

**Central London
Willingness to Pay Market
Research**

Final Report

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CONTENTS

| | |
|---|----|
| EXECUTIVE SUMMARY | I |
| 1. INTRODUCTION | 2 |
| 1.1 Background..... | 2 |
| 1.2 Objectives | 2 |
| 2. METHODOLOGY | 3 |
| 2.1 Introduction | 3 |
| 2.2 Target Audience | 3 |
| 2.3 Survey Method | 3 |
| 2.4 Survey Numbers & Structure | 3 |
| 2.5 Questionnaire Length and Content | 4 |
| 2.6 Pilot Survey | 5 |
| 2.7 Mainstage Fieldwork Dates | 5 |
| 2.8 Quality System Details - ISO 20252 | 5 |
| 3. BACKGROUND FINDINGS | 6 |
| 3.1 Introduction | 6 |
| 3.2 Electricity bills..... | 6 |
| 4. STATED PREFERENCE ANALYSIS | 9 |
| 4.1 Background Theory | 9 |
| 4.2 Methodology..... | 9 |
| 4.3 Stated Preference Values | 11 |
| 4.4 Combined & Ranked Customer Priorities | 14 |
| 4.5 Comparison of Central London Business Priorities Compared to LPN Business Priorities | 16 |
| 4.6 Customers WTP..... | 18 |
| 4.7 Summary of Key Findings by Business Size | 20 |
| 5. CONCLUSIONS | 22 |
| Appendix A: Profile Data | |
| Appendix B: Questionnaire | |
| Appendix C: Showcards | |

Executive Summary

UK Power Networks is in the early stages of developing a business plan, for the period from April 2015 to March 2023. This will ultimately be submitted to Ofgem in July 2013 as part of its next regulatory price control (known as RII0-ED1). To support this plan UK Power Networks required research to:

- test customer preferences in respect of the options that might be included in the final business plan, and the value that they placed on these options
- determine the overall acceptability and affordability of the package as a whole.

Following a comprehensive programme of research across all three of UKPN's licence areas, research was required to identify whether there were any differences in willingness to pay amongst Central London business customers compared to all LPN customers (Central London was defined as the West End, the City and Canary Wharf).

The research findings are drawn from 200 interviews with Central London businesses (118 SMEs and 82 large businesses). Sophisticated stated preference and contingent valuation techniques were used to prioritise service aspects and determine customer willingness to pay for them.

The results revealed that Central London business willingness to pay for service changes ranges from 0.65% to 3.5%, with overall willingness to pay for all aspects tested being 20.09% of the distribution element of the bill by 2023. Their three highest priorities for changes in services are:

- Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises
- Reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 5 minutes
- Reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 10 minutes.

Willingness to pay for these services by 2023 ranged from a 2.62% increase in distribution bills for investment to reduce restoring time to 10 minutes, to 3.37% to reduce to 5 minutes, and to 3.50% for investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises.

LPN business customer priorities were:

- investment in network technologies to allow cheaper and quicker connection of new low carbon generators of electricity (not measured in Central London)
- investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises
- investment to enable uptake of micro-generation e.g. solar panels etc.

With one exception (investment to enable uptake of distributed/micro-generation) WTP is higher amongst Central London business customers than LPN business customers as a whole; overall LPN customers were WTP 18.0% for improvements to all aspects tested, whilst Central London customers were WTP 20.09%.

1. INTRODUCTION

1.1 Background

The electricity industry was privatised over 20 years ago. In that time, regulation has primarily focused on encouraging greater efficiency and thus value for money for its customers. However, political and economic priorities have shifted with the acknowledgement of the impact of climate change and the desire for greater security of supply.

The most notable consequence of this change is the recognition that billions of pounds of capital investment is required to transform the energy networks and make them fit for purpose in a low-carbon economy.

As a response, Ofgem has revised the regulatory framework which applies to networks companies. RIIO has been introduced, meaning that revenue will be generated from Incentives, Innovation and the delivery of Outputs.

Although some elements of the framework are familiar, there are also important changes to the way in which Networks companies are expected to behave. Most notable, is the recognition that all of the required investment will be financed by end-customers and therefore it is only fair that they are given an opportunity to influence investment decisions and that the networks are delivery the product and service levels that the customers require.

As a consequence, UK Power Networks needs to involve customers and other stakeholders in shaping their business plans, at all stages of the process – from high level prioritisation through to the ultimate spending decisions.

Research is therefore required to ensure that UK Power Networks' business plan is a reflection of customer priorities and the value that they place upon the elements that make up the plan. This has already begun with a comprehensive programme of research having been undertaken in all three UKPN licence areas to determine priorities and willingness to pay. This is available in separate reports. The focus of this research is upon the specific priorities and willingness to pay of Central London customers.

1.2 Objectives

UK Power Networks is in the early stages of developing a business plan, for the period from April 2015 to March 2023. This will ultimately be submitted to Ofgem in July 2013 as part of its next regulatory price control (known as RIIO-ED1).

UK Power Networks requires research to:

- test Central London customer preferences in respect of the options that might be included in the final business plan, and the value that they place on these options
- determine the overall acceptability and affordability of the package as a whole
- determine any differences in priorities and willingness to pay between LPN business customers as a whole and Central London business customers only.

2. METHODOLOGY

2.1 Introduction

The research has been undertaken with Central London business customers, Central London having been defined as businesses located in the West End, the City and Canary Wharf.

There were two stages to the research:

- Stage 1 – Design of the quantitative research:
 - 50 pilot interviews
- Stage 2 – Quantitative fieldwork :
 - 200 business Phone post Phone interviews.

This report relates to the main quantitative stage of the survey and the reporting of customer priorities and willingness to pay. Customer experiences and attitudes are reported separately.

2.2 Target Audience

The research focused on those customers who were “responsible for paying their organisation’s electricity bills or for liaising with their electricity distributor [for example, in the event of a power cut, to arrange a new connection etc]” (businesses).

2.3 Survey Method

The interviews were undertaken from Accent’s telephone units using a phone-post/email/fax-phone approach, whereby target respondents are contacted, asked some questions to determine whether they are in scope for the survey, invited to take part and – where they agree to do so – are sent show material to refer to during the interview. This show material includes context for the attributes to be discussed as well as hard copies of the choice experiments to ensure they fully understand the choices that we are asking them to make. It is sent to them as an email attachment, a fax or in the post, as they prefer.

2.4 Survey Numbers & Structure

For the mainstage of the survey a total of 200 business interviews was achieved against a target of 200. As comparisons are shown between the Central London data and the LPN data it should be noted that the number of interviews achieved for LPN as a whole was 100. Both of these cell sizes can be considered to provide robust data in the business sector.

Quotas were set by size: large businesses and small & medium businesses (SMEs), with large businesses defined as having 250+ employees. However, with there being very few businesses with 250+ employees in Central London it was recognised at the outset

that these quotas may well be unachievable. This proved to be the case, as shown in Table 1.

Table 1: Business interviews achieved against targets

| Size | Target | Achieved |
|---------------------|---------------|-----------------|
| SME | 100 | 177 |
| Large | 100 | 23 |
| Total target | | 200 |

At proposal stage it was agreed that if these targets proved unachievable the size bands would be re-defined in such a way as to make comparisons between SMEs and large businesses possible and robust. The segments were consequently re-defined as follows:

- SME: electricity bill <£8,000 per annum
- Large: electricity bill £8,000+ per annum.

The number of interviews in each of these categories is:

- SME: 118
- Large: 82.

2.5 Questionnaire Length and Content

The questionnaire took an average of 23 minutes for respondents to complete. It included a mix of background, stated preference, contingent valuation and revealed behaviour questions.

The stated preference element was used to provide a robust assessment of the relative importance consumers place on different elements during the decision making process. Both the stated preference and contingent valuation questions were used to determine customers willingness to pay for improvements or their willingness to accept a deterioration in service levels. This is explained in greater detail in Section 4.

The questionnaire was structured as follows:

- Background, contextual questions
- Stated preference (SP) exercises: 3 lower level & 1 packaged exercise
- Contingent Valuation (CV) & follow up questions
- Key demographics.

Respondents were sent (by email, fax or post) show material to refer to during the interview. This comprised explanatory information about the services being tested and copies of the SP choice experiments for their reference. The questionnaires and showcards used are shown in Appendix B and C.

2.6 Pilot Survey

A pilot of 50 interviews was undertaken between 29 October and 9 November 2012. The pilot was conducted in order to test:

- the recruitment process
- the clarity and flow of the questionnaire
- the appropriateness of the language used
- the accuracy of all routings
- ease of use of the show material
- the stated preference design and understanding of the stated preference exercises
- the interview duration
- the survey hit rate.

The results of the pilot were reported separately and reviewed with the UKPN team. No substantial changes were made to the questionnaire or stated preference exercises following the pilot.

2.7 Mainstage Fieldwork Dates

The mainstage fieldwork was undertaken between 19 November and 7 December 2012.

2.8 Quality System Details - ISO 20252

All research and analysis was undertaken in line with the requirements of International market & social research standard ISO 20252:2006.

3. BACKGROUND FINDINGS

3.1 Introduction

Before discussing the stated preference data, this section of the report gives details of some key background data findings. Charts indicating annual bill sizes for business and domestic respondents are shown, followed by customers’ perceptions of the amount currently paid to UK Power Networks.

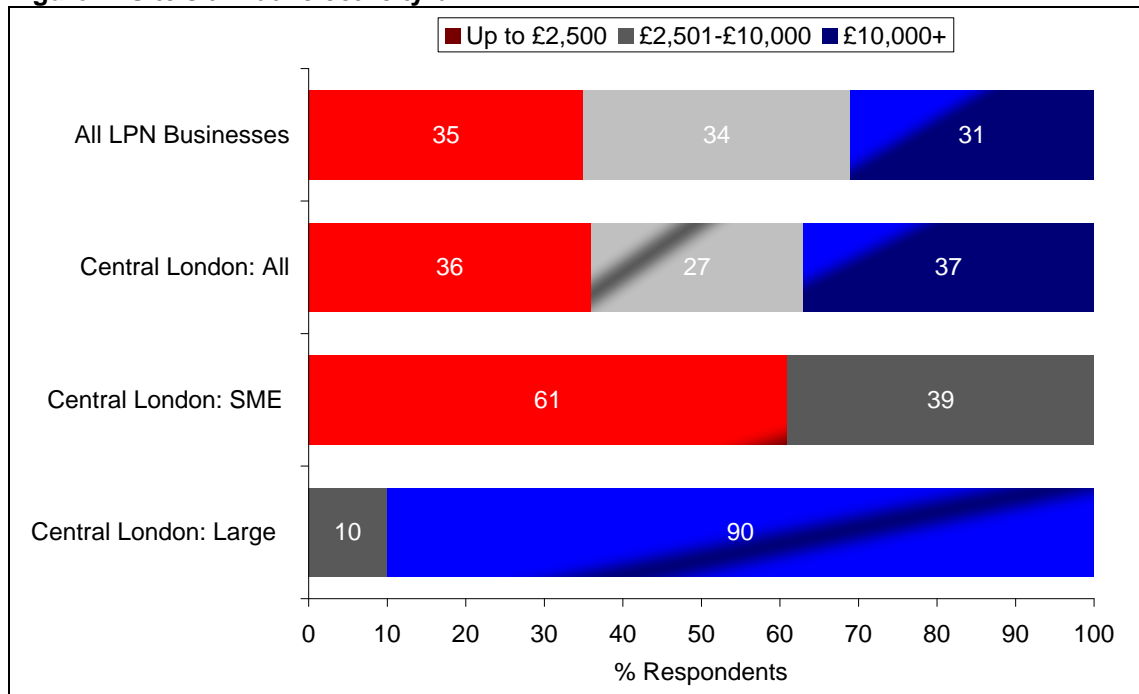
The charts show the results for Central London business customers as a whole (Central London: All), large businesses within Central London (Central London: Large), small & medium Central London businesses (Central London: SME) and LPN business customers as a whole (All LPN businesses).

