perceptive insight™

Market research and consumer engagement services for RP6

Executive summary prepared for:

Northern Ireland Electricity Networks

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Contents

1.1 Introduction

This Executive Summary provides an overview of the research findings from a programme of research conducted on behalf of Northern Ireland Electricity Networks (NIE Networks), in conjunction with the Consumer Council, the Utility Regulator and the Department for Enterprise, Trade and Investment (DETI). Detailed research findings are provided in separate annexes, and include separate detail for domestic customers, non-domestic customers and stakeholders.

Terms of reference

The Consumer Engagement Advisory Panel (CEAP), comprising of representatives from NIE Networks, the Consumer Council, the Utility Regulator and DETI, commissioned Perceptive Insight, in partnership with Queen's University, to undertake a comprehensive study of consumer and stakeholder views to inform the preparation processes for Regulatory Period 6 (RP6).

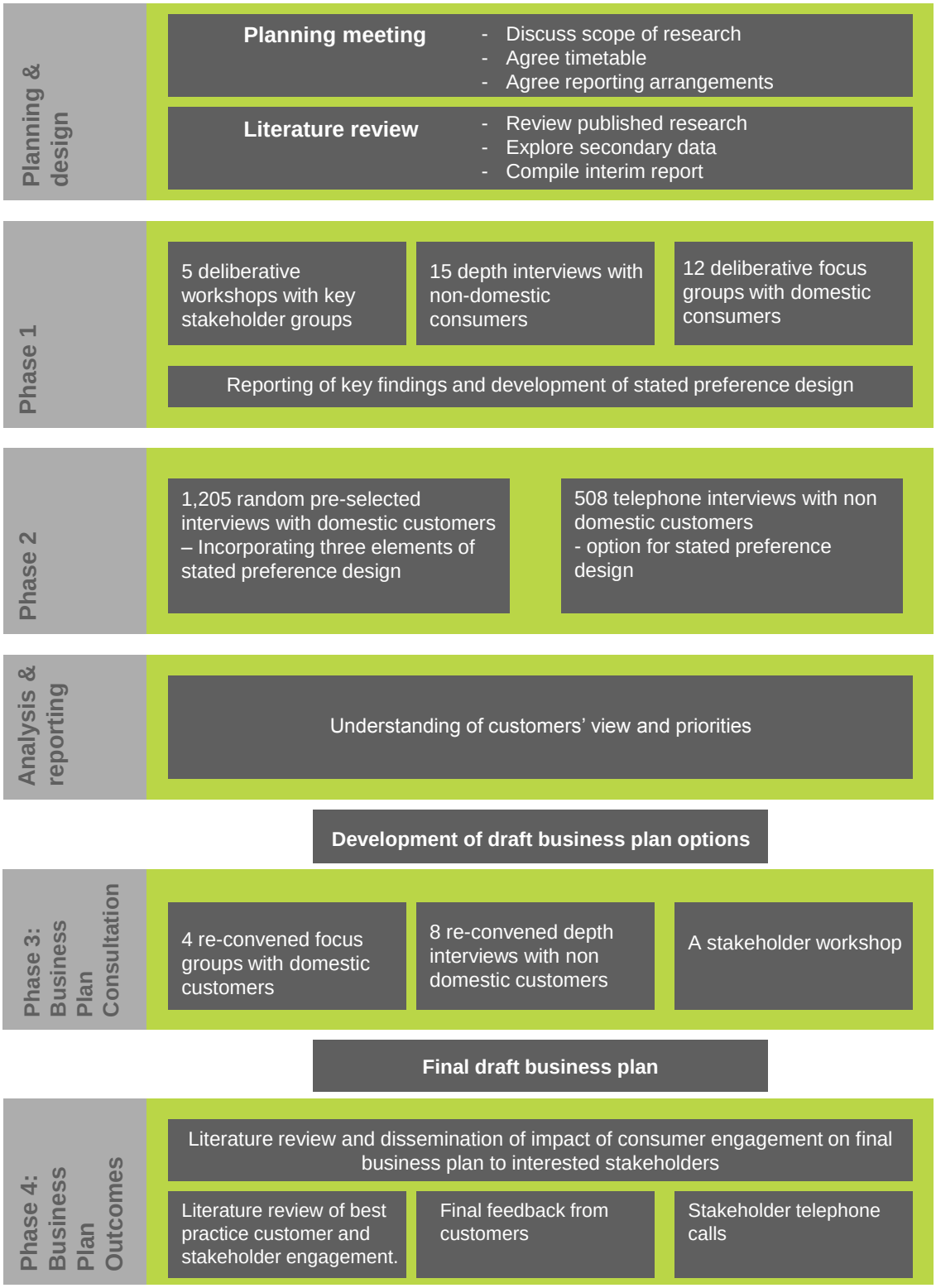
Aims and objectives

The aim of the project was to plan, implement, analyse and report on a programme of research designed to ascertain the views of NIE Networks' consumers. The research encompassed both qualitative and quantitative research techniques including consultation with domestic customers, non-domestic customers and stakeholders. The objectives were:

- To investigate consumer views of the electricity network and customer services, and the areas they want NIE Networks to prioritise and improve;
- To provide qualitative, quantitative and actionable data that can be used to inform and prioritise NIE Networks' investment planning;
  - Examine consumer views across segments, contact channels and service events;
  - Determine customer rating of individual service levels;
  - Consider investment trade-offs;
  - Review the business plan against consumer priorities.
- To understand how consumers think service delivery can be improved and by when;
- To assess levels of satisfaction and opinion of NIE Networks;
- To provide views and actionable data to inform NIE Networks' strategic direction for customer services including;
  - Assessing current and future preferred contact channels, use of technology, and provision of information;
  - Assessing current and preferred customer services, potential gaps in service, service levels and promises and Customer Care Register provision;
  - To understand what key metrics consumers value for measuring performance levels during RP6; and
  - Consumer education; and
- To continue to engage with consumers during the planning period of RP6 through to the Business Plan submission to the Utility Regulator, so as to validate with customers that the survey findings have been reflected in the Business Plan.

