonly mentioned performance indicator across the sample. As outlined earlier, a failure of supply was seen as highly disruptive to businesses, and preventing outages was seen as the most important part of a network company's role. This was seen as a concrete, objective measure of performance, because it is possible to count the number of outages.

Costs were also seen as key for businesses as energy bills were perceived to be high and likely to rise further. However, this concern over costs was generally mentioned in relation to minimising costs through effective management of the network, rather than simply having low costs. Participants felt network companies' performance should be judged in how efficiently they managed their networks (i.e. how cost effective they are and whether or not they are taking excessive profits.)

> *"I mean obviously cost comes into it, we don't see the cost as a network, we only see a combined cost of the energy and the network maintenance…"*
>
> **(Medium business. Bristol)**

Customer service was also mentioned by some as a measure of performance. Here performance could be judged in several ways. Firstly, it could mean the amount of disruption caused to customers and the public at large by works. Conduct during outages was also seen as an element of customer service i.e. how long it takes to reinstate service and how well network companies communicate with businesses during outages. Customer service can also be measured broadly by how many complaints a network company gets from its customers.

> *"I would say fewer perhaps road works or sites being dug up because of gas works"*
>
> **(Small business, Glasgow)**

For those involved in requesting new connections to the network, customer service was more important as they were more frequently in contact with network companies. They also felt that availability i.e. ease of contact, and speed of response to queries should be measures of performance.

A minority of participants also thought that safety was also a potential measure of performance, being judged by measures of how well companies adhere to legislation.

Current levels of performance

Participants generally assumed that network companies were performing well. This was because their experience of network company performance against the most important measure – consistency of supply – was generally good. All but a couple of participants could not recall any gas outages but many could recall an (admittedly small) number of power cuts. However, none felt this

was above a level that would be considered to be acceptable. Most businesses recalled power cuts at the rate of one every few years. The most frequent rate of power cut recalled by participants was two or three a year which had been experienced by a small number of participants across various business types.

> *"The fact that gas keeps coming out the pipe and the fact that when I switch the light switch on, the light keeps coming on tells me that they're doing a good job."*
>
> **(Large business, Bristol)**

The duration of power cuts which participants recalled varied between a few seconds and half a day. For most, power cuts of a few minutes to an hour were a minor inconvenience and might result in employees taking an unscheduled break. Occurring infrequently these types of power cuts did not have any major negative impact on perceptions of performance. For certain manufacturing businesses power cuts of any length had greater impacts as they involved the resetting and restarting of equipment which could take several hours or even days. Therefore a power cut could have similar impacts whether it lasted a few seconds or a few hours.

Participants felt that if the frequency of power cuts increased to a point where they were occurring every few weeks or cuts increased in duration to a point where they lasted more than a few hours, then their perceptions of network company performance would begin to diminish.

Participants from companies involved in connections as a key part of their business generally had a more negative view of network company performance. This was due to their perception that, during the process of requesting and making a new connection to the network, companies were difficult to contact and slow in responding to requests.

Response to information on networks

Participants were shown a presentation with a voiceover commentary by an Ofgem representative that showed:

- The role of transmission and distribution in the gas and electricity supply chain
- Maps of the gas and electricity transmission grids and the areas covered by gas and electricity Distribution Network Operators (GDNOs and DNOs)
- The overall length of pipes and wires in the networks
- The annual costs of running the networks and the proportion of consumer energy costs these accounted for
- The basic responsibilities of network companies, including managing networks in cost effective way, offering good service to consumers, investing appropriately and efficiently and ensuring long-term security of supply
- How they are regulated i.e. through Ofgem and the price control process

As with domestic consumers, participant responses to this information were generally neutral. Although most were not aware of the details of how the networks operate, none of the information was especially surprising, and all of it was thought to be clear and understandable.

Information contained in the presentation that stood out included:

- Large numbers (i.e., the high costs of the networks and the long distances they cover)
- The names of the network companies that operate in their area – as many were not previously aware of them
- The role of Ofgem in controlling prices – this was seen as a good thing as it meant that network company prices to consumers and levels of service were being monitored

> *"… you don't realise all the manpower and all the stuff that goes on behind the scenes. So it was a bit of an eye opener really … you turn on a light you don't realise where it's come from but I do now, and how it's got to you and all the processes in-between…."*
>
> **(Medium business, Cardiff)**

Unprompted priorities for networks

Following the presentation, participants were asked about their priorities for network companies. They were asked to put themselves in the place of a network company, and to come up with a 'mission statement' stating what they would take into account if they were operating the company.

They were asked to think about three broad questions:

- What should the priorities be for the networks that move gas and electricity around the country?
- What sort of company should networks be? What principles should underpin the way they do business

Priorities for role of moving gas and electricity

Business consumers had similar priorities for the network company role of moving gas and electricity as domestic consumers:

- Consistency of supply
- Cost/efficiency
- Safety
- Protecting the environment
- Extending the network for those aware of supply issues in certain locations (largely Wales and Scotland participants)

Figure 2 – Word cloud from network company mission statement self completion (What should their priorities be for the networks that move gas and electricity around the country?) [5]

As with domestic consumers, reliability was not mentioned explicitly in terms of being an issue, but comments relating to this output such as 'maintain' a reliable 'supply' or 'service' to 'customers' were seen as the main priority for network companies, i.e. continuing to deliver a reliable service to customers.

Secondary to this, but related was the 'price' to the 'customer'. Participants wanted network companies to provide the reliability outlined above for the 'minimum' 'cost' to consumers. This did not necessarily mean low prices, but rather than the network was operated as efficiently as it could be.

> *"To give an all round top quality service to make sure the power's going to where it was supposed to be going for the right price and to make sure that the customer was happy."*
>
> **(Medium business, Cardiff)**

Safety was the primary issue for domestic consumers whereas for business consumers, it was more of a hygiene factor – i.e. safety procedures should be covered as a matter of course rather than being optional or contingent on finance available. However, it was still mentioned as a high priority given the perceived danger inherent in gas and electricity.

[5] A word cloud is a graphic generated from a piece of text giving greater prominence to more frequently mentioned words (except for "stop words" such as and, the, at etc.) the word clouds in this document were created by inputting Panellist responses to the mission statement exercise captured on self completion forms

Participants also felt network companies should be prioritising being 'green' in the operation of their networks. This was often expressed simply as doing things in as 'environmentally friendly' a way as possible, because the environment was seen as an increasingly greater concern for all businesses and individuals. Others specifically mentioned that, as companies involved in the energy sector, they had a responsibility to act in an exemplary way, for instance by having low-emission vehicles.

> *"I think obviously as cheap as possible without making cuts and risks to the environment and the service, I guess. But everybody, all your interested in at the end of the day really is how much is it going to cost me and you don't want it being so cheap that there's breaks in the service or it endangers people's lives, that sort of thing, so I guess it's got to be the quickest and safest way of moving all this around the country really."*
>
> **(Medium business, Bristol)**

A less frequently mentioned priority by some was to provide gas networks to areas of the country that currently do not have them. This priority was mentioned by participants from England in consideration of people in the west of Scotland and Wales who do not have the same number of connections.

> *"My priorities would be to ensure that everywhere has got gas and electric where needs be."*
>
> **(Large business, Coventry)**

Priorities for network companies in broad role

There was a high level of crossover with domestic consumers when business consumers considered what they would like network companies to behave like more broadly. Themes were:

- Efficient and effective customer service, cost management
- A 'responsible' attitude to both customers and the environment

Figure 3 – Word cloud from network company mission statement self completion (What should it be like as a company? How should it behave?)