3.2 Electricity bills

Before asking respondents about their experiences as a customer, all businesses were asked:

“How much is your site’s annual electricity bill?”

Figure 1: Site’s annual electricity bill

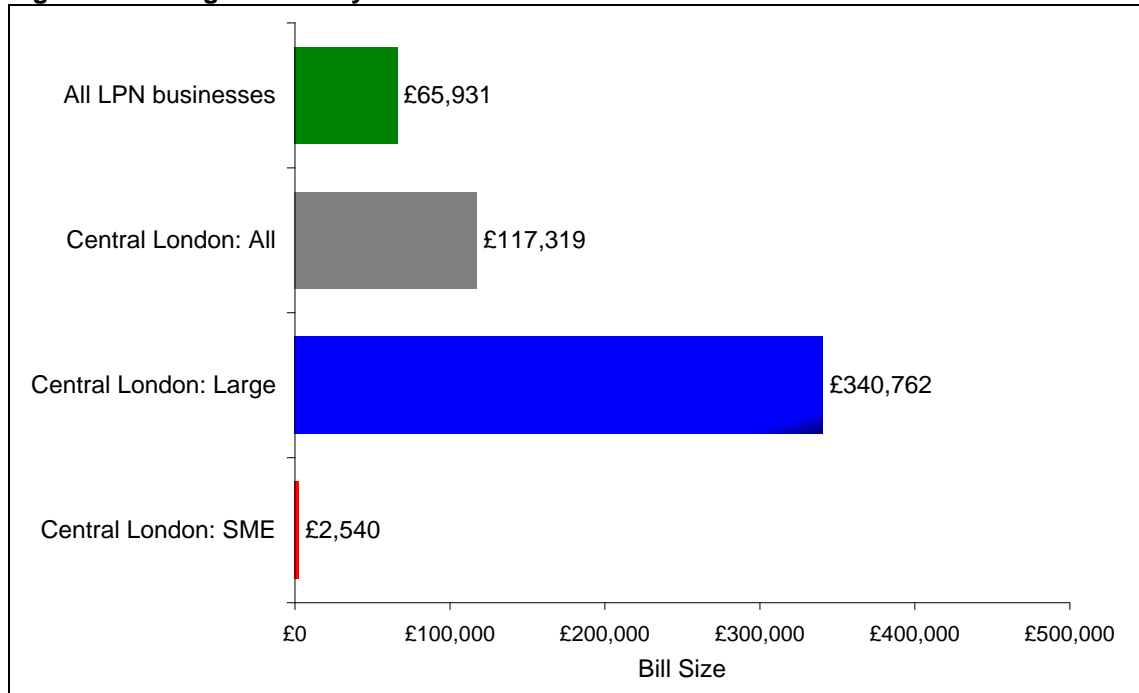


Base – all respondents: All LPN businesses: 100; Central London: All – 200; Central London SME: 118; Central London: Large: 82

Around one third (35%) of LPN business customers surveyed had an annual electricity bill of £2,500 or less, which is similar to the number in Central London (36%). Three fifths of the Central London SMEs have a bill of up to £2,500, whilst the vast majority of Central London large businesses have a bill in excess of £10,000 (this is not surprising given the definition of a large business is one having a bill of £8,000+). Over half (57%) of the large businesses had a bill of between £10,000 and £99,999, 26% had a bill of £100,000 to £999,999 and the remainder a bill above £1million.

The average bill sizes demonstrate much higher average bills in Central London than London as a whole as shown in Figure 2 (note that these exclude one outlier from the Central London data of £360,000,000).

Figure 2: Average electricity bills



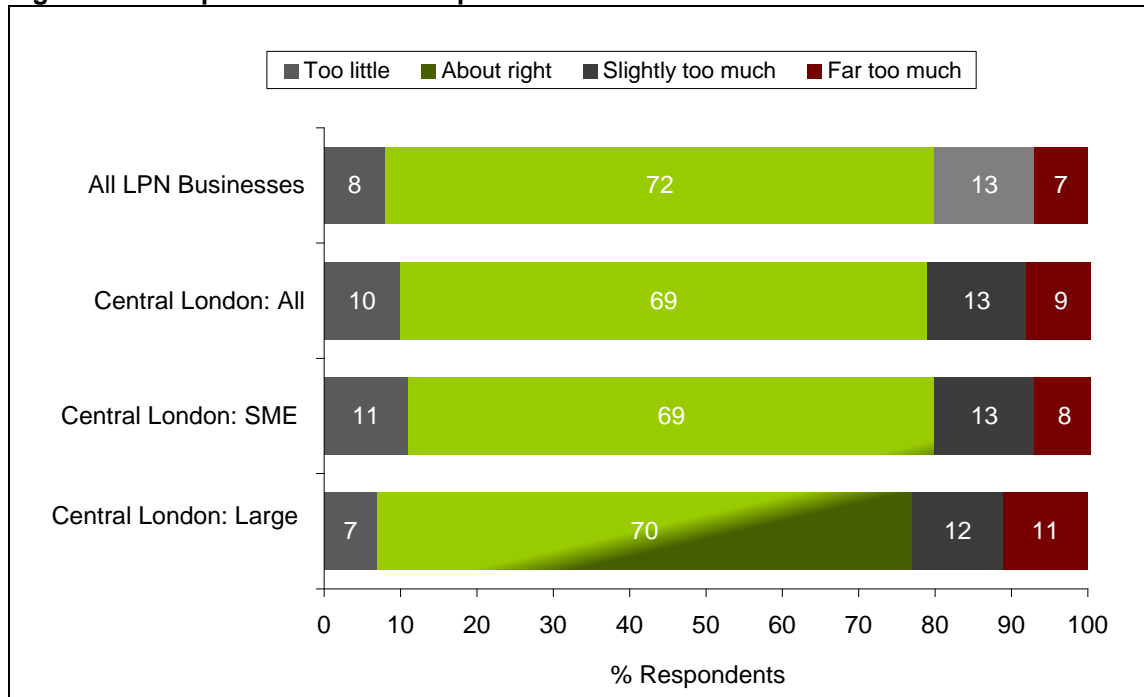
Base – all respondents except one outlier: All LPN businesses: 100; Central London: All – 199; Central London SME: 118; Central London: Large: 81

In order to understand respondents’ perception of the proportion of their electricity bill allocated to their distributor, they were all asked:

“Previously you told me that your annual electricity bill is xx. Roughly 18% of this, ie (18% OF xx computed) goes to your electricity distributor; the rest is distributed as shown in Showcard 2, ie the company that you pay your bills to. Given what we have told you about the role of the distributor, how do you feel about the amount that goes towards your distributor? Is it ...

- Too little*
- About right*
- Slightly too much*
- Far too much”*

Figure 3: Perception of the amount paid to the distributor



Base – all respondents: All LPN businesses: 100; Central London: All – 200; Central London SME: 118; Central London: Large: 82

The results are very positive for all customers, with around 70% of each segment perceiving the amount to be “about right”. The results are also very similar for those customers who feel that the distributor receives too much, with 22% of Central London business customers feeling that way compared to 20% of all LPN customers. Large businesses were slightly more likely to feel they paid too much than SMEs, but not notably so (23% compared to 21%). However, the proportion of large businesses feeling their bill was far too high was more notably higher amongst large businesses (11% compared to 8%). In line with this, a higher proportion of SMEs believed their distribution bill was too little (11% compared to 7%).

4. STATED PREFERENCE ANALYSIS

4.1 Background Theory

In principle there are two preference elicitation techniques, namely Revealed Preference and Stated Preference. The revealed preference (RP) technique is where customers reveal what they have actually chosen among the available products/services in the market, whilst stated preference (SP) refers to the observation of preferences stated against real and/or hypothetical products/services. SP enables one to test hypothetical attributes, or services levels which are not yet available, so it is particularly valuable in circumstances such as these where UKPN wants to test customer priorities for potential service improvements and their willingness to pay for them.

There are, of course, potential issues/weaknesses with SP (as reported in literature). It is possible that ‘what people state’ in a hypothetical scenario may not actually be the case in reality, which could inflate willingness to pay values. However, this can be mitigated through a carefully designed and executed SP exercise.

Ranking, rating and discrete choice experiments (DCE) are the three variants of SP. The most commonly used SP technique is the DCE as it is the simplest of the choice techniques and thus has the lowest cognitive complexity – ie the lowest degree of task complexity and difficulty arising from the experiment. The DCE experiments provide a framework for estimating the relative marginal disutility of variations in attributes, and their potential correlations. In DCE, respondents have to choose one alternative out of two or more alternatives. Examples of how they have been presented in this study, along with other methodological details, are discussed in Section 4.2.

4.2 Methodology

All survey respondents were asked to undertake a series of trade off (Stated Preference) exercises which sought to assess the relative importance and associated willingness to pay for a range of potential service improvements.