Methodology

The following diagram outlines the phased approach and the key steps that were undertaken in the implementation of this project. Additional methodological detail is provided at Annex A.



Structure of this report

The remainder of this report summarises the key findings from each phase of the wider research. Findings are explored thematically, and include sub-group analysis by domestic, non-domestic, stakeholder and literary sources from across each phase of the research.

The remainder of this report is structured under the following headings:

- Maintaining current service levels;
- Improving customer service;
- Reducing unplanned power cuts;
- Increasing resilience to severe weather;
- Future strategy;
- Willingness to pay and overall investment priorities; and
- Approaches to consumer engagement.

- Annex A: Detailed methodology
- Annex B: Investment options for RP6

It should be noted that there were a number of areas of service provision that were explored during the first phase of the research. However, due to lack of support to fund improvements in these services, they were not included at later phases of the research. The areas not explored in greater depth include:

- Investments to underground overhead lines in areas of outstanding natural beauty;
- Investments to underground overhead lines in urban areas; and
- Investments to resolve bird fouling issues.

Section 1.2:
Maintaining current service levels

1.2 Maintaining current service levels

This section details key research findings across all phases of the research (including qualitative and quantitative consultation with domestic customers, non-domestic customers and stakeholders) on the theme of maintaining current service levels.

The section initially outlines NIE Networks' current position, and subsequently details the corresponding views of domestic customers, and stakeholders in turn. Details of NIE Networks' proposed options for investment have been provided at Annex B.

NIE Networks' current position

NIE Networks has a proven track record of delivering a continually improving service to customers. For example:

- This is reflected in a 35% reduction in network charges since NIE Networks was privatised in 1993, achieved against the background of significantly increased capital investment;
- The key metric of network performance, 'customer minutes lost due to faults', is now approximately one third of what it was at privatisation and it benchmarks well with GB networks with comparable network technologies; and
- Since commencement of RP5, there have been no defaults against NIE Networks' guaranteed standards (i.e. standards in place to address customer issues and queries as quickly as possible), all targets for overall standards have been met, and only 11 complaints have been referred to the Consumer Council for NI.