As with domestic consumers, business customers wanted their network companies to operate in an 'ethical' way, that was 'fair' to customers and the public at large. This ethical standpoint took several forms. Firstly it meant being generally 'customer focused' in their operations. This involved having a 'friendly' approach to their dealings with customers. It also related to their financial governance with participants prioritising being 'open' and 'transparent' in their operations. Participants were generally accepting of network companies making profit but stressed that, as monopoly companies, these profits should not be excessive. Finally, participants saw behaving in an 'environmentally' responsible' way as part of being ethical. As outlined earlier, when considering network company roles in moving gas and electricity this was generally not expressed in any more detail than simply being 'green'. The findings in chapter 6 show that, while behaving in an environmentally sound way is prioritised initially, this is not necessarily followed through when prioritising specific outputs. There may be an element of lip-service being paid to environmental concerns. When asked why this was being prioritised responses often centred around this being important because it was a high-profile issue and something 'we are all being told to think about' rather than being rooted in any deeply felt beliefs about the importance of being 'green'.

Participants also talked about wanting their network companies to adopt a 'proactive' and 'forward thinking' attitude. This involved being 'up-to-date' and at the 'forefront' of technical innovations. It also involved planning ahead to ensure the network was suitable for the challenges of the future such as population shifts and changing sources of gas and electricity.

5. Prompted priorities for networks

Following discussion of their overall priorities for gas and electricity network companies, participants went on to prioritise the RPI-X20 elements which will be used in the development of the upcoming transmission and gas distribution price controls (TPCR5 and GDPCR2). Firstly, participants were given broad descriptions of how price controls price controls work including that:

- They set of limits on the amount of money network companies can make, restrict company spending and motivate them to be more efficient, more innovative and importantly ensure customers receive a good quality of service.
- They occur periodically
- In developing them Ofgem aims to balance the need for a company to have suitable resources to run an economically viable and efficient network with the need to protect all consumers' interests

Participants were then provided with a handout which provided an explanation of the RPI-X@20 outputs (see appendix) for gas/electricity (the order was rotated between groups and interviews to minimise any effect of order) which they were talked through by the moderator/interviewer to ensure understanding of what the output referred to.

They were then asked to prioritise these outputs by placing 10 counters (or virtual counters) across the price control elements (18 for gas networks and 22 for electricity networks) to show which they considered were most important. It was explained at the outset that all of the outputs were important to a certain extent and all would be taken into account during the setting of price controls. They were therefore told that they could imagine that there was already one counter on each output. The process by which this was done varied between groups and telephone depth interviews:

- In **groups** this was done using physical stimulus of a wheel with the outputs written into equally sized segments (see appendix). Separate wheels were used for gas outputs and electricity outputs. Focus groups were separated into 2 groups of 2-3 participants who placed the their 10 counters as a group
- In **telephone depth interviews individual** participants placed counters virtually using an online exercise. Here the outputs, provided in exactly the same wording as used in the groups, were displayed on a grid (with the order of the grid randomised for each participant to minimise any order effect).

Outputs of prioritisation exercise

An overview of participants' prioritisations of the RPI-X@20 outputs for both gas and electricity networks is shown in the grid overleaf. To produce this grid, scores for similar gas and electricity outputs (e.g. '*Replace and update wires and equipment to ensure they remain reliable and efficient'* and '*Replace pipes and equipment which have worn out or need changing to ensure they remain reliable and efficient'*) have been aggregated to show an overall score. Where outputs are only present for either gas or electricity (e.g. '*Minimise power cuts by ensuring adequate infrastructure'*) their numbers of responses have been doubled to ensure these can be compared to outputs which have both a gas and electricity element, and to provide a broad overall ranking. This has then been replicated to show the ranking for gas and electricity networks separately, and for different sizes of business to allow broad comparisons.

Figure 3: Ranking of all elements of the price control

Priority	Gas ranking	Electricity ranking	Small / micro ranking	Medium ranking	Large ranking	Overall rank
Respond to emergencies as soon as reasonably possible	1	1	1	1	1	**1**
Plan ahead to avoid future problems on the network	3	2	3	4	2	**2**
Maintenance	2	7	3	7	3	**3**
Act quickly after a power cut so that customers get their electricity back.		3	2	8	5	**4**
When replacing pipes, inform customers of when they will be cut off and reconnected	5		5	2	11	**5**
Replace	4	9	11	5	5	**6**
Respond to faults as quickly as reasonably possible		5	6	2	11	**6**
Minimise the level of disruption to customers caused by any work or loss	7	4	10	5	10	**8**
Provide customers with advanced warning of work being done	8	6	8	9	5	**9**
Minimise power cuts by ensuring adequate infrastructure		7	6	10	9	**10**
Comply with health and safety laws and rules	6	10	8	14	4	**11**
Consider the impact on the environment and landscape when constructing networks	8	12	13	15	8	**12**
Minimise the time it takes to do work	10	11	12	10	17	**12**
Make sure customers are aware of energy efficiency measures	11	15	16	12	16	**14**
Aim to reduce overall 'carbon footprint' of the company	12	15	23	12	11	**15**
Ensure that less electricity is lost as it is transported through the network		13	18	15	11	**16**
Prepare network for low carbon	13	17	14	18	21	**17**

Priority	Gas ranking	Electricity ranking	Small / micro ranking	Medium ranking	Large ranking	Overall rank
Engage with customers, especially the elderly and vulnerable to understand where the company can provide services beyond what might normally be expected	13	21	15	18	17	**18**
Ensure that it meets its social obligations	15	20	21	17	17	**19**
Ensure harmful emissions are minimised and reduced		17	18	21	11	**19**
Engage with customers requesting connections and others who may be affected e.g. Other customers, interested environmental parties	16	17	16	21	17	**21**
Minimise time between very large business customers or generators asking for a connection to the network and the company completing the actual connection	18	13	18	18	21	**22**
Connecting low carbon	17	22	22	21	23	**23**

It should be noted that this was a qualitative rather than a quantitative exercise, and hence this ranking has been produced for broad, illustrative purposes only. Participants were familiarised as far as possible with the meaning of the various outputs. However, they ranked them based on their own interpretation of these outputs, and it was sometimes apparent they varied greatly from those of other participants or from Ofgem's definitions. In some cases, people used certain terms to mean the same thing, e.g. not differentiating between 'faults' and 'power cuts' and 'responding to emergencies' (and this has led to some of them being grouped for analysis). They also sometimes de-prioritised outputs, not because they considered them to be less important, but because they perceived other motivations for network companies carrying out these duties beyond the action of a price control e.g. health and safety as a legal obligation.

Therefore while these rankings provide a useful guide to participant priorities, more important is what motivations lay behind these rankings and what they said about their reasons for what they prioritised. There was a high level of consistency in the way these outputs were prioritised between the prioritisation of gas network and electricity network output. Through the rest of this section we will therefore relate participant motivations for prioritising outputs for both network types. However, we will draw out the clear distinctions, as well as the nuance of response between these different types of network, and between businesses of different size both at an overall level, and when discussing the detailed response to each output.

Distinction in prioritising gas and electricity networks

Participants were asked to assess what differences there were in their priorities for gas and electricity networks both prior to and following the completion of their prioritisation exercise. At both times the perceived differences were extremely minor. Differences between gas and electricity where they occurred were caused, not only by slight differences in priorities for the two networks, but also by the difference in the numbers of outputs for gas and electricity. Gas had 18 outputs compared to 22 for electricity. This allowed participants more opportunity to prioritise things they considered to be of paramount importance and still have counters left over for things they considered important but were more a 'nice to have'.