In this study respondents were shown a series of four exercises where they were asked to make choices between different service levels relating to electricity distribution. Fourteen different attributes (or service types) were tested across the three initial lower level exercises. Their associated levels are shown in the table below:

Table 2: Attributes and levels in the Stated Preference design

| EXERCISE 1 |
|---|
| TIMESCALE FOR PROVISION OF QUOTATIONS FOR HIGH VOLTAGE NEW CONNECTIONS WORK: |
| <ul style="list-style-type: none">• Within 35 working days• Within 25 working days• Within 20 working days• By date agreed with customers |
| TIMING OF ANY NEW CONNECTIONS WORK: |
| <ul style="list-style-type: none">• As now, ie work undertaken in normal business hours (08.00-17.00)• Work undertaken in normal business hours (08.00-17.00) and in the evenings• Work undertaken in normal business hours (08.00-17.00), in the evenings and at weekends• Work is undertaken within a banded time ie morning, afternoon or evening in normal |

| |
|--|
| business hours, evenings or at weekends |
| CONTACT FOR ANY NEW CONNECTIONS WORK: : |
| <ul style="list-style-type: none"> • As now, telephone or e-mail to general call centre • Phone or email contact via dedicated new connections call centre • Phone or email contact via a named co-ordinator • All contact through an on-line web portal |
| TYPE OF NEW CONNECTIONS SERVICE OFFERED: |
| <ul style="list-style-type: none"> • Standard service, with UKPN defining what they will do and what activities remain the responsibility of a customer's builder or electrician • A menu of services available from UKPN allowing the customer to choose who completes which elements of the work • All elements of the work completed by UK Power Networks |
| EXCERCISE 2 |
| INVESTMENT IN INFRASTRUCTURE TO ENABLE UKPN TO DETECT LOSS OF SUPPLY: |
| <ul style="list-style-type: none"> • No investment • Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises |
| INVESTMENT TO ENABLE GREATER UPTAKE OF ELECTRIC VEHICLES: |
| <ul style="list-style-type: none"> • No investment • Investment in infrastructure required to support take up of electric vehicles |
| RESTRICTION TO ELECTRICITY SUPPLY IN TIMES OF PEAK DEMAND: |
| <ul style="list-style-type: none"> • With no impact to business customers • With a recognition of the impact of any loss of business |
| INVESTMENT TO ENABLE UPTAKE OF DISTRIBUTED-GENERATION E.G, CHP, SOLAR PANELS ETC: |
| <ul style="list-style-type: none"> • No specific infrastructure investment; each new connection charged at cost • Investment in infrastructure to support uptake of distributed-generation technologies |
| EXCERCISE 3 |
| FREQUENCY OF POWER CUTS OVER 3 MINS - AVERAGE NUMBER: |
| <ul style="list-style-type: none"> • 1 every 36 months • 1 every 42 months • 1 every 48 months |
| URBAN CUSTOMERS: FOR POWER CUTS LONGER THAN 3 MINUTES, TIME TO RESTORE 80% OF AFFECTED CUSTOMERS: |
| <ul style="list-style-type: none"> • Within 60 minutes • Within 20 minutes • Within 10 minutes • Within 5 minutes |
| INFORMATION DURING A POWER CUT: |
| <ul style="list-style-type: none"> • Information available on contacting call centre • Information available on contacting call centre plus provision of automatic text messages to registered customers with details of power cut and updates • Information available on contacting call centre plus provision of automatic update calls to customer from call centre and follow-up call when power cut over • Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc |
| CONTINGENCY SERVICES: |
| <ul style="list-style-type: none"> • Customer responsibility for any back-up services • Provision of generator hire e.g. for an event • Provision of back-up services to customers e.g. regular testing of customer-owned generators and systems |

An example of how these were presented as a choice set is shown below:

Looking at Choice Card B1, which Option do you prefer, A or B?

| | Option A | Option B |
|--|---|---|
| Investment in infrastructure to enable UKPN to detect loss of supply | Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises |
| Investment to enable greater uptake of electric vehicles | No specific infrastructure investment | Investment in infrastructure required to support take up of electric vehicles |
| Restriction to electricity supply in times of peak demand: | With a recognition of the impact of any loss of business | With no impact to business customers |
| Investment to enable uptake of distributed-generation e.g. CHP, solar panels etc: | Investment in infrastructure to support uptake of distributed-generation technologies | No specific infrastructure investment; use traditional network investment as needed |

1. Option A 2. Option B

A final, fourth exercise brought together all of the different aspects covered in the previous exercises along with cost. In this final exercise respondents were asked to trade off the “best” or “worst” levels of each of the attributes in order to scale (or factor) the values calculated from the individual exercises and determine overall willingness to pay for them. Contingent valuation questions were also used to double check respondents’ maximum willingness to pay and these findings were used to scale the final SP data.

4.3 Stated Preference Values

The following tables show the factored coefficient scores – or values – given by all respondents to each attribute level tested.

It also shows the robust t-stat for each level. A robust ‘t test’ value of 1.96 or greater either means that respondents were significantly supportive of the proposition (ie where a positive coefficient or value was achieved) or significantly opposed to it (ie where a negative coefficient or value was achieved). For ease of comprehension, those results that are insignificant are highlighted in yellow throughout this section.

It should be noted that the “base” or “lowest” level of each attribute has a coefficient of zero against which all other levels are measured. Note that the coefficients indicate the relative importance of each level compared to another. For example, a service level with a coefficient of 0.4000 can be said to be twice a highly valued as a service level with a coefficient of 0.2000.

The results shown in the tables are very positive. The large majority of the levels were significant (ie had a t-stat of 1.96 or above), show the correct signs (ie positive where a service level is improving relative to the base and negative where it is declining relative to the base) and moving in the expected direction (ie a higher value is typically attributed to a ‘better’ service level).

However, it will also be seen that some levels were not significant, indicating that they were not valued by respondents. Game 2 and, to a lesser extent Game 1, have more significant results than in Game 3.

Game 1

The following results were achieved for Central London business customers:

- “Timescale for provision of quotations for high voltage new connections work”: All the levels were valued and significant
- “Timing of any new connections work”: Offering appointments within a banded time was the only attribute considered important and significant by Central London business customers.
- All “Contact for any new connections work” levels were insignificant.
- Finally, all the potential new connections service offerings were valued positively by customers and were significant.

Table 3: Game 1 values – Central London businesses

| Attributes | Levels | Factored coefficient | Robust t stat |
|---|---|----------------------|---------------|
| Timescale for provision of quotations for high voltage new connections work: | Within 35 working days | 0.0000 | 0 |
| | Within 25 working days | 0.0284 | 3.49 |
| | Within 20 working days | 0.0443 | 5.29 |
| | By date agreed with customer | 0.0652 | 7.02 |
| Timing of any new connections work: | As now, ie work undertaken in normal business hours (08.00-17.00) | 0.0000 | 0 |
| | Work undertaken in normal business hours (08.00-17.00) and in the evenings | -0.0033 | -0.38 |
| | Work undertaken in normal business hours (08.00-17.00), in the evenings and at weekends | 0.0081 | 0.98 |
| | Work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 0.0392 | 4.62 |
| Contact for any new connections work: | As now, telephone or e-mail to general call centre | 0.0000 | 0 |
| | Phone or email contact via dedicated new connections call centre | -0.0080 | -0.79 |
| | Phone or email contact via a named co-ordinator | 0.0055 | 0.62 |
| | All contact through an on-line web portal | 0.0042 | 0.41 |
| Type of new connections service offered: | Standard service, with UKPN defining what they will do and what activities remain the responsibility of a customer's builder or electrician | 0.0000 | 0 |
| | A menu of services available from UKPN allowing the customer to choose who completes which elements of the work | 0.0194 | 2.19 |
| | All elements of the work completed by UK Power Networks | 0.0332 | 3.75 |

Game 2 and 3

The following results were achieved in Game 2 and 3:

- all the investment attributes were significant and highly valued, particularly:
 - investing in infrastructure to enable UKPN to detect loss of supply from individual or small groups of premises (perceived as the most valuable).
- investing in infrastructure to support uptake of distributed-generation technologies and investing in infrastructure required to support take up of electric vehicles were the second and third most highly valued aspects in Game 2 and were of similar importance to Central London businesses
- “frequency of power cuts over 3 mins - average number”: moving from having a power cut every 36 months to having one every 42 was not perceived as valuable and was not significant, while moving to 1 every 48 months was significant and valued
- increasing the time to restore power to 80% of urban customers affected by a cut in excess of 3 minutes from within 20 minutes to 60 minutes was not considered acceptable or significant, while improvements to 10 or to 5 minutes were significant and highly valued
- “information during a power cut”: the only significant level was the most comprehensive option, ie, having information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff ‘knocking on doors’
- only one of the levels tested – moving from customer responsibility for any back-up services to “provision of back-up services to customers e.g. regular testing of customer-owned generators and systems” – was valued and significant.

Table 4: Game 2 and 3 values – Central London businesses

| Attributes | Levels | Factored coefficient | Robust t stat |
|--|---|----------------------|---------------|
| Investment in infrastructure to enable UKPN to detect loss of supply | No investment | 0.0000 | 0 |
| | Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 0.0956 | 11.65 |
| Investment to enable greater uptake of electric vehicles | No specific infrastructure investment | 0.0000 | 0 |
| | Investment in infrastructure required to support take up of electric vehicles | 0.0388 | 4.91 |
| Restriction to electricity supply in times of peak demand | With no impact to business customers | 0.0000 | 0 |
| | With a recognition of the impact of any loss of business | 0.0177 | 2.44 |
| Investment to enable uptake of distributed generation e.g, solar panels etc: | No specific infrastructure investment; use traditional network investment as needed | 0.0000 | 0 |

| Attributes | Levels | Factored coefficient | Robust t stat |
|---|--|----------------------|---------------|
| | Investment in infrastructure to support uptake of distributed-generation technologies | 0.0399 | 5.11 |
| Frequency of power cuts over 3 mins - average number: | 1 every 36 months | 0.0000 | 0 |
| | 1 every 42 months | 0.0191 | 1.2 |
| | 1 every 48 months | 0.0517 | 5.34 |
| Urban customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers: | Within 60 minutes | -0.0261 | -1.3 |
| | Base: Within 20 minutes | 0.0000 | 0 |
| | Within 10 minutes | 0.0716 | 4.58 |
| | Within 5 minutes | 0.0920 | 5.54 |
| Information during a power cut: | Information available on contacting call centre | 0.0000 | 0 |
| | Information available on contacting call centre plus provision of automatic text messages to registered customers with details of power cut and updates | -0.0143 | -0.72 |
| | Information available on contacting call centre plus provision of automatic update calls to customer from call centre and follow-up call when power cut over | 0.0037 | 0.18 |
| | Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc | 0.0263 | 2.35 |
| Contingency Services | Customer responsibility for any back-up services | 0.0000 | 0 |
| | Provision of generator hire e.g. for an event | 0.0179 | 1 |
| | Provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 0.0490 | 5.04 |

4.4 Combined & Ranked Customer Priorities

The following two tables combine all levels tested that were valued and significant and rank them in order of priority. Table 5 demonstrates that the following are most important to Central London businesses:

- investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises
- for urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers improved to 10 or 5 minutes
- timescale for provision of quotations for high voltage new connections work: by date agreed with customer.

Fairly high values were also associated with:

- reducing the frequency of power cuts to 1 every 48 months

- providing back-up services to customers e.g. regular testing of customer-owned generators and systems.