The drive for business efficiency makes sense for NIE Networks. It is NIE Networks' intention to continue to put customers at the centre of their delivery approach between 2017 and 2024.

Domestic customers' views on maintaining current service levels

Phase 1 - qualitative

Phase 1 qualitative focus group discussions with domestic customers explored the following sub-themes, the findings from which are detailed thereafter:

- Views on service provision (both generally and with specific regard to electricity);
- Knowledge of and contact with NIE Networks; and
- Experience of electricity related issues.

Views on service provision

Participants were asked to reflect on which aspects of government and public service are of most importance to them, which parts work well and which aspects could be improved. The aim of this part of the discussion was to determine if NIE Networks was identified spontaneously as a good or poor provider of services. Key findings included:

- NIE Networks was not mentioned specifically, rather, comments reflected on the general provision of electricity. Upon probing, however, all had heard of NIE Networks;
- There was little distinguishability between NIE Networks and the electricity suppliers; and
- Despite being considered to be 'essential', it was suggested that electricity is not 'top of mind' as a public service, and is instead taken for granted.

Knowledge of and contact with NIE Networks

In some instances there was confusion about the role of NIE Networks and the suppliers.

- Some remarked that they believe NIE Networks to be the general 'providers' of electricity;
- Confusion was particularly evident between NIE Networks and Power NI;
- A few also suggested that NIE Networks generates electricity; and
- Upon being informed of NIE Networks' role, some struggled to grasp how it differed from suppliers.

It became apparent that the level of knowledge in relation to service provision was dependent on the customers' amount of contact with NIE Networks. Analysis by location reveals that:

- Participants from urban areas tended to have limited interaction with NIE Networks, other than for a meter reading, given that they experience few issues with their electricity supply;
- Those from rural areas, who had more outages and contact with NIE Networks, tended to be slightly more knowledgeable about who to contact and the structure of the market.

Experience of electricity related issues

With regard to service provision in the last 12 months:

- Few had experienced electricity related issues, particularly in urban areas;
- While there was experience of power cuts in rural groups, this was viewed as not a major problem, particularly compared with previous years; and
- There was recognition that service levels had improved compared to previously, with customers reluctant to accept a lower standard of service in the future.

Phase 2 - quantitative

The following paragraphs outline the key findings from the phase 2 quantitative survey of domestic customers, which are detailed under the headings:

- Advocacy of NIE Networks' services; and

- Opinions of NIE Networks.

Advocacy of NIE Networks' services

Respondents were asked a number of questions to capture their perceptions of NIE Networks and ascertain the extent to which they are positive or critical of the services provided. Overall:

- Few respondents (3%) indicated that they would be critical of the service provided by NIE Networks, with only 1% stating that they would offer this opinion spontaneously;
- The majority reported that they would speak highly of the service provided (52%); 38% indicated that they would speak neither positively or negatively of the service; and 3% would speak negatively of the service; and
- Those who had more than one planned outage (14%), those who experienced a planned outage lasting more than four hours (11%), and those who had an unplanned outage lasting more than three hours (13%) were more inclined to speak negatively of the service.

Opinions of NIE Networks

Respondents were then asked a number of questions to capture their perceptions of NIE Networks, and the way in which the organisation is monitored. Overall:

- Almost three quarters (72%) agreed with the statement that NIE Networks is striving to become more efficient; while only 2% disagreed;
- The same proportion (72%) trust that NIE Networks will be effectively monitored while 2% disagreed; and
- 86% agreed that they are satisfied with the services provided by NIE Networks. This compares to 2% who indicated that they are not satisfied.