On the whole what was seen as important for gas was also seen as important for electricity. For most participants electricity was more important than gas. However, the high priority assigned to maintaining and rectifying supplies were similar for gas and electricity. As with domestic consumers, safety was the only thing mentioned spontaneously as being of differing priority for gas compared with electricity networks. This was because gas was seen as being more dangerous than electricity, primarily due to its potential to cause explosions. The higher priority assigned to safety for gas networks compared to electricity was borne out during the prioritisation exercise with *replacing* and *maintaining* infrastructure (which included the outcome of reducing leakage for gas) and *complying with health and safety laws and rule* all being ranked higher for gas than electricity. However, this may also potentially be due to gas having fewer maintenance outputs than electricity networks,

serving to spread prioritisation of maintenance issues across more outputs when participants considered electricity networks.

Distinctions between the prioritisations of businesses of different size

Businesses of all sizes had the same key considerations: maintaining the supply of gas and electricity to their premises. There were very few differences between businesses of different size in the way they prioritised outputs. In some cases differences may be explained by decisions to prioritise different outputs which had similar driving motivations. For example, '*responding to emergencies', 'faults'* and *'power cuts'* were all read in a fairly similar way by participants i.e. restoring supply and fixing problems with customers supply. They were therefore used interchangeably with some businesses using one, and some another, while having the same priority in mind.

The ability to claim genuine distinctions was therefore limited, though there are a couple of distinctions between the priorities of businesses of different sizes in evidence (these have been aggregated into 'larger' and 'smaller' for ease of reporting):

- **Larger businesses (medium and large):**
  - Prioritised '*comply with health and safety laws and rules'* higher than small or medium businesses. This may be because the representatives we spoke to often had facilities or HR (and therefore health and safety) as part of their role
  - Tended to rank some maintenance/restoration of supply and disruption outputs lower than small and medium sized businesses, and rank some environmental outputs, such as '*aim to reduce overall carbon footprint of the company*' and '*ensure harmful emissions are minimised and reduced*' higher. This may be due to their roles including a focus on green issues such as reducing energy usage in their company. Also possibly because individuals in large businesses were less closely motivated by the profit of their business (i.e. they were not board level/owners). This in turn may have allowed them to focus on some issues which were of personal importance to them such as environmental or social issues.
- **Smaller businesses (micro and small)**
  - Some small businesses, particularly those in rural locations, claimed to be very close to the communities they served, and so have a higher consideration for social issues. This led them in some instances to give higher consideration to outputs with a social focus e.g. '*engaging with the elderly and vulnerable'*. Some of them mentioned that their businesses aimed to assist these groups wherever possible, and so this was an issue close to their hearts. However, small businesses ranked only slightly higher than medium and large on this output and so this sentiment may have been confined to these pockets of small business.

Prioritisation in detail

The ranking provided in figure 3 above breaks down into four distinct strata

- The highest strata of outputs are those involved with minimising disruption to service. Included in these are those aimed at maintenance, restoration of supply as well as those to do with consideration of customers. Safety is a subsidiary point to many of these, but tended not to be the driving motivation. The top half of the ranking table is included in this strata
- The second strata includes those outputs relating minimising negative impacts on the environment
- The third strata is made up of those outputs related to social issues
- The fourth, and least important strata, includes outputs involved in the making of new connections to the network, although this was more important for those businesses involved in seeking connections commercially such as construction)

While some of these strata do blend into one another (and given that this is a qualitative exercise), they are nonetheless fairly well defined and match clearly with the priorities given initially during the 'mission statement' exercise.

Minimising disruption to customers

Minimising disruption to customers was seen as the main and most important role of network companies. In the discussion of how network companies' performance should be judged or spontaneous priorities, maintaining supplies of gas and electricity to customers was the dominant issue. Indeed, it is arguably the only issue that resonates with consumers.

It is therefore understandable that the top 11 ranked outputs were related to minimising disruption to customers, either explicitly or in their interpretation by participants. These 11 outputs broke down into 3 separate groups, all aimed at minimising disruption to customers. These groups and the individual outputs associated with them are shown below.

Figure 4: groups of outputs in the 'minimising disruption to customers' strata

Group	Priority	Overall rank
Restoring supplies	Respond to emergencies as soon as reasonably possible	1
	Act quickly after a power cut so that customers get their electricity back.	4
	Respond to faults as quickly as reasonably possible	6
Maintaining consistent supplies	Plan ahead to avoid future problems on the network	2
	Maintenance of existing infrastructure	3
	Replacement of worn out parts of the network	6
	Minimise power cuts by ensuring adequate infrastructure	10
	Comply with health and safety laws and rules	11
Considering customers during works	When replacing pipes, inform customers of when they will be cut off and reconnected	5
	Minimise the level of disruption to customers caused by any work or loss	8
	Provide customers with advanced warning of work being done	9
	Minimise the time it takes to do work	12

Participants highlighted earlier in the discussion the potentially highly damaging impact of a lengthy interruption to supplies, particularly of electricity. It is therefore not surprising that outputs relating to restoring supplies received the highest priority. As outlined previously, '*respond to emergencies as soon as reasonably possible', 'act quickly after a power cut so that customers get their electricity back'* and '*respond to faults as quickly as reasonably possible' w*ere used somewhat interchangeably to mean 'fix problems with customers' supplies'. Even where this does not appear to be the main thrust of the output i.e. '*respond to emergencies',* participants construed it in this way and, although safety was a minor motivation for choosing this output, restoring customer supplies was the main reason for prioritising it. Also, being safe and being reliable were seen as going hand in hand, and so, to a certain extent, all outputs under the banner of minimising disruption had a safety component.

Maintaining supplies was seen as the key role of network companies, and the reliability of supplies (indicated by the number of outages) was identified as the key performance indicator for network companies. The prioritisation of *planning ahead* was seen as important because this would guide effective and cost efficient investment to maintain the network. This was seen as having the dual impacts of maximising reliability and minimising costs. Maintenance and replacement works (i.e. maintaining where the infrastructure is sound and replacing where it is not to ensure the system runs reliably) were seen as two essentials to maintaining a reliable service. Power cuts were seen as potentially devastating, and so minimising their occurrence was seen as important (although other broader outputs were often prioritised above this fairly specific one). Complying with health and safety law was seen as highly important, not only to ensure the safety of customers and staff of

network companies, but also because operating in a safe way and 'doing things by the book' was seen as an indicator of running a reliable and efficient network.

Communication with customers around any work being done was seen as essential to allow businesses to prepare for any impacts. This was particularly important where a customer's own supply was being interrupted (for the reasons already stated) but also when it did not directly affect them. This was because businesses could suffer great logistical impacts from works in the surrounding areas (for example, customers not being able to reach their premises easily or at all). For this reason it was important not only to communicate but also to *minimise disruption in any way possible*. '*Minimising the time taken'* to do any of these works was also seen as important to minimise the level of disruption. However, some took the attitude that this type of work is important and would therefore need to 'take as long as it takes'. Some also felt that this did not need to be prioritised as companies would themselves prioritise the speed of works in order to minimise associated costs.