Of least importance are:

- type of new connections service offered: a menu of services available from UKPN allowing the customer to choose who completes which elements of the work
- restriction to electricity supply in times of peak demand : recognition of the impact of any loss of business.

Table 5: Business priorities combined and ranked

| Levels | Factored coefficient | Index |
|--|----------------------|-------|
| Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 0.0956 | 5.41 |
| Urban customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers: within 5 minutes | 0.0920 | 5.20 |
| Urban customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers: within 10 minutes | 0.0716 | 4.05 |
| Timescale for provision of quotations for high voltage new connections work: by date agreed with customer | 0.0652 | 3.69 |
| Frequency of power cuts over 3 mins - average number: 1 every 48 months | 0.0517 | 2.92 |
| Contingency services: provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 0.0490 | 2.77 |
| Timescale for provision of quotations for high voltage new connections work: within 20 working days | 0.0443 | 2.50 |
| Investment in infrastructure to support uptake of distributed-generation technologies | 0.0399 | 2.25 |
| Timing of any new connections work: work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 0.0392 | 2.22 |
| Investment in infrastructure required to support take up of electric vehicles | 0.0388 | 2.20 |
| Type of new connections service offered: all elements of the work completed by UK Power Networks | 0.0332 | 1.88 |
| Timescale for provision of quotations for high voltage new connections work: within 25 working days | 0.0284 | 1.61 |
| Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc | 0.0263 | 1.49 |
| Type of new connections service offered: a menu of services available from UKPN allowing the customer to choose who completes which elements of the work | 0.0194 | 1.10 |
| Restriction to electricity supply in times of peak demand : recognition of the impact of any loss of business | 0.0177 | 1.00 |

4.5 Comparison of Central London Business Priorities Compared to LPN Business Priorities

Sections 4.3 and 4.4 have shown the findings for Central London customers only. This section compares the ranking of Central London customer priorities against the rankings attributed to them by all London (ie LPN) customers. It should be noted that not all aspects can be compared as some were not measured in the LPN survey (either because they were added as of particular value for testing with Central London businesses or because slightly different levels were required for Central London). Where this is the case “na” is shown. Where “ns” is shown, this indicates that the level was tested, but that the finding for that level was not significant.

The comparison table highlights a number of differences between Central London and LPN customers, however, the following priorities were shared (amongst the top 5 for both):

- investment in infrastructure to detect loss of supply from individual and small premises
- timescale for provision of quotations for high voltage new connections work: by date agreed with customer.

The key differences were:

- reducing the frequency of power cuts over 3 mins - average number: 1 every 48 months was considered more valuable by Central London customers
- investment to enable uptake of distributed/micro-generation e.g, CHP, solar panels etc was considered more important by LPN customers
- being provided with a back-up service e.g. regular testing of customer-owned generators and systems was considered more valuable by Central London customers.

Table 6: Business Central London and LPN priorities combined and ranked

| Levels | Central London ranking | LPN ranking |
|--|------------------------|-------------|
| Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 1 | 1 |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 5 minutes | 2 | n/a |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 10 minutes | 3 | n/a |
| Timescale for provision of quotations for high voltage new connections work: by date agreed with customer | 4 | 4 |
| Frequency of power cuts over 3 mins - average number: 1 every 48 months | 5 | 10 |
| Contingency services: provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 6 | 11 |
| Timescale for provision of quotations for high voltage new connections work: within 20 working days | 7 | n/a |
| Investment to enable uptake of distributed/micro-generation e.g CHP, solar panels etc | 8 | 2 |
| Timing of any new connections work: work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 9 | 7 |
| Investment in infrastructure required to support take up of electric vehicles | 10 | 9 |
| Type of new connections service offered: all elements of the work completed by UK Power Networks | 11 | n/s |
| Timescale for provision of quotations for high voltage new connections work: within 25 working days | 12 | n/a |
| Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc | 13 | n/s |
| Type of new connections service offered: a menu of services available from UKPN allowing the customer to choose who completes which elements of the work | 14 | n/s |
| Restriction to electricity supply in times of peak demand : recognition of the impact of any loss of business | 15 | n/a |

4.6 Customers WTP

As mentioned in the methodology section, willingness to pay estimates have been derived from the results of the package SP exercise, scaled to the Contingent Valuation (CV) questions. The results of this analysis suggest that the average willingness to pay amongst Central London business customers is 20.09% of the distribution element of the bill by 2023.

This willingness to pay (WTP) ranged from a 0.65% increase in their distribution bill by 2023 for the lowest valued service level to a 3.50% increase for the service level valued most highly as shown in Table 7.

Table 7: Business willingness to pay – Central London

| Levels | WTP in % in 2023 |
|--|------------------|
| Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 3.50 |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 5 minutes | 3.37 |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 10 minutes | 2.62 |
| Timescale for provision of quotations for high voltage new connections work: by date agreed with customer | 2.39 |
| Frequency of power cuts over 3 mins - average number: 1 every 48 months | 1.89 |
| Contingency services: provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 1.79 |
| Timescale for provision of quotations for high voltage new connections work: within 20 working days | 1.62 |
| Investment to enable uptake of distributed generation e.g. CHP, solar panels etc | 1.46 |
| Timing of any new connections work: work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 1.44 |
| Investment in infrastructure required to support take up of electric vehicles | 1.42 |
| Type of new connections service offered: all elements of the work completed by UK Power Networks | 1.22 |
| Timescale for provision of quotations for high voltage new connections work: within 25 working days | 1.04 |
| Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc | 0.96 |
| Type of new connections service offered: a menu of services available from UKPN allowing the customer to choose who completes which elements of the work | 0.71 |
| Restriction to electricity supply in times of peak demand : recognition of the impact of any loss of business | 0.65 |

These WTP estimates for Central London are compared to estimates for LPN businesses in the table below. As demonstrated, in all but once instance (for “investment to enable uptake of distributed/micro-generation e.g. CHP, solar panels etc”) there is greater willingness to pay amongst Central London business customers than LPN business customers as a whole. In this respect it should also be remembered that average business bills in Central London are higher than for LPN businesses, and that the WTP figures are a WTP as a percentage of the distribution element of their bill.

Table 8: Business customer WTP – Central London Businesses vs All LPN Businesses

| Levels | WTP in % in 2023 Central London | WTP in % in 2023 LPN |
|--|--|-------------------------------------|
| Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 3.50 | 2.39 |
| Urban customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers: Within 5 minutes | 3.37 | n/a |
| Urban customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers: Within 10 minutes | 2.62 | n/a |
| Timescale for provision of quotations for high (Central) / simple, low (LPN) voltage new connections work: By date agreed with customer | 2.39 | 1.57 |
| Frequency of power cuts over 3 mins - average number: 1 every 48 months | 1.89 | 1.09 |
| Contingency services: Provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 1.79 | 0.94 |
| Timescale for provision of quotations for high (Central) / simple, low (LPN) voltage new connections work: Within 20 working days | 1.62 | n/a |
| Investment to enable uptake of distributed/micro-generation e.g, solar panels etc | 1.46 | 1.89 |
| Timing of any new connections work: Work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 1.44 | 1.19 |
| Investment in infrastructure required to support take up of electric vehicles | 1.42 | 1.10 |
| Type of new connections service offered: All elements of the work completed by UK Power Networks | 1.22 | n/s |
| Timescale for provision of quotations for high (Central) / simple, low (LPN) voltage new connections work: Within 25 working days | 1.04 | n/a |
| Information available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc | 0.96 | n/s |
| Type of new connections service offered: A menu of services available from UKPN allowing the customer to choose who completes which elements of the work | 0.71 | n/s |
| Restriction to electricity supply in times of peak demand : Recognition of the impact of any loss of business | 0.65 | n/a |

4.7 Summary of Key Findings by Business Size

The below comparison tables show the results by business size for Central London business customers.

As shown in Table 9, both SMEs and large businesses were prepared to pay similar proportions of their bills for “investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises” and “frequency of power cuts over 3 mins - average number: 1 every 48 months”.

However several other levels were valued in a different way by SMEs when compared with large businesses. For instance, SMEs placed a much higher value on:

- for power cuts longer than 3 minutes, time to restore 80% of affected urban customers: within 10 minutes – SMEs 3.26%; large businesses 2.45%
- investment in infrastructure required to support take up of electric vehicles – SMEs 1.81%; large businesses 0.96%
- investment in infrastructure to support uptake of distributed/micro-generation technologies – SMEs 1.63%; large businesses 1.25%

Large businesses placed higher values on:

- for power cuts longer than 3 minutes, time to restore 80% of affected urban customers: within 5 minutes – SMEs 3.53%; large businesses 4.52%
- all three levels referring to time for provision of quotations for high voltage new connections work:
 - by date agreed with customer: SMEs 2.09%; large business 2.69%
 - within 20 working days: SMEs 1.31%; large businesses 1.98%
 - within 25 working days: SMEs 0.92%; large businesses 1.14%
- timing of any new connections work: work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends: SMEs 1.31%; large businesses 1.58%.

Table 9: Willingness to pay by business size

| Levels | WTP in % in 2023 SME | WTP in % in 2023 Large Businesses |
|--|-----------------------------|--|
| Investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises | 3.60 | 3.56 |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 5 minutes | 3.53 | 4.52 |
| Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 10 minutes | 3.26 | 2.45 |
| Frequency of power cuts over 3 mins - average number: 1 every 48 months | 2.14 | 1.96 |
| Timescale for provision of quotations for high voltage new connections work: by date agreed with customer | 2.09 | 2.69 |
| Contingency services: provision of back-up services to customers e.g. regular testing of customer-owned generators and systems | 2.03 | 1.88 |
| Investment in infrastructure required to support take up of electric vehicles | 1.81 | 0.96 |
| Investment in infrastructure to support uptake of distributed/micro-generation technologies | 1.63 | 1.25 |
| Timescale for provision of quotations for high voltage new connections work: within 20 working days | 1.31 | 1.98 |
| Timing of any new connections work: work is undertaken within a banded time ie morning, afternoon or evening in normal business hours, evenings or at weekends | 1.31 | 1.58 |
| Type of new connections service offered: all elements of the work completed by UK Power Networks | 1.15 | 1.30 |
| Restriction to electricity supply in times of peak demand : Recognition of the impact of any loss of business | 0.94 | N/S |
| Timescale for provision of quotations for high voltage new connections work: within 25 working days | 0.92 | 1.14 |

5. CONCLUSIONS

Central London business customer willingness to pay for service changes ranges from 0.65% to 3.5%, with overall willingness to pay for all aspects tested being 20.09% of the distribution element of the bill by 2023.

The three highest priorities for changes in services are:

- investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises
- reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 5 minutes
- reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 10 minutes.