Phase 3 - qualitative

The re-convened domestic customer focus group discussions were used to gather insight into domestic customers' views on NIE Networks' 'maintaining current service levels' proposals for RP6. When discussing the issue of maintaining current service levels as a minimum:

- Domestic customers across all groups reaffirmed the findings from Phase 1, confirming that they are satisfied with the service levels they are receiving from NIE Networks; and
- All participants across all groups strongly agreed that the service levels should not be lowered under any circumstance.

Domestic customers' views on maintaining current service levels

- Findings from phase 1 and phase 2 reveal a high level of satisfaction with regard to the service provided by NIE Networks. Indeed, few respondents reported that they would be critical of the service provided by NIE Networks.
- Specifically, the majority of respondents reported that they trust that NIE Networks is striving to become more efficient, they have trust that NIE Networks will be effectively monitored and that they are satisfied with the services provided by NIE Networks.
- Given the largely positive opinion of NIE Networks across both the qualitative and quantitative strands of research undertaken with domestic customers, it is not surprising that customers reported that they would be unwilling to accept a lower standard of service from NIE Networks.

Overall, domestic customers agree with NIE Networks' proposals to maintain current service levels as a minimum.

Non-domestic customers views on maintaining current service levels

Phase 1 - qualitative

Phase 1 interviews with non-domestic customers were again used to ascertain customers' views of NIE Networks and their perceptions of current service levels. As such, phase 1 discussions with non-domestic customers explored the following sub-themes:

- Importance of the availability of electricity services;
- Awareness of the role of NIE; and
- Experience of electricity related issues.

Importance of the availability of electricity services

The interviews commenced by ascertaining the extent to which electricity services are important to the operation of non-domestic customers' organisations and commercial businesses. The interview findings suggest that:

- Irrespective of sector, size and level of usage, respondents indicated that electricity services are 'vital' or 'crucial' to their respective organisations;
- Although large organisations reported that they have back-up generation, the extent to which they can sustain their operations without normal electricity supply varies, and as such, they described security of supply as critical; and
- Other non-domestic customers highlighted the importance of a consistent voltage, as sudden changes can cause damage to machinery or equipment.

Awareness of the role of NIE Networks

Respondents were asked about their knowledge of the role of NIE Networks.

- Large organisations were more aware of the specifics of NIE Networks' role than small or medium sized organisations. This is perhaps a reflection of the fact that the larger organisations have energy and sustainability directors who work with NIE Networks on a more regular basis;
- While awareness and understanding of NIE Networks' role is greater among larger organisations, one large manufacturer took this opportunity to comment that NIE Networks is not particularly engaging with customers; and
- NIE Networks and its role was somewhat more ambiguous to small and medium sized organisations, with many reporting that they are unsure of the relationship between NIE Networks and Power NI. A few also queried whether NIE Networks supplies electricity.

Experience of electricity related issues

Although few respondents reported any electricity related issues over the last 12 months, of those that did, respondents suggest that:

- It was mainly infrequent occurrences of brown-outs or a one-off power failure;
- They tended to be planned (whereby the organisation was notified in advance); and
- Disturbances tended to be mitigated by the use of generators.

However, there was negative feedback in relation to connections:

- Respondents with experience of connections all reported having issues with NIE Networks and the connections process. Indeed, while there was an understanding that this was not necessarily an issue regarding supply, respondents were keen to point out at an early stage how problematic connections have proved.

Phase 2 - quantitative

Non-domestic customers were asked a number of questions through a survey to capture their perceptions of NIE Networks and ascertain the extent to which they would be positive or critical of the services provided through use of a quantitative survey. The following paragraphs outline the key findings from this phase 2 activity, which are detailed under the headings:

- Advocacy of NIE Networks' services; and
- Opinions of NIE Networks.

Advocacy of NIE Networks' services

Respondents were asked a number of questions to capture their perceptions of NIE Networks and ascertain the extent to which they are positive or critical of the services provided. For example, when asked how they would speak to colleagues about the electricity services provided by NIE Networks:

- Over half (53%) indicated that they would speak highly of the services provided;
- One in ten (11%) stated that they would speak highly of the services spontaneously;
- Just 5% held a critical stance; and
- Two fifths (38%) indicated that they are neither positive nor negative about the services.