Minimising negative environmental impacts

Being 'environmentally friendly' was seen as of fairly high importance during spontaneous discussion of priorities for network companies. However, when prioritised against other outputs those relating to environmental concerns fall into a distant second place. Those priorities were:

Figure 5: outputs in the 'minimising negative impacts on the environments' strata

Priority	Overall rank
Consider the impact on the environment and landscape when constructing networks	12
Make sure customers are aware of energy efficiency measures	14
Aim to reduce overall 'carbon footprint' of the company	15
Ensure that less electricity is lost as it is transported through the network	16
Prepare network for low carbon	17
Ensure harmful emissions are minimised and reduced	19
Connecting low carbon generation	23

Most of these outputs were grouped below those relating to minimising disruption to customers; however several came considerably lower down. Considering the impact on the environment was seen as important, especially by those in rural areas, due to the highly intrusive nature of some network infrastructure. While participant comments up to this point had concentrated on electricity pylons, this output was ranked higher among gas outputs than for electricity. There are several possible reasons for this. First, because there were fewer outputs for gas than electricity, this allowed participants to consider more outputs after the ones focused on 'minimising disruption to consumers'. Second, some in rural areas had noticed the high visual impact gas pipe construction

through areas of natural beauty. This output was considered ranked at this level because participants felt it was important for network companies to consider the natural (visual) environment. Unsurprisingly, this was considered more of an issue in rural areas as opposed to urban.

Most participants who prioritised this output did so for personal reasons. However for some rural businesses, protection of the beauty of the countryside was seen as vital for business if they relied on tourism for income.

Making customers aware of energy efficiency measure was seen as important primarily as a way of saving money for business customers, reflecting their overall focus on the levels of profit for their businesses. However, some also saw it as important for everyone to 'do their bit' to reduce greenhouse gas emissions. Those who did not prioritise this output tended to feel that there were a number of other organisations providing this type of information to suppliers, and also that other organisations (for example, suppliers) were better placed to communicate with businesses on this issue.

Ensuring less electricity is lost in the system was seen as important for two main reasons, neither explicitly to do with being green. First, in terms of cost inefficiencies (ultimately costing more for consumers to lose high levels of electricity in the network). Second, it was also seen as being wasteful of a precious and potentially depleting energy resource. These types of losses were seen as a negative as they were felt to increase the rate by which fossil fuels would run out.

Preparing the network for low carbon sources of gas or electricity, and connecting these sources tended to be prioritised separately. Therefore the actual priority of bringing alternative sources of gas and electricity online may be somewhat misrepresented by this ranking. As outlined above, some participants were concerned with the prospect of gas and electricity running out. Therefore prioritisation of these outputs was often as much to do with securing long term supplies of energy as it was to do with reducing carbon emissions. These sources of electricity and gas were also seen as more secure because they are onshore, and so more easily subject to domestic control than overseas resources.

'Ensuring harmful emissions are minimised and reduced' caught the attention of some participants who found health and safety issues to be a high priority, such as some large businesses.

Social issues

Social issues were seen as generally important, though they occupied a low priority when compared with other outputs discussed above:

Figure 6: outputs in the 'social issues' strata

Priority	Overall rank
Engage with customers, especially the elderly and vulnerable to understand where the company can provide services beyond what might normally be expected	18
Ensure that it meets its social obligations	19

These outputs were prioritised by some who felt it was important to assist those worst off in society, such as the elderly or infirm. Elements that caught the attention most included the '*record of customers who require special advice and extra help during a power cut, for example customers that require electricity to run medical equipment in their homes'*.
However, most individuals bypassed these as they were simply not as important as minimising disruption to consumers.

Connections

Few participants had any involvement with new connections to the network and so did not see them as particularly important; hence they are the lowest ranked strata of outputs. However, for a small minority involved in connection they were seen as critical. Those involved in connections tended to prioritise '*engaging with those requesting a connection'* and '*minimising the time'* to complete a connection. Both of these relate to previously outlined complaints from these participants relating to the cost, slow progress and poor service relating to new connections to the network.

Figure 6: outputs in the 'connection' strata

Priority	Overall rank
Engage with customers requesting connections and others who may be affected e.g. Other customers, interested environmental parties	21
Minimise time between very large business customers or generators asking for a connection to the network and the company completing the actual connection	22

6. Appendices

Appendix 1 – Depth interview discussion guide

Ofgem – TPCR5/GDPCR2 Business Audience Research

Depth interview discussion guide

Introduction – 10 mins

Interviewer introduction

- **Stress that we are seeking a business perspective – have already conducted research with domestic consumers**
- Introduce topics – transmission and distribution of gas and electricity (i.e. the pipes and wires' that bring gas and electricity to their businesses. NOTE: these are not the same company as their supplier
- Introduce client – working on behalf of Ofgem, the regulator for the gas and electricity industries in Great Britain
- Reassurance of anonymity
- Seek permission to tape
- Ensure they have email including stimulus in front of them

Respondent introduction

- Can you tell me a bit about you and your business? Probe on:
  - Sector and particular work
  - Time established
  - Number of employees
  - Current challenges (assess spontaneous energy critical nature of business)
  - Future challenges (assess concerns for future electricity and gas security/costs)
  - Their role within the business and how it relates to energy
- What role does gas and electricity have in the running of your business (ensure probe on the different roles of gas and electricity)
  - How critical are gas and electricity for your business? Which is more important for your businesses? Is it an intrinsic part of your business' product/service? Why?

  - What is/would a power cut like/be like for your business?
  - What is/would a gas outage like/be like for your business?
  - Do you have backups for either gas or electricity outages? Why do you have these? Are they costly?
- Looking ahead, how, if at all, do you think your businesses' needs and interactions with gas and electricity might change?
  - Do you have any worries relating to your business' use of gas and electricity in the future.
    - Ensure probing on non-financial concerns such as security of supply etc.
  - Do these relate to gas or electricity or both? How?

Networks and network companies – 15 mins

- Is the gas and electricity transmission and distribution process (i.e. the 'movement' of gas and electricity around the country) something you ever think about? Does that process ever cross your mind? When?
- Do you think this process is important? Why?
  - Is it more important for gas or for electricity or equally important/unimportant for both? Why?
- How much do you know about how gas and electricity gets to your business? What do you know about this process?
- Do you know the names of the company/companies which carry out this role for your business?
  - Have you ever interacted with them in the past?
  - What have your experiences of dealing with them been like?
- How well do you think these companies are performing at the moment?
  - How can you tell whether they are performing well/badly?
  - What impacts do they have on your business? E.g. interruptions to supply, disruption from roadworks etc.

Show presentation on gas and electricity networks to respondent

- What do you think of the presentation you have just seen?
  - What stood out?
  - Did anything surprise you?
  - Did it raise any further questions (refer to FAQ sheet)
  - What are your views on the role of Ofgem? Did anything stand out? Do you think they are fulfilling this remit?
- *I want you to imagine you have been put in charge of a network company and are responsible for thinking about how it will operate for the next 5 years. I want you to develop a 'mission statement' laying out the priorities of the business in terms of:*
  - *its main role of moving gas and electricity around the country*

- *what it should be like as a company? how should it behave?*

Prioritisation of gas and electricity outputs – 30 mins

General discussion of price controls

- *Broad explanation of what a price control does i.e. sets income and spending limits and places financial incentives on companies to operate in particular ways*
- *Price controls set limits on the amount of money network companies can make. They also restrict companies' spending and motivate them to be more efficient, to be more innovative and importantly ensure customers receive a good quality of service. When Ofgem reviews the price controls periodically, it needs to balance:*
  - *The need for a company to have suitable resources to run an economic and efficient network*
  - *The need to protect all consumers' interests*
- What factors do you think this price control should concentrate on <u>from your business' perspective</u>?
  - For example keeping (transmission and distribution) prices to consumers down, keeping levels of service up, incentivising particular types of behaviour
  - What should they be concentrating on to best support businesses in GB?
- Are there things which are more important with regards to gas rather than electricity?
- And are there things which are more important with regards to electric than gas?
- Why is this?