Willingness to pay for these services by 2023 ranged from a 2.62% increase in distribution bills for investment to reduce restoring time to 10 minutes, to 3.37% to reduce to 5 minutes, and to 3.50% for investment in infrastructure required to enable UKPN to detect loss of supply from individual or small groups of premises.

The stated preference analysis therefore indicates that security of supply is highly valued by Central London business customers.

Of least importance to Central London business customers were:

- type of new connections service offered: a menu of services available from UKPN allowing the customer to choose who completes which elements of the work
- restriction to electricity supply in times of peak demand: recognition of the impact of any loss of business.

Central London SME and large businesses share the same priorities, however, the amount that they are willing to pay for them varies, particularly for:

- reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 5 minutes where large business WTP is 4.52%. and SME WTP is 3.53%
- and, conversely, for reducing the time to restore 80% of urban customers affected by power cuts longer than 3 minutes to within 10 minutes where SME WTP is 3.26% and large businesses WTP is 2.45%.

With one exception (investment to enable uptake of distributed generation) WTP is higher amongst Central London business customers than LPN business customers as a whole; overall LPN customers were WTP 18.0% and Central London customers were WTP 20.09%.

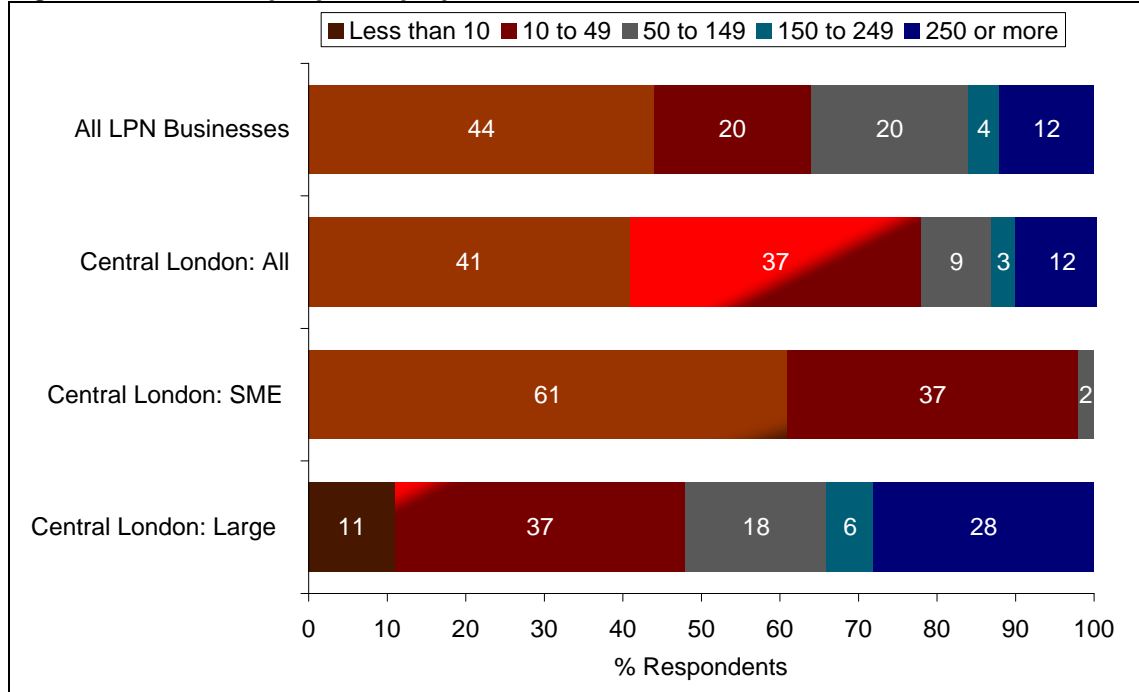
APPENDIX A

Profile Data

The charts below show the profile of business respondents. The question text is shown before each chart.

“How many people are employed by your company at this site?”

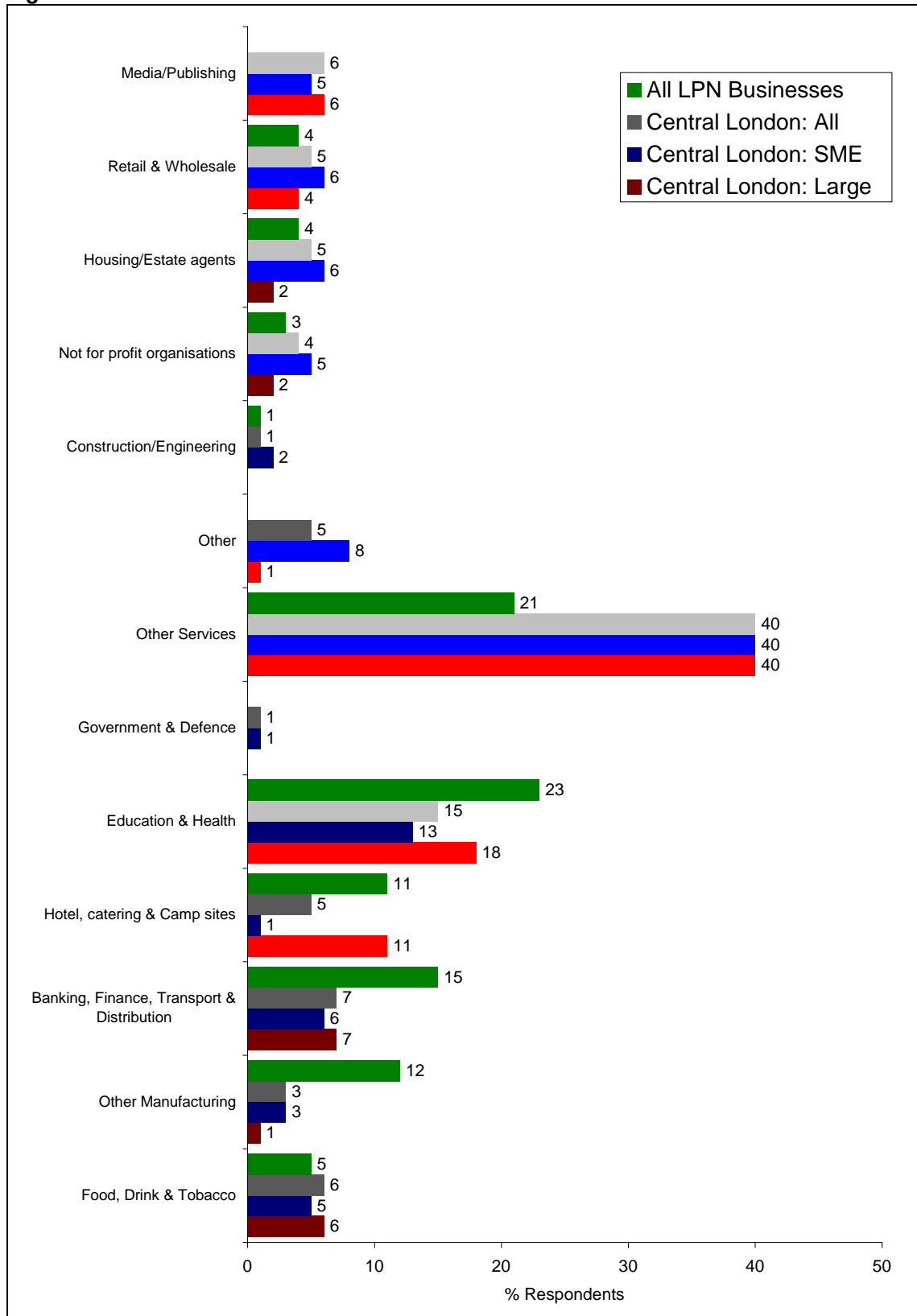
Figure 4: Number of people employed at site



Base – all respondents: All LPN businesses: 100; Central London: All – 200; Central London SME: 118; Central London: Large: 82

“And what business sector best defines the core activity of your company?”

Figure 5: Business sector



Base – all respondents: All LPN businesses: 100; Central London: All – 200; Central London SME: 118; Central London: Large: 82

APPENDIX B

Questionnaire



Interviewer name:

Date:

Time:

Recruitment Section – Client Supplied Sample

Good morning/afternoon. My name is Please could I speak to whoever is responsible for paying your organisation’s electricity bills or for liaising with your electricity distributor (for example, in the event of a power cut, to arrange a new connection etc)? **(WHEN SPEAKING TO APPROPRIATE CONTACT CONTINUE WITH EXPLANATION)**

My name is from Accent, an independent research consultancy, and we are carrying out an important research study for your electricity distribution company, UK Power Networks, to investigate what is most important to business customers and what they would like the company to invest in the coming years. This is a *bona fide* market research exercise. It is being conducted under the Market Research Society Code of Conduct which means that any answers you give will be treated in confidence. The research will be essential to ensuring that sufficient investment is made in the electricity infrastructure in the London area over the coming years to meet the needs of business customers, so it is important that we speak to as many businesses as possible. Could you please spare a couple of minutes to see if you are the type of customer we need to speak to for this research?

Q2. Do you or any of your close family work or have worked in the past in any of the following professions: marketing, advertising, public relations, journalism, market research or the energy sector?

Yes **THANK & CLOSE**

No

Q3. How much is your site’s annual electricity bill?

INTERVIEWER NOTE: IF THEY KNOW THEIR MONTHLY AMOUNT, PLEASE MULTIPLY BY 12.

£.....

Don’t know **ASK IF THEY CAN GIVE A GOOD ESTIMATE; ELSE THANK & CLOSE**

Q4. How many people are employed by your company at this site? **READ OUT BANDS IF NECESSARY**

Less than 10 **SMALL BUSINESS**

10-49 **SMALL BUSINESS**

50-149 **MEDIUM BUSINESS**

150-249 **MEDIUM BUSINESS**

250 or more **LARGE BUSINESS**

CHECK QUOTAS

Q5. And what business sector best defines the core activity of your company?

Agriculture
Food, Drink & Tobacco
Other Manufacturing
Banking, Finance, Transport & Distribution
Hotel, catering & Camp sites
Education & Health
Government & Defence
Other Services
Other **SPECIFY**

IF IN SCOPE PROCEED ELSE THANK & CLOSE

Thank you for answering those questions. As I mentioned, we are carrying out an important research study for UK Power Networks to investigate what is most important to their business customers and what their priorities are for the company for the coming years. The research will be essential to ensuring that sufficient investment is made in the electricity infrastructure in the London area over the coming years to meet the needs of business customers.