Further analysis revealed that:

- Those in the Manufacturing, Construction and Motor trades sector are most likely to speak highly of the services provided by NIE Networks;
- Those who work in Agriculture are more likely to be critical of the services provided; and
- Those from rural areas are more likely to be critical of the services provided;
- 10% who experienced a planned or unplanned interruption in the last 12 months were likely to be critical of NIE, compared with 3% who had not experienced an outage; and
- 25% of those who applied for a connection indicated that they would speak critically of the services compared with 4% of those with no experience of connections.

Opinion of NIE Networks

Respondents were asked a number of questions to capture their perceptions of NIE Networks and the way in which the organisation is monitored. Overall:

- Over three quarters (78%) agreed with the statement that NIE Networks is striving to become more efficient; while only 3% disagreed;
- A similar proportion (77%) trust that NIE Networks will be effectively monitored, 3% disagreed and 20% indicated that they either had no opinion or were not sure;
- 75% agreed that they are satisfied with the services provided by NIE Networks. This compares to 4% who indicated that they are not satisfied;
- 68% agreed that NIE Networks understands the needs of their organisation, 4% disagreed and one quarter (25%) indicated that they held no opinion or were not sure;
- 72% agreed that NIE Networks is fair in their dealings with their organisation. A much smaller proportion (4%) disagreed with this statement;
- 72% agreed that it is easy to engage with the required personnel at NIE Networks. One in ten (10%) disagreed that this is the case; and
- A relatively high proportion of respondents indicated that they would be neither critical nor complimentary of the services provided by NIE Networks, suggesting that customers tend not to think about electricity services unless they encounter a problem.

Phase 3 - qualitative

Having established non-domestic customers' views on service levels, the re-convened non-domestic customer focus group discussions during phase 3 were used to gather insight into customers' views on NIE Networks' 'maintaining current service levels' proposals. In summary:

- Almost all non-domestic customers stated that they were happy for NIE Networks to maintain their current service levels, as a minimum, until 2024.
- However, one non-domestic customer stressed that maintaining the current level of service 'did not go far enough'. They stated:

"NIE Networks also need to take into account that continuous investment is needed. They shouldn't just maintain. We would be willing to pay a bit more for a better service."

Non-domestic customers' views on maintaining current service levels

- Non-domestic customers have a high level of satisfaction with regard to the service provided by NIE Networks.
- Electricity and security of supply was commonly described as 'vital' or 'crucial'.
- Non-domestic customers are more likely to be aware of the role of NIE Networks.
- Positive opinions are perhaps not surprising, given that very few respondents reported any electricity related issues over the last 12 months. Instead, the majority of negative comments were with regard to connections.
- The quantitative survey of businesses confirmed that over half (53%) would speak highly of the services provided. Just 5% held a critical stance.
- Given the largely positive opinion of NIE Networks, it is perhaps not surprising that all non-domestic customers who participated in the re-convened discussions were happy for NIE Networks to maintain their current service levels as minimum.

Overall, non-domestic customers agree with NIE Networks' proposals to maintain current service levels as a minimum. It is worth noting, however, that some stressed that this should be 'as a minimum', as some considered that NIE Networks should continually invest in order to achieve more than 'maintenance' alone.

Stakeholder views on maintaining current service levels

Phase 1 - qualitative

During phase 1, workshops were held with a number of stakeholders, again to ascertain their views of NIE Networks. Feedback from these phase 1 workshops have been summarised under the following headings:

- Knowledge of and contact with NIE Networks; and
- Experience of electricity related issues.

Knowledge of and contact with NIE Networks

Initial workshops held with stakeholders revealed that:

- In contrast to the domestic customers, stakeholders had a generally good understanding of the electricity market; however they recognised that there is confusion amongst most customers about the role of NIE Networks;
- Some observed that domestic customers tend to have less interaction with NIE Networks while non-domestic customers have more interaction and therefore a greater understanding of NIE Networks' operations;
- In response, representatives recommended the need for clearer information, and a greater provision of information, to ensure increased awareness about whom to contact if issues arise and to clarify the role of NIE Networks compared to suppliers.