Prioritisation exercises

<u>NOTE: ROTATE GAS AND ELECTRICITY PRIORITISATION EXERCISES</u>

Read through outputs and ensure understanding (using FAQ sheet)

- Ask *respondent to follow link to Confirmit exercise and conduct prioritisation <u>from a business perspective</u>. As conducting ask them to verbalise their thought processes but do not probe before the end of the exercise.*
- *Interviewer note – need to emphasise that all of these are important / are required to an extent, but need to think about which have the highest importance for them. They can imagine that all segments already have one counter to show it does have importance.*
- Following exercise ask
  - Please can you tell me where you have placed your 'counters' and why?
  - Which have you placed most on? Why did they get highest priority?
  - Which others did you place counters on? Why were they important, but less so than others
  - Which were easy to skip over/seemed least important? Why?

<u>REPEAT FOR OTHER ENERGY TYPE</u>

<u>ENSURE THEY CLICK THROUGH TO COMPLETE SURVEY</u>

Summing up – 5 mins

- What are the differences, if any, between gas and electricity?
  - Which is more important, and why?
  - Are there different priorities for gas and electricity from your business' perspective? How different? How similar?
- What are the 3 key things that Ofgem should take into account when developing the price control?

Ofgem – TPCR5/GDPCR2 Business Audience Research

Moderator discussion guide

Introduction – 20 mins

Moderator introduction

- **Stress that we are seeking a business perspective – have already conducted research with domestic consumers**
- Introduce topics – transmission and distribution of gas and electricity (i.e. the pipes and wires' that bring gas and electricity to their businesses. NOTE: these are not the same company as their supplier
- Introduce client – working on behalf of Ofgem, the regulator for the gas and electricity industries in Great Britain
- Reassurance of anonymity
- Seek permission to tape

Respondent introduction

- Paired introduction exercise: Please introduce yourself to the person sitting next to you. Tell them a bit about you and your business in terms of:
  - Sector and particular work
  - Time established
  - Number of employees
  - Current challenges (assess spontaneous energy critical nature of business)
  - Future challenges (assess concerns for future electricity and gas security/costs)
  - Their role within the business and how it relates to energy
- Pairs to introduce each other
- What role does gas and electricity have in the running of your business (ensure probe on the different roles of gas and electricity)
  - How critical are gas and electricity for your business? Which is more important for your businesses? Is it an intrinsic part of your business' product/service? Why?
  - What is/would a power cut like/be like for your business?

  - What is/would a gas outage like/be like for your business?
- Looking ahead, how, if at all, do you think your businesses' needs and interactions with gas and electricity might change?
  - Do you have any worries relating to your business' use of gas and electricity in the future.
    - Ensure probing on non-financial concerns such as security of supply etc.
  - Do these relate to gas or electricity or both? How?

Networks and network companies – 25 mins

- Is the gas and electricity transmission and distribution process (i.e. the 'movement' of gas and electricity around the country) something you ever think about? Does that process ever cross your mind? When?
- Do you think this process is important? Why?
  - Is it more important for gas or for electricity or equally important/unimportant for both? Why?
- How much do you know about how gas and electricity gets to your business? What do you know about this process?
- Do you know the names of the company/companies which carry out this role for your business?
  - Have you ever interacted with them in the past?
  - What have your experiences of dealing with them been like?
- How well do you think these companies are performing at the moment?
  - How can you tell whether they are performing well/badly?
  - What impacts do they have on your business? E.g. interruptions to supply, disruption from roadworks etc.

Show presentation on gas and electricity networks to respondent

- What do you think of the presentation you have just seen?
  - What stood out?
  - Did anything surprise you?
  - Did it raise any further questions (refer to FAQ sheet)
- *I want you to imagine you have been put in charge of a network company and are responsible for thinking about how it will operate for the next 5 years. I want you to develop a 'mission statement' laying out the priorities of the business in terms of:*
  - *its main role of moving gas and electricity around the country*
  - *what it should be like as a company? how should it behave?*

Prioritisation of gas and electricity outputs – 70 mins

General discussion of price controls

- *Broad explanation of what a price control does i.e. sets income and spending limits and places financial incentives on companies to operate in particular ways*
- *Price controls set limits on the amount of money network companies can make. They also restrict companies' spending and motivate them to be more efficient, to be more innovative and importantly ensure customers receive a good quality of service. When Ofgem reviews the price controls periodically, it needs to balance:*
  - *The need for a company to have suitable resources to run an economic and efficient network*
  - *The need to protect all consumers' interests*
- What factors do you think this price control should concentrate on <u>from your businesses' perspective</u>?
  - For example keeping (transmission and distribution) prices to consumers down, keeping levels of service up, incentivising particular types of behaviour
  - What should they be concentrating on to best support businesses in GB?
- Are there things which are more important with regards to gas rather than electricity?
- And are there things which are more important with regards to electric than gas?
- Why is this?

Prioritisation exercises

<u>NOTE: ROTATE GAS AND ELECTRICITY PRIORITISATION EXERCISES</u>

Read through outputs and ensure understanding (using FAQ sheet)

Moderator note – need to emphasise that all of these are important / are required to an extent, but need to think about which have the highest importance for them. They can imagine that all segments already have one counter to show it does have importance.

- HANDOUT PRIORITISATION WHEEL
  - Give out 10 counters and ask to allocate as a group to the segments they think are most important.

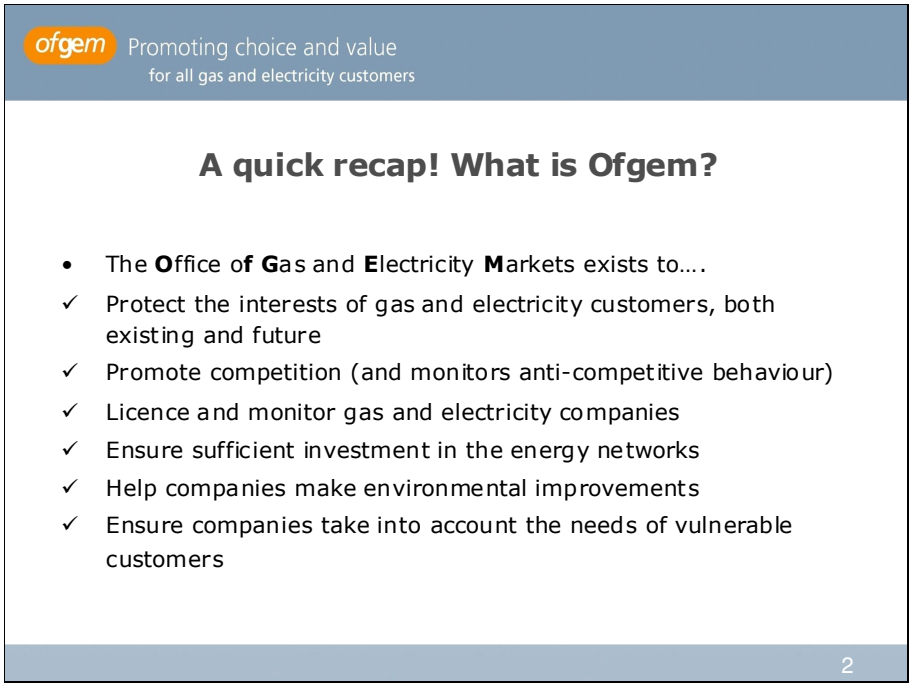
- Following exercise ask
  - Please can you tell me where you have placed your 'counters' and why?
  - Which have you placed most on? Why did they get highest priority?
  - Which others did you place counters on? Why were they important, but less so than others
  - Which were easy to skip over/seemed least important? Why?

<u>REPEAT FOR OTHER ENERGY TYPE</u>

Summing up – 5 mins

- What are the differences, if any, between gas and electricity?
  - Which is more important, and why?
  - Are there different priorities for gas and electricity from your business' perspective? How different? How similar?
- What are the 3 key things that Ofgem should take into account when developing the price control?