Your organisation is in scope for this research and I would be very grateful if you could spare another 20-25 minutes – either now or at a more convenient time – to run through some questions with me. You need to have some materials in front of you which I can email to you right now so that we can continue with the interview (**INTERVIEWER**: completing the interview real time must be your preferred option at all times).

email now **SEND EMAIL THEN PROCEED**

cannot continue with interview now **SEND EMAIL THEN RECORD APPOINTMENT ON NEXT SCREEN**

do not have access to email **BRING UP APPOINTMENT/ADDRESS BOX**

no **ATTEMPT TO REASSURE & PERSUADE; IF STILL NO, THANK & CLOSE**

IF CODE 1 OR 2 ABOVE, ELSE SKIP: What name shall I send these documents to. We are happy even with a first name here if you want; this is only to address you at the start of the email.

INTERVIEWER: NAME IS CORRECT - ID from sample

enter new name

Thank you. We can either do the interview now/in a few seconds, once you have received that, or at a later time today if that is more convenient to you.

Now

Later **EMAIL SENT. PLEASE CLICK AND RECORD APPOINTMENT**

Introduction to Main Survey

Thank you for agreeing to take part in this survey on behalf of UK Power Networks. This interview is about electricity distribution rather than supply; it is not about the company that you pay the bill to. If you look at Showcard 1 this explains the electricity supply chain for you. They are the ones who are responsible for the wires and cables; they are also responsible for:

- restoring the power supply if there is a power cut
- operating an emergency telephone line for any problems with power related issues
- connecting customers to their local network
- ensuring the right voltage gets to business and consumers
- investigating any complaints or problems that customers have regarding their electricity distribution service.

The questionnaire will take 20-25 minutes. You do not have to answer questions you do not wish to and you can terminate the interview at any point.

Can I check you have your materials ready to refer to? These will have either been sent in the post, sent by email or faxed to you. And what is the reference number on the materials? **INTERVIEWER: CHECK THE NUMBER IS CORRECT AND PROCEED OR RE-SCHEDULE AS APPROPRIATE.**

Correct – **PROCEED**

Incorrect – **GOT TO APPOINTMENTS SCREEN AND RE-SCHEDULE, RE-SENDING MATERIALS**

Background Questions

Q6. DP - DO NOT ASK: INPUT FROM SCREENER Q3

£

Q7. DP - DO NOT ASK: INPUT FROM SCREENER Q4:

Less than 10 **SMALL BUSINESS**
10-49 **SMALL BUSINESS**
50-149 **MEDIUM BUSINESS**
150-249 **MEDIUM BUSINESS**
250 or more **LARGE BUSINESS**

Q8. DP - DO NOT ASK: INPUT FROM SCREENER Q5:

Agriculture
Food, Drink & Tobacco
Other Manufacturing
Banking, Finance, Transport & Distribution
Hotel, catering & Camp sites
Education & Health
Government & Defence
Other Services
Other

Q9. DUMMY2: DP CALCULATE 18% OF Q6 VALUE

Q10. DUMMY

Q11. Previously you told me that your annual electricity bill is [insert response from value code at Q6].

ASK ALL: Roughly 18% of this, ie [DP INSERT FROM Q9] goes to your electricity distributor; the rest is distributed as shown in Showcard 2, ie the company that you pay your bills to. Given what we have told you about the role of the distributor, how do you feel about the amount that goes towards your distributor? Is it ...

Too little
About right
Slightly too much
Far too much

Customer Experiences

Q12. Has your business experienced any unplanned power cuts lasting more than 3 minutes (that is, any that you were not warned about) at this site in the last year?

- Yes
 - No
 - Can't remember
-

Q13. **IF NO AT Q12 ASK, ELSE GO TO Q15:** Has your business experienced any unplanned power cuts lasting more than 3 minutes (that is, any that you were not warned about) at this site in the last 5 years?

- Yes
 - No
 - Can't remember
-

Q14. **IF NO AT Q13 ASK, ELSE GO TO Q15:** Has your business experienced any unplanned power cuts lasting more than 3 minutes at this site in the last 10 years?

- Yes
 - No
 - Can't remember
-

Q15. **IF 'YES' IN Q12 OR Q13 OR Q14 ASK; ELSE GO TO Q22.** How many of these unplanned cuts have you had in the last [INSERT "YEAR" IF Q12 = 1; INSERT "5 YEARS" IF Q13 = 1 OR INSERT "10 YEARS" IF Q14 = 1] at this site?

Q16. On the last occasion that you had an unplanned power cut in excess of 3 minutes at this site, how long did it last? **INTERVIEWER: RECORD IN MINUTES (EG 1 HOUR = 60, 2 HOURS = 120 ETC); ENTER NUMBER OF 999 FOR DON'T KNOW**

Q17. Who, if anybody, did you contact on the last occasion your business experienced a power cut?

- Supplier
 - Distributor
 - Both supplier and distributor
 - No one
 - Don't know/can't remember
-

Q18. **IF 2 OR 3 IN Q17; OTHERS GO TO Q21.** Did you manage to get through to either an operator or a recorded message at your distributor?

- Yes , operator
 - Yes, recorded message
 - Yes, both
 - No
 - Don't know/can't remember
-

Q19. **IF LE 3 IN Q18 ASK; OTHERS GO TO Q21.** Did you get all the information you wanted when you made the call to your distributor?

- Yes
- No
- Don't know/can't remember

Q20. Using a scale of 1 to 5, where 5 is very accurate and 1 is very inaccurate, how accurate would you say the information you were given was?

- 5: Very accurate
- 4: Quite accurate
- 3: Neither accurate nor inaccurate
- 2: Quite inaccurate
- 1: Very inaccurate

Q21. **ASK ALL WHO HAVE EXPERIENCED AN UNPLANNED POWER CUT (YES AT Q12 OR Q13 OR Q14):**Has your distributor ever contacted you or called you back during an unplanned power cut?

- Yes
- No
- Don't know

Q22. Where your distributor is aware of a power cut affecting an area, would you like to receive information about the cut via an automatic contact via text or phone call, or are you content simply to call the call centre if you need information?

- Yes, would like call
- Yes, would like text
- Yes would like both
- No, neither
- Maybe SPECIFY, IE WHY DO THEY SAY THAT?
- Don't know
- Would like via an email

Q23. Where your distributor has information about a power cut they will usually prepare a recorded message for callers to listen to when they make contact about the cut. Is your preference to stay on the line to speak with an advisor after hearing the recorded message, or would you hang up after hearing it?

- Stay online
- Hang up
- Depends SPECIFY, IE WHY DO THEY SAY THAT?
- Don't know

Q24. **IF THEY SAY "STAY ONLINE" OR "DEPENDS" AT Q23 ASK, ELSE GO TO Q25:** What is an acceptable time to wait to speak to an advisor after hearing a recorded message? **RECORD IN SECONDS AND/OR MINUTES**

CAN WE HAVE TWO BOXES, ONE FOR MINUTES, ONE FOR SECONDS?

Q25. In the event of a power cut, how likely would you be, as a business, to visit a UK Power Networks (ie your distributor's) webpage?... mobile app? Please use a scale of 1 to 5, where 1 is very unlikely, 2 is quite unlikely, 3 is neither likely nor unlikely, 4 is quite likely and 5 is very likely?

| | Very unlikely | Quite unlikely | Neither likely nor unlikely | Quite likely | Very likely | Don't know |
|------------------|---------------|----------------|-----------------------------|--------------|-------------|------------|
| webpage | 1..... | 2..... | 3..... | 4..... | 5..... | 6 |
| mobile app | 1..... | 2..... | 3..... | 4..... | 5..... | 6 |

Q26. Would you be interested, as a business, in receiving reports on, and updates about, power cuts via social media such as Twitter or Facebook?

- Yes
- No
- Maybe
- Don't know

Q27. Again, thinking about the event of a power cut, when a cut occurred would you like staff, or an engineer, from UK Power Networks to come to your premises and explain the reason for the fault?

- Yes
- No
- Don't know
- Yes, if the cut was likely to exceed an hour
- Yes, if the cut was likely to exceed 2 hours
- Yes, if the cut was likely to be 3 hours or more
- Other **SPECIFY**

Q28. Would you value them doing so once the power was restored?

- Yes
- No
- Don't know
- Yes, if the cut exceeded an hour
- Yes, if the cut exceeded 2 hours
- Yes, if the cut was 3 hours or more
- Other **SPECIFY**

Q29. Have you ever experienced a power cut due to severe weather (eg a major storm or flooding) or due to any other emergency or unforeseen event (for example, an unforeseen attack on the network or theft of cables) at this site? **MULTICODE**

- Yes, severe weather
- Yes, attack
- Yes, cable theft
- Yes, reason unknown
- No
- Don't know

Q30. **ASK IF Q29=1, ELSE GO TO Q31:** Specifically, have you ever experienced a power cut at this site due to flooding affecting an electricity substation?

- Yes
- No
- Don't know

Q31. **ASK IF Q29=1 OR 2 OR 3 OR 4, ELSE GO TO Q33:** And when you experienced a cut due to severe weather or other extreme circumstances, did you contact your distributor when this occurred?

- Yes
- No
- Can't remember

Q32. **IF YES AT Q31 ASK, ELSE GO TO Q33:** Using a scale of 1 to 5, where 5 equals very well and 1 equals very poorly how well do you feel that your distributor dealt with the fault that resulted from this severe event?

- 5: very well
- 4: quite well
- 3: neither well nor poorly
- 2: quite poorly
- 1: very poorly

Q33. Has your business ever suffered inconvenience as a result of roadworks caused by UK Power Networks or another utility (ie your water company)?

- Yes, UKPN
- Yes, other utility
- Yes, organisation unknown
- No
- Don't know

Q34. **ASK IF Q33=1 OR 2 OR 3, ELSE GO TO Q35:** How inconvenient was the work to your business? Please use a scale of 1 to 3, where 3 is extremely inconvenient and 1 is quite, or moderately, inconvenient.

- 3: Extremely inconvenient
- 2: Very inconvenient
- 1: Quite or moderately inconvenient

Q35. And has your organisation ever had to contact your distributor to get a quote for a new electricity connection?

- Yes
- No
- Don't know

Q36. **IF YES TO Q35 ASK, ELSE GO TO Q37:** And did they undertake the new connection for you? ie was the work completed?

- Yes
- No
- Don't know/can't remember

Q37. Which of the following best describes your organisation's attitude towards the environment, or how "green" you consider your organisation to be?

- I think we are very green; we care about the environment: we use energy efficiently and recycle whatever we can
- I think we are quite green; we care about the environment, but we could recycle more and do more to reduce our energy usage
- We are not very green; we take some, but not much, interest in the environment
- We are not at all green; we don't care about the environment, other things are more important

Choice Experiment Intro

We are now going to go through a set of choices between service levels your organisation could experience from your distributor.