Appendix 3 – Presentation slides



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for all gas and electricity customers

Generators

Transmission

Distribution

Suppliers

Customers

3

ofgem Promoting choice and value
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Generators

Transmission

Distribution

Suppliers

Customers

The companies responsible for the maintenance and operations for the pipes and wires which send gas and electricity over long distances.

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Generators

Transmission

Distribution

Suppliers

Customers

There are other distribution companies for your local area, these companies are responsible for the distribution of gas and electricity the transmission network to your home via a local pipes or wires network

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Generators

Transmission

Distribution

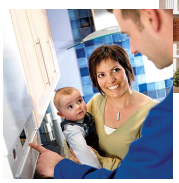
Suppliers

Customers

npower

Southern Electric

EDF ENERGY



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Facts and figures

- How much do they cost consumers each year?
  - Transmission costs – £1.8bn
  - Gas distribution costs - £2.6bn
  - Electricity distribution costs – 3.6bn
- How far do the pipes and cables stretch?
  - Electricity transmission wires – 24,000km
  - Electricity distribution wires – 789,000km
  - Gas transmission pipes – 7,600km
  - Gas distribution pipes – 275,000km (the circumference of the earth is 40,075km at the equator)

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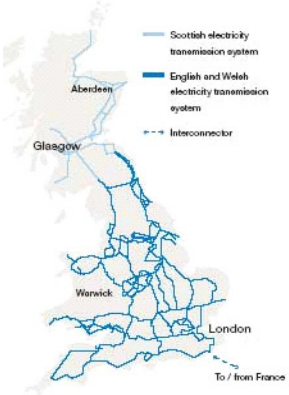
Where do these networks run? electricity



Electricity transmission

Electricity distribution

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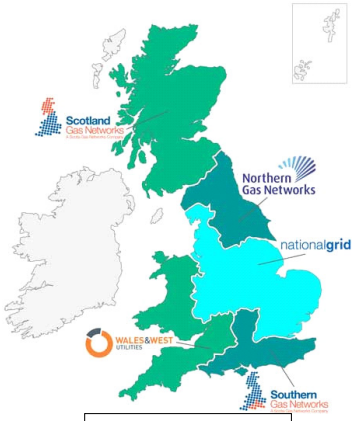
Where do these networks run? - Gas

Gas transmission



Gas distribution

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Company responsibilities

- In addition to price controls there are also a series of responsibilities on the network companies, including:
  - to manage and operate their networks in a cost-effective, efficient and co-ordinated way;
  - offer good quality of service to all customers;
  - have an suitable and efficient approach to the way they invest in their networks; and
  - ensure that long-term security of supply is maintained.

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Price Controls on network companies

- Due to the costs of putting the network structure in place, energy network companies are natural monopolies and there is no realistic means of introducing competition.
- The companies have a lot of power as monopoly companies. We need to ensure that they do not abuse their position by charging too high prices and or providing low quality.
  - So, Ofgem protects customers' interests by deciding how much money these companies should receive, through price controls which limit the amount of income network companies can make through their charges.

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Appendix 4 - Mission statement handout

Mission statements

What should their priorities be for their networks that move gas and electricity around the country?

What sort of company should they be?

Electricity networks

- **Replace and update wires and equipment** to ensure they remain reliable and efficient
- **Minimise power cuts by ensuring adequate infrastructure**
- **Act quickly after a power cut** so that customers get their electricity back.
- **Plan ahead to avoid future problems on the network**
- **Respond to faults as quickly as reasonably possible**

- **Maintain their cables and wires regularly** to ensure reasonable levels of reliability
- **Comply with health and safety laws and rules** to ensure safety at all times
- **Respond to emergencies as soon as reasonably possible**

- **Ensure that less electricity is lost** as it is transported through the network
- **Ensure harmful emissions are minimised and reduced**
- **Consider the impact on the environment and landscape** when constructing networks, eg re-routing the wires to ensure that areas of outstanding natural beauty or scientific interest are avoided
- **Aim to reduce overall 'carbon footprint' of the company**, eg by investing in green vehicles/buildings
- **Install connection technology to allow low carbon generation** (e.g. Wind or wave) to be connected to the networks

Electricity networks

- **Minimise the time it takes to do work** (e.g. Maintenance/cable replacement)
- **Provide customers with advanced warning of work being done** so customers can make arrangements to reduce the impact.
- **Minimise the level of disruption to customers caused by any work or loss of electricity**

- **Engage with customers, especially the elderly and vulnerable** to understand where the company can provide services beyond what might normally be expected e.g. working with communities where the first language is not English to produce valuable information (what to do in a power cut, who to contact etc.)
- **Ensure that it meets its social obligations** e.g. It must keep a record of customers who require special advice and extra help during a power cut, for example customers that require electricity to run medical equipment in their homes. Improve performance for customers experiencing a large number of power cuts in specific areas (typically rural).
- **Make sure customers are aware of energy efficiency measures**

- **Connecting low carbon generation** as quickly as is possible to help meet climate change targets
- **Engage with customers and other parties that may be affected by the connection** (e.g. Other customers, interested environmental parties)
- **Minimise time** between a domestic or business customer or generator asking for a connection to the network and the company completing the actual connection

Gas network

- **Carry out routine maintenance of their pipes and machinery** to make sure they are working properly and reduce leakage
- **Replace pipes and equipment which have worn out** or need changing to ensure they remain reliable and efficient
- **Comply with health and safety laws and rules** to ensure safety at all times
- **Respond to emergencies as quickly as possible**
- **Plan ahead to avoid future problems on the network**

- **Ensure that it meets its social obligations** e.g. Provide alternative heating/cooking if gas cut off, extended networks to bring gas to non gas areas so fuel poor can benefit
- **Engage with customers, especially the elderly and vulnerable customers**, to understand where the company can provide services beyond what might normally be expected e.g. Provide education on carbon monoxide to consumers
- **When replacing pipes, inform customers of when they will be cut off and reconnected**

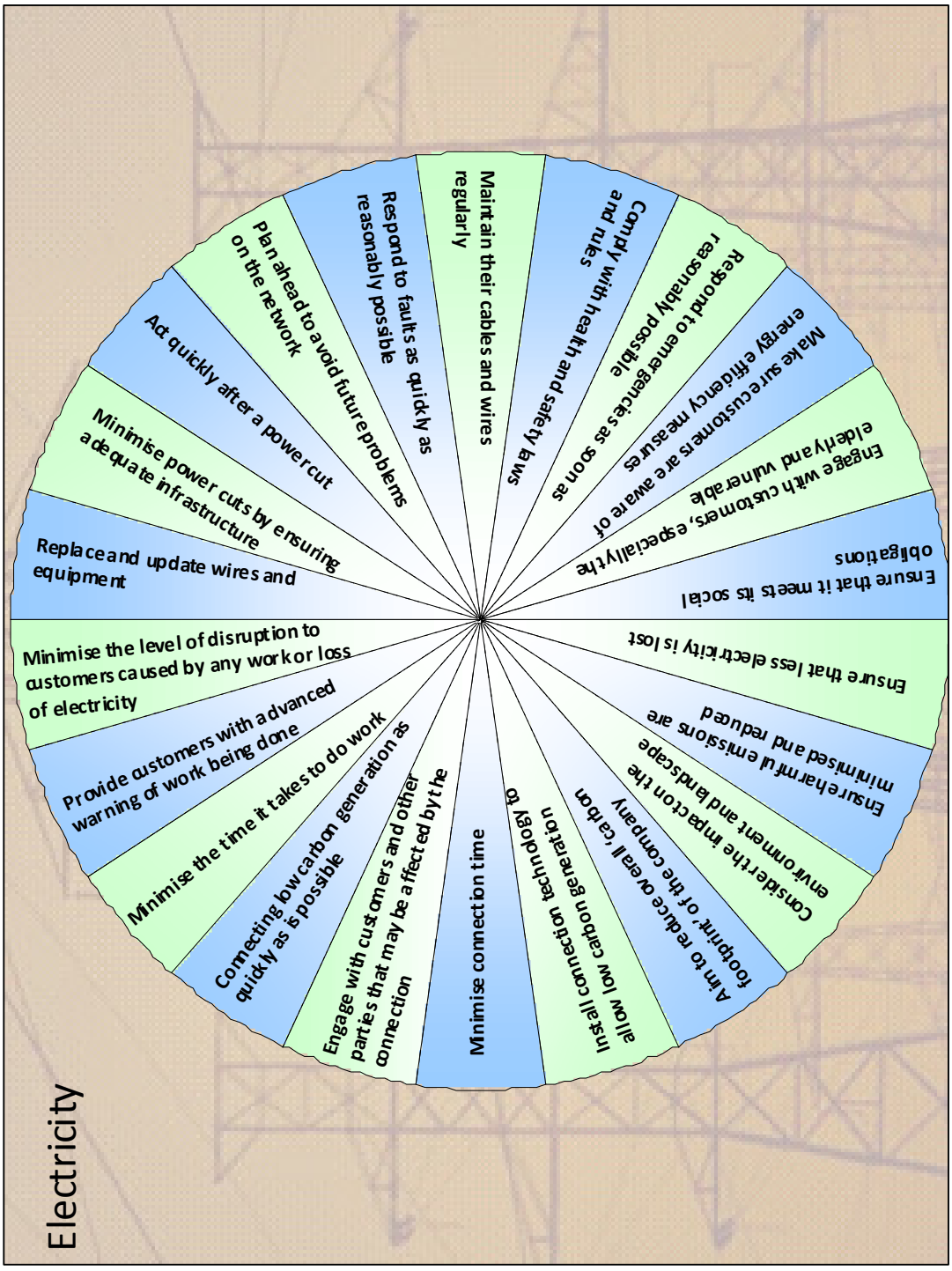
Gas network

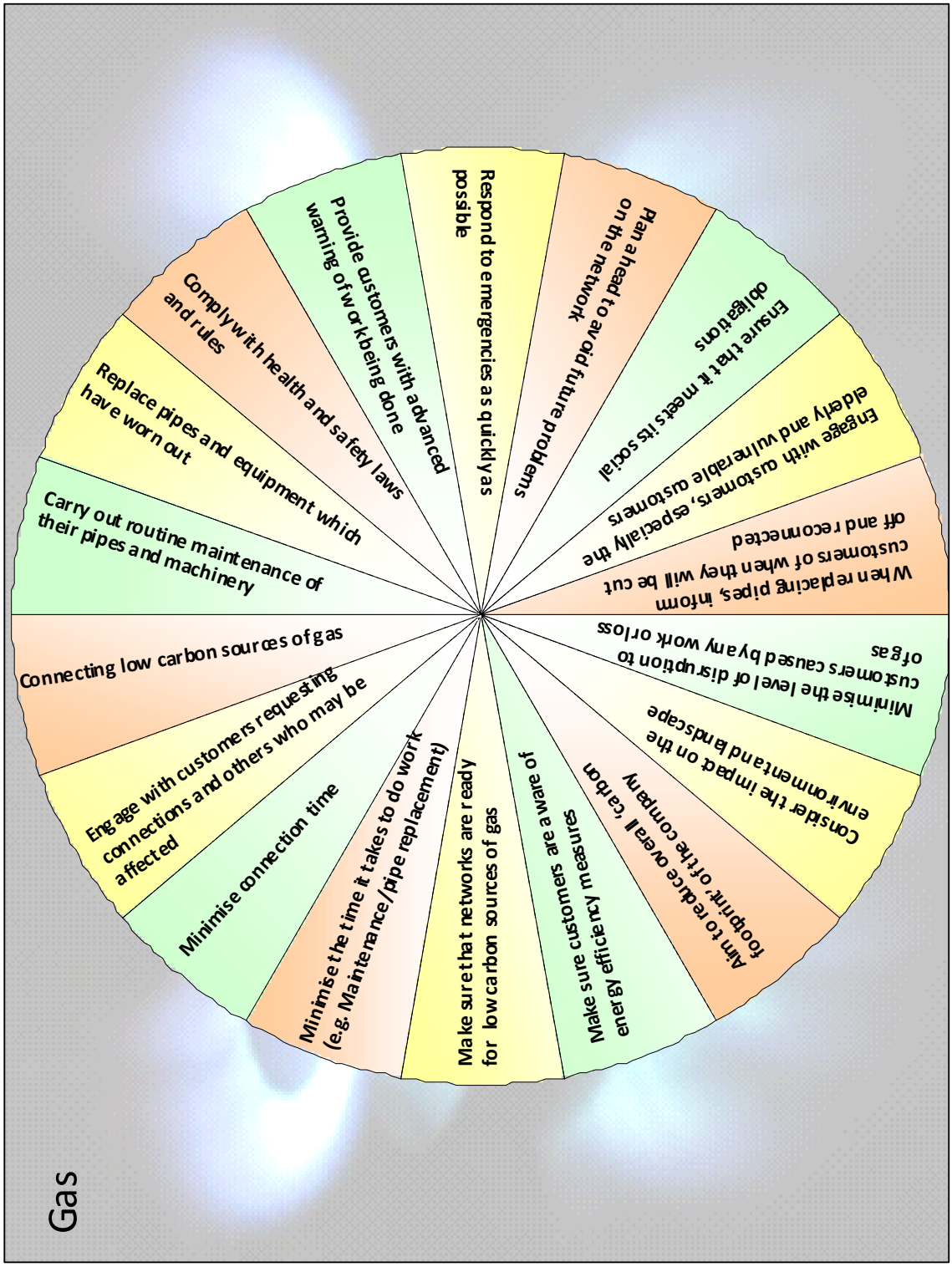
- **Consider the impact on the environment and landscape** when constructing networks, e.g. re-routing the pipes to ensure that areas of outstanding natural beauty or scientific interest are avoided
- **Aim to reduce overall 'carbon footprint' of the company**, e.g. by investing in green vehicles/buildings
- **Make sure customers are aware of energy efficiency measures**
- **Make sure that networks are ready for low carbon sources of gas** (in the future this maybe gas made naturally from organic matter)

- **Minimise time between a domestic or business customer or generator asking for a connection to the network and the company completing the actual connection**
- **Engage with customers requesting connections and others who may be affected** e.g. Other customers, interested environmental parties
- **Connecting low carbon sources of gas** e.g. From organic matter in a timely manner