DP: ROTATE LOWER LEVEL EXERCISES; PLEASE SHADE THE LEVELS SHOWN IN EXERCISES 1 TO 3, WITH LIGHTER SHADES BEING BETTER THAN DARKER SHADES

START OF 1ST ROTATION

Choice Experiments: Set A

Please look at Showcard A. **[INTERVIEWER CHECK THAT RESPONDENT HAS SHOWCARD A IN FRONT OF THEM]**

Showcard A describes 4 aspects of a distributor's service, including:

- The timescale for provision of quotations for high voltage new connections work
- The timing of any new connections work
- Contact for any new connections work
- The type of new connections service offered.

The first service aspect on Showcard A is “**The timescale for provision of quotations for high voltage new connections work**”. Currently UK Power Networks is required to provide a quotation for high voltage new connections work within 35 working days. This could be improved to within 25 working days, within 20 working days or to being provided on a date agreed with the customer.

Do you have any questions about this? **[INTERVIEWER CHECK THAT RESPONDENT UNDERSTANDS. IF LESS THAN 100% CLEAR, READ AGAIN. WHEN 100% CLEAR, CONTINUE]**

[*] Please now read the rest of Showcard A yourself, and feel free to ask me any questions you may have about any of the material on it.

[INTERVIEWER WAIT A FEW MOMENTS, THEN ASK:]

Would you like more time? **[IF YES, ALLOW MORE TIME. IF NO, CONTINUE]**

The next four questions will each ask you to choose between two packages of service levels. Some service levels will be better in one option, and some will be better in the other. The aim of this exercise is to encourage you to consider your preferences carefully and decide which is the best option in each situation. You may not like all the parts of a package but you must decide overall which one you would prefer for your business premises.

First look at Choice Card A1. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD A1 IN FRONT OF THEM]**

The 4 service areas from Showcard A are presented alongside two options for the level of service in each case. Please take a moment to review these options. Please note that if a level is shaded it means that it is worse than the alternative option shown; where neither the option A nor the option B level is shaded, this means that both options are the same for that service.

Q38. Looking at Choice Card A1, which Option do you prefer for your business premises, A or B?

- A
- B

Q39. Why did you choose the option you did?

RECORD VERBATIM

Q40. Now turn to Choice Card A2. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD A2 IN FRONT OF THEM]** Which Option do you prefer for your business premises, A or B?

- A
- B

Q41. Now turn to Choice Card A3. Which Option do you prefer for your business premises, A or B?

- A
- B

Q42. Now turn to Choice Card A4. Which Option do you prefer for your business premises, A or B?

- A
- B

END OF 1ST ROTATION

START OF 2ND ROTATION

Choice Experiments – Set B

Please look at Showcard B. **[INTERVIEWER CHECK THAT RESPONDENT HAS SHOWCARD B IN FRONT OF THEM]**

Showcard B describes 4 aspects of a distributor's service, including:

- Investment in infrastructure to enable UKPN to detect loss of supply
- Investment to enable greater uptake of electric vehicles
- Restriction to electricity supply in times of peak demand
- Investment to enable uptake of distributed generation e.g. CHP, solar etc.

The first aspect on this card is “**Investment in infrastructure to enable UKPN to detect loss of supply**”. Currently UK Power Networks is reliant upon customers calling in to alert them to a power cut. They could invest in infrastructure which would enable them to detect loss of supply (i.e. a power cut) at individual or small groups of premises.

Do you have any questions about this? **[INTERVIEWER CHECK THAT RESPONDENT UNDERSTANDS. IF LESS THAN 100% CLEAR, READ AGAIN; WHEN 100% CLEAR, CONTINUE]**

[*] Please now read the rest of Showcard B yourself, and feel free to ask me any questions you may have about any of the material on it.

[INTERVIEWER WAIT A FEW MOMENTS, THEN ASK:]

Would you like more time? **[IF YES, ALLOW MORE TIME. IF NO, CONTINUE]**

The next four questions will each ask you to choose between two packages of service levels. Some service levels will be better in one option, and some will be better in the other. The aim of the exercise is to encourage you to consider your preferences carefully and decide which is the best option in each situation for your business premises. You may not like all the parts of a package but you must decide overall which one you would prefer.

Please look at Choice Card B1. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD B1 IN FRONT OF THEM]**

The 4 service areas from Showcard B are presented alongside two options for the future level of service in each case. Please take a moment to review these options. Please note that if a level is shaded it means that it is worse than the alternative option shown; where neither the option A nor the option B level is shaded, this means that both options are the same for that service.

Q43. Looking at Choice Card B1. Which Option do you prefer for your business premises, A or B?

- A
- B

Q44. Why did you choose the option you did?

RECORD VERBATIM

Q45. Now turn to Choice Card B2. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD B2 IN FRONT OF THEM]** Which Option do you prefer for your business premises, A or B?

- A
- B

Q46. Now turn to Choice Card B3. Which Option do you prefer, A or B?

- A
- B

Q47. Now turn to Choice Card B4. Which Option do you prefer, A or B?

- A
- B

END OF 2ND ROTATION

START OF 3RD ROTATION

Choice Experiments – Set C

Please look at Showcard C. **[INTERVIEWER CHECK THAT RESPONDENT HAS SHOWCARD C IN FRONT OF THEM]**

Showcard C describes 4 aspects of a distributor's service, including:

- frequency of power cuts over 3 mins
- time to restore 80% of affected **urban** customers for power cuts longer than 3 minutes
- information during a power cut
- contingency services.

The first aspect on this Showcard is “**frequency of power cuts over 3 mins**”. Currently, the average number of power cuts in your region is “1 every 36 months”; UK Power Networks could invest to reduce this to 1 every 42 months or 1 every 48 months.

Do you have any questions about this? **[INTERVIEWER CHECK THAT RESPONDENT UNDERSTANDS. IF LESS THAN 100% CLEAR, READ AGAIN. IF/WHEN 100% CLEAR, CONTINUE]**

[*] Please now read the rest of Showcard C yourself, and feel free to ask me any questions you may have about any of the material on it.

[INTERVIEWER WAIT A FEW MOMENTS, THEN ASK:]

Would you like more time? **[IF YES, ALLOW MORE TIME. IF NO, CONTINUE]**

The next four questions will each ask you to choose between two packages of service levels. Some service levels will be better in one option, and some will be better in the other. The aim of the exercise is to encourage you to consider your preferences carefully and decide which is the best option in each situation for your business premises. You may not like all the parts of a package but you must decide overall which one you would prefer.

Now look at Choice Card C1. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD C1 IN FRONT OF THEM]**

The 4 service areas from Showcard C are presented alongside two options for the future level of service in each case. Take a moment to review these options. Please note that if a level is shaded it means that it is worse than the alternative option shown; where neither the option A nor the option B level is shaded, this means that both options are the same for that service.

Q48. Looking at Choice Card C1. Which Option do you prefer for your business premises, A or B?

- A
- B

Q49. Why did you choose the option you did?

RECORD VERBATIM

Q50. Now turn to Choice Card C2. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD C2 IN FRONT OF THEM]** Which Option do you prefer for your business premises, A or B?

- A
- B

Q51. Now turn to Choice Card C3. Which Option do you prefer, A or B?

- A
- B

Q52. Now turn to Choice Card C4. Which Option do you prefer, A or B?

- A
- B

END OF 3RD ROTATION

Choice Experiments – Package

In this fourth exercise I would like you to consider all of the factors that I have shown you in the first three exercises. This will help us to understand how your business values specific services across the entire package that could be offered by your distributor.

In order to simplify the exercise, we have put the services into three groups, as presented in the previous exercises, and the levels of services in each group will all move together. Each group is separated by a thick black line.

We will also show you the associated change in your site's annual electricity bill year on year from 2015 to 2023.

Investment by UK Power Networks could maintain or improve service levels across all the areas shown. Alternatively, by spending less in some areas, UK Power Networks will be able to spend more in others, or reduce bills.

Please bear in mind when considering these choices that increased investment activity is required simply to maintain services at their current level. This activity is undertaken to ensure that:

- The distribution network continues to comply with relevant legislation,
- The distribution networks continues to operate safely
- The overall condition and health of the distribution network does not deteriorate, which would otherwise cause an increase in the number of power cuts experienced by customers.

When making your choices between the different service packages, please also bear in mind the following:

- That your bill would also increase by the rate of inflation each year and by any increases imposed by your electricity supplier
- That any money you would pay for better service levels here will not be available for your business to spend on other things
- That other business bills may go up or down affecting the amount of money you have to spend in general; and
- That the new bill level (from 2015) will also apply in all later years, from 2023 onwards, your bill will not drop back to the level it was prior to the service improvement.

Please look at Choice Card P1. **[INTERVIEWER CHECK THAT RESPONDENT HAS CHOICE CARD P1 IN FRONT OF THEM]**

There are 12 different service areas presented, plus the impact on your site's electricity bill. As in the previous exercise, you are shown two different options. Please note that if a level is shaded it means that it is worse than the alternative option shown; where neither the option A nor the option B level is shaded, this means that both options are the same for that service group.

Take a moment to review these options.

Q53. Looking at Choice Card P1. Which Option do you prefer for your business premises, A or B?

- A
- B

Q54. Why did you choose the option you did?

RECORD VERBATIM

Q55. Now turn to Choice Card P2. Which Option do you prefer for your business premises, A or B?

- A
- B

Q56. Now turn to Choice Card P3. Which Option do you prefer, A or B?

- A
- B

Q57. Now turn to Choice Card P4. Which Option do you prefer, A or B?

- A
- B

Q58. Now turn to Choice Card P5. Which Option do you prefer, A or B?

- A
- B

Q59. Now turn to Choice Card P6. Which Option do you prefer, A or B?

- A
- B **GO TO Q61**

Q60. Keep looking at Choice Card P6. The cost of providing Option B on this card is not fully determined at this stage. If the cost of Option B was £X(-) each year for 8 years, from £X in 2015 to £X in 2023, would you still choose Option A or would you now choose Option B? **[SKIP Q61]**

- A
- B

Q61. Keep looking at Choice Card P6. The cost of providing Option B on this card is not fully determined at this stage. If the cost of Option B was an increase of £X(+) each year for 8 years, from £X in 2015 to £X in 2023, would you still choose Option B or would you now choose Option A?

- A
- B

Follow-up Questions

I would now like to ask you a few questions about the choices you have just made.

Q62. Did you feel able to make comparisons between the choices I presented to you?

1. Yes **GO TO Q64**
2. No

Q63. Why weren't you able to make the comparisons in the choices?

Q64. In the choices, did you find each of the levels of service we described realistic & easy to understand?

1. Yes **GO TO Q66**
2. No

Q65. Which levels did you feel were not realistic or easy to understand?

Demographics

Q66. Finally, to help us analyse your responses, can you please tell me how many employees there are at your business premises?

1. 0 – 4
2. 5 – 9
3. 10 - 19
4. 20 - 49
5. 50 - 99
6. 100 - 249
7. 250 - 499
8. 500 - 999
9. 1,000 +
10. Don't know/not stated

Q67. We really appreciate the time that you have given us today. Would you be willing to be contacted again for clarification purposes or be invited to take part in other research for UK Power Networks?

- Yes, for both clarification and further research
- Yes, for clarification only
- Yes, for further research only
- No

Q100 Finally, we mentioned that there would be a £10 incentive for completing this survey. This can be sent as an Amazon voucher to your email address or as a Boots voucher through the post. Which would you prefer? Please note, we send all incentives at the end of the fieldwork so this will take a few weeks to get to you.

1. Amazon voucher to #QEMAIL#
2. Amazon voucher to another email id SPECIFY EMAIL
3. Boots voucher SPECIFY ADDRESS ON NEXT PAGE

Could you provide us with your full postal address please?

that was the last question. Thank you very much for your help in this research

Please can I take a note of your name and telephone number for quality control purposes?

Respondent name:

Telephone: home:..... work:.....

Thank you

I confirm that this interview was conducted under the terms of the MRS code of conduct and is completely confidential

Interviewer's signature:

Debriefing Questions – to be completed by the interviewer when interview is over

Q68. In your judgement, did the respondent understand what he/she was being asked to do in the questions?

- Understood completely
 - Understood a great deal
 - Understood a little
 - Did not understand very much
 - Did not understand at all
-

Q69. Which of the following best describes the amount of thought the respondent put into making their choices?

- Gave the questions very careful consideration
 - Gave the questions careful consideration
 - Gave the questions some consideration
 - Gave the questions little consideration
 - Gave the questions no consideration
-

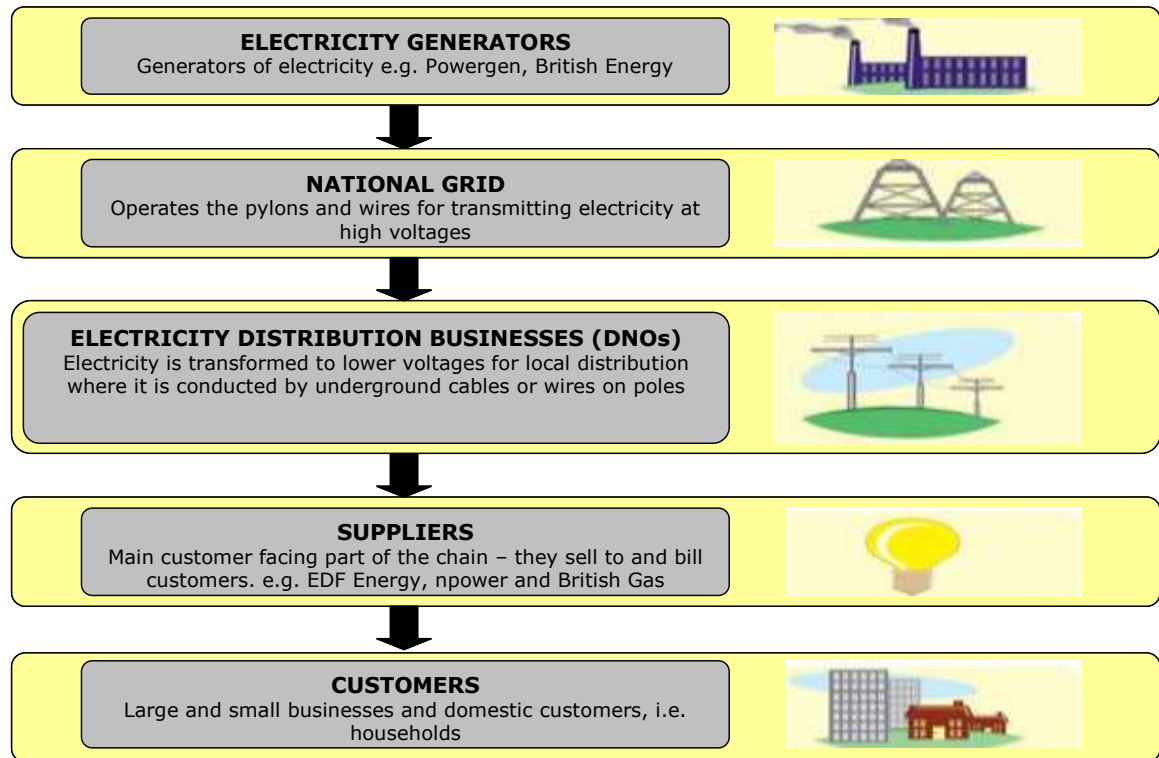
Q70. Which of the following best describes the degree of fatigue shown by the respondent when doing the choice experiments?

- Easily maintained concentration throughout the survey
- Maintained concentration with some effort throughout the survey
- Maintained concentration with a deal of effort throughout the survey
- Lessened concentration in the later stages
- Lost concentration in the later stages

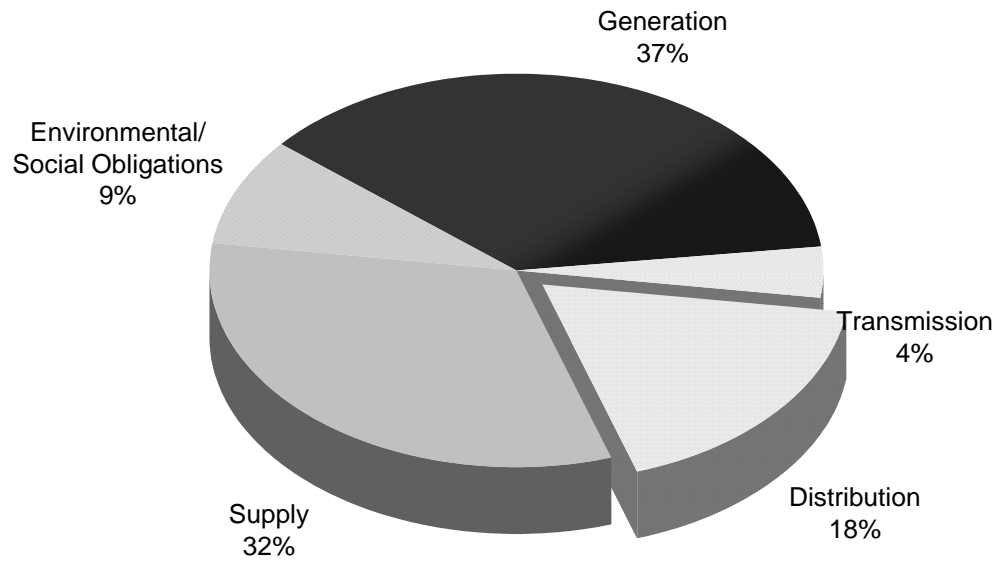
APPENDIX C

Showcards

SHOWCARD 1: OVERVIEW OF THE ENERGY SUPPLY CHAIN



SHOWCARD 2: ELECTRICITY BILL ALLOCATION



SHOWCARD A: NEW CONNECTIONS WORK

Timescale for provision of quotations for high voltage new connections work:

Currently UK Power Networks is required to provide a formal quotation for a High Voltage demand connection within 35 working days. They could invest to improve this to within 25 working days, within 20 working days or to being provided on a date agreed by the customer.

Timing of any new connections work:

New connections work is currently undertaken in normal business hours, i.e. between 8.00am and 5pm. They could invest to enable work to be undertaken in the evening or at weekends if preferred, or within a banded time (i.e. morning, afternoon or evening) in normal business hours, evenings or at weekends.

Contact for any new connections work:

Currently, contact for new connections work is made via telephone or e-mail to a general call centre. UK Power Networks could invest to enable contact for new connections to be made by phone or email to a dedicated new connections call centre, a named co-ordinator or through an on-line web portal.

Type of new connections service offered:

UK Power Networks currently offers a standard new connections service, where they define what elements they will do and what activities must be done by the customer's developer or contractor.

However, UK Power Networks could broaden the range of services it offers to include those typically undertaken by the customer's developer or contractor and allow the customer to decide what they wanted to commission from UK Power Networks.

Alternatively, UK Power Networks could undertake all elements of the work so that the customer does not have to worry about commissioning any other supplier.

SHOWCARD B: TECHNOLOGY & LOW CARBON TECHNOLOGY INVESTMENTS

Investment in infrastructure to enable UKPN to detect loss of supply:

Currently UK Power Networks is reliant upon customers calling in to alert them to a power cut. They could invest in infrastructure which would enable them to detect loss of supply (i.e. a power cut) at individual or small groups of premises.

Investment to enable greater uptake of electric vehicles:

UK Power Networks is not currently making any specific investments in infrastructure to support the uptake of electric vehicles. They could invest ahead of need to support the take up of electric vehicles.

Restriction to electricity supply in times of peak demand

UK Power Networks develops its infrastructure to cope with the maximum demand for electricity. This of course means that it is investing in capacity which is only required at specific points of time. An alternative to this expenditure might be to actively manage the demand on the network. UK Power Networks could invest in commercial arrangements such that non-essential users of electricity could reduce their demand on request.

Investment to enable uptake of distributed generation e.g. CHP, solar etc:

UK Power Networks is not currently making any specific investments in infrastructure to support the take up of distributed generation technologies within business/commercial premises/sites; rather, they invest as needed either to respond to specific developments or constraints in the network. They could invest in infrastructure ahead of need to support the uptake of micro-generation technologies such as CHP or solar panels etc.

SHOWCARD C: NETWORK RELIABILITY

Frequency of power cuts over 3 mins:

Currently, the average number of power cuts in your region is 1 every 36 months. UK Power Networks could invest to reduce this to 1 in every 42 months or 1 in every 48 months.

Time to restore 80% of affected urban customers for power cuts longer than 3 minutes:

Currently UK Power Networks restores 80% of customers in urban areas who have been affected by a cut within an average of 20 minutes of being made aware of the cut. They could invest to reduce this to within 10 minutes or to within 5 minutes; or, alternatively, the average time to restore them could be worsened to within 60 minutes in return for a lower bill.

Information during a power cut:

Currently customers can get information about a power cut by contacting UK Power Network's call centre. They could invest to offer other means of getting information on a cut, including:

- provision of automatic text messages to registered customers (i.e. customers that provided their mobile phone details when they contacted the call centre) with details of power cut and updates
- provision of automatic update calls to customer from the call centre and a follow-up call when the power cut is over
- provision of additional information services such as real-time information on the internet, use of social media, customer service staff 'knocking on doors' etc.

Contingency services

It is currently the responsibility of customers to provide themselves with any back-up services, such as a generator, in the event of a power cut. UK Power Networks could provide services in this area, including:

- the provision of generator hire e.g. for an event
- provision of back-up services to customers e.g. regular testing of customer-owned generators and back-up systems.