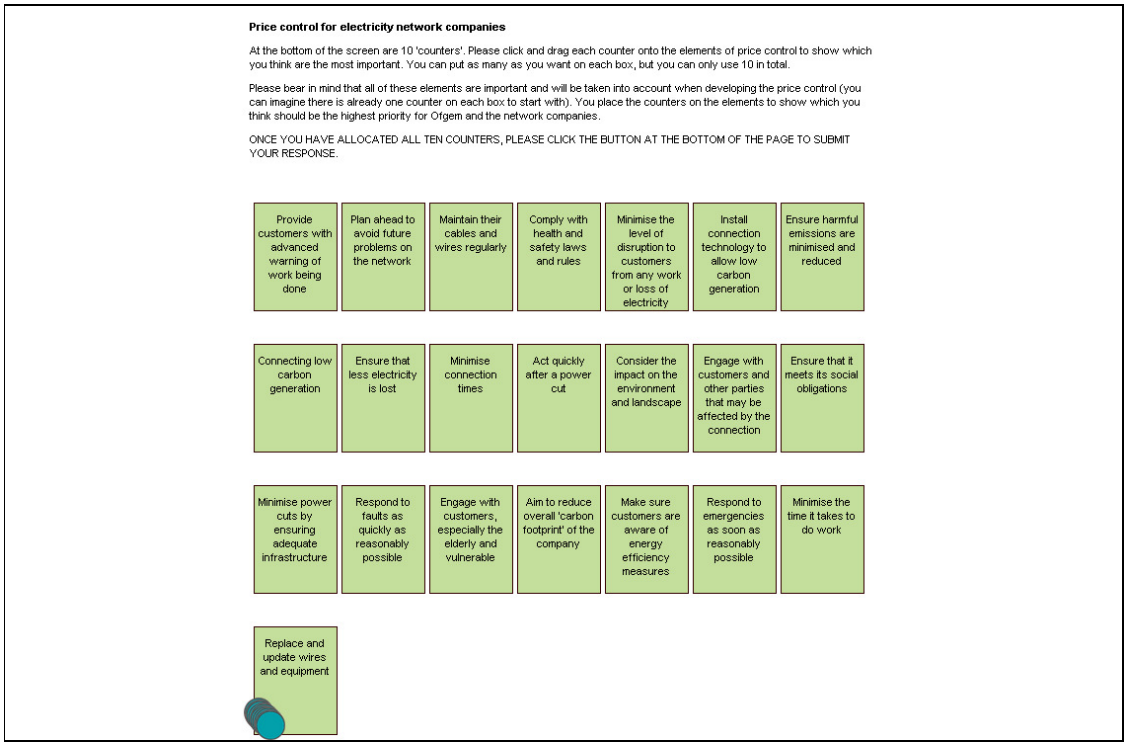
- **Minimise the time it takes to do work** (e.g. Maintenance/pipe replacement)
- **Provide customers with advanced warning of work being done** so customers can make arrangements to reduce the impact.
- **Minimise the level of disruption to customers caused by any work or loss of gas**

Appendix 6 - Prioritisation wheels





Appendix 7 – Online prioritisation exercise



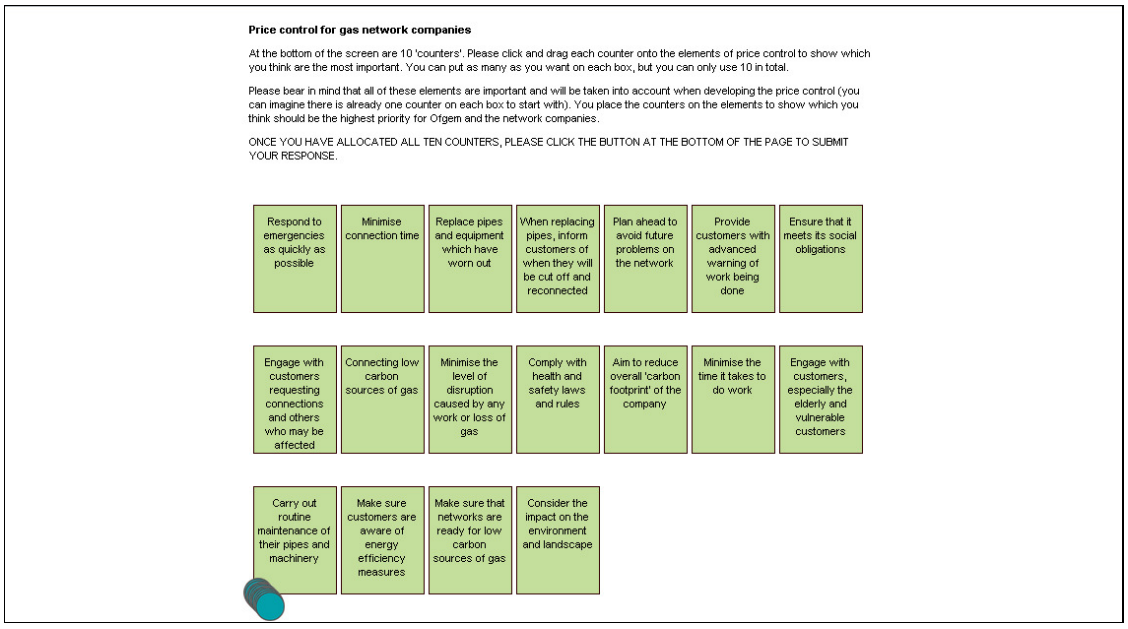
Price control for electricity network companies

At the bottom of the screen are 10 'counters'. Please click and drag each counter onto the elements of price control to show which you think are the most important. You can put as many as you want on each box, but you can only use 10 in total.

Please bear in mind that all of these elements are important and will be taken into account when developing the price control (you can imagine there is already one counter on each box to start with). You place the counters on the elements to show which you think should be the highest priority for Ofgem and the network companies.

ONCE YOU HAVE ALLOCATED ALL TEN COUNTERS, PLEASE CLICK THE BUTTON AT THE BOTTOM OF THE PAGE TO SUBMIT YOUR RESPONSE.

Provide customers with advanced warning of work being done	Plan ahead to avoid future problems on the network	Maintain their cables and wires regularly	Comply with health and safety laws and rules	Minimise the level of disruption to customers from any work or loss of electricity	Install connection technology to allow low carbon generation	Ensure harmful emissions are minimised and reduced
Connecting low carbon generation	Ensure that less electricity is lost	Minimise connection times	Act quickly after a power cut	Consider the impact on the environment and landscape	Engage with customers and other parties that may be affected by the connection	Ensure that it meets its social obligations
Minimise power cuts by ensuring adequate infrastructure	Respond to faults as quickly as reasonably possible	Engage with customers, especially the elderly and vulnerable	Aim to reduce overall 'carbon footprint' of the company	Make sure customers are aware of energy efficiency measures	Respond to emergencies as soon as reasonably possible	Minimise the time it takes to do work
Replace and update wires and equipment						



Price control for gas network companies

At the bottom of the screen are 10 'counters'. Please click and drag each counter onto the elements of price control to show which you think are the most important. You can put as many as you want on each box, but you can only use 10 in total.

Please bear in mind that all of these elements are important and will be taken into account when developing the price control (you can imagine there is already one counter on each box to start with). You place the counters on the elements to show which you think should be the highest priority for Ofgem and the network companies.

ONCE YOU HAVE ALLOCATED ALL TEN COUNTERS, PLEASE CLICK THE BUTTON AT THE BOTTOM OF THE PAGE TO SUBMIT YOUR RESPONSE.

Respond to emergencies as quickly as possible	Minimise connection time	Replace pipes and equipment which have worn out	When replacing pipes, inform customers of when they will be cut off and reconnected	Plan ahead to avoid future problems on the network	Provide customers with advanced warning of work being done	Ensure that it meets its social obligations
Engage with customers requesting connections and others who may be affected	Connecting low carbon sources of gas	Minimise the level of disruption caused by any work or loss of gas	Comply with health and safety laws and rules	Aim to reduce overall 'carbon footprint' of the company	Minimise the time it takes to do work	Engage with customers, especially the elderly and vulnerable customers
Carry out routine maintenance of their pipes and machinery	Make sure customers are aware of energy efficiency measures	Make sure that networks are ready for low carbon sources of gas	Consider the impact on the environment and landscape			