Experience of electricity related issues

The stakeholders noted that:

- The frequency of unplanned interruptions has reduced significantly in recent years, particularly with suppliers stating that they could not recall the last time a customer made contact to report a power cut; and
- They attributed this reduction to increased resilience in the network.

Other than 'power cuts' the main areas for consideration highlighted by stakeholders included:

- Affordability: with some expressing concern about the price of electricity in NI compared with other parts of the UK;
- Accessibility: relating to capacity to connect to the grid;
- Difficulties relating to connection (with particular reference to business customers); and
- Increasing incidence of renewable energies and their impact on the network (put forward spontaneously by an environmental group).

Phase 3 - qualitative

During the stakeholder workshop, which took place in phase 3 of the research programme, participants were quizzed as to whether they agreed that NIE Networks should, as a minimum, maintain current levels of service. Despite most participants agreeing with the proposal, some concerns were raised, including:

- Recognition that customers are not aware of their current service levels;
- Acknowledgement that some customers are unappreciative of the current standard of service; and
- A lack of available information on how much service levels would decrease relative to the costs of maintenance of an improved service.

Stakeholder views on maintaining current service levels

- For the most part, stakeholders expressed positive views on the level of service provided by NIE Networks.
- Despite having a high level of awareness with regard to the role of NIE Networks, they acknowledged that this is not always the case for domestic and non-domestic customers. Stakeholders recommended that more could be done to keep other customers more informed.
- There was recognition that the frequency of unplanned interruptions has reduced significantly in recent years. Although this can be viewed positively, many stakeholders expressed concern over the affordability and accessibility of electricity in Northern Ireland.

Overall, the majority of stakeholders agree with NIE Networks' proposals to maintain current service levels as a minimum. It is worth noting, however, that some expressed the view that domestic customers, non-domestic customers and stakeholders alike have limited information to make this decision.

Section 1.3: Improving customer service

1.3 Improving customer service

This section details key research findings across all phases of the research (including qualitative and quantitative consultation with domestic customers, non-domestic customers and stakeholders) on the theme of improving customer service.

The section initially outlines NIE Network's current position with regard to customer service, and subsequently details the corresponding views of domestic customers, and stakeholders in turn. Please note that additional information on NIE Networks' investment proposals for improving customer service have been included at Annex B.

NIE Networks' current position

NIE Networks is committed to keeping customers at the centre of focus. NIE Networks aim to provide a safe, reliable and responsive electricity service, which endeavours to meet the standard expected by customers.

NIE Networks' track record for customer service includes:

- Responding to severe weather events: with a well-rehearsed emergency plan which includes 'ramping up' contact centre resources in order to deal with high volumes of calls during busy periods whilst maintain staff numbers at an efficient number for business-as-usual activities;
- A dedicated team of Customer Relations Managers across NI who deal promptly with local customer issues; and
- Accredited asset management processes, to ensure that NIE Networks make the right asset investment decisions for customers.

Over the last five years, NIE Networks has:

- Rolled out a major customer care training programme with a focus on customer service training;
- Introduced an online service allowing customers to report power cuts via their computer or internet enabled mobile phone;
- Introduced a 9:00am – 4.30pm service on Twitter for information on power cuts and other queries;
- Improved systems to provide more accurate customer information during power cuts;
- Trialled 'Powercheck' which is a network map that will allow customers to view power cut information in real time. This has since gone live.

Domestic customers' views on improving customer service

Phase 1 - qualitative

This section summarises the domestic customer's views on customer service. A series of questions were asked to ascertain what is deemed good customer service, views on any interaction with NIE Networks and preferred methods of contact. Findings include:

- What does good service mean to you; and
- Preferred methods for contacting NIE Networks.

What does good service mean to you?

Participants highlighted a variety of characteristics, which they deem markers of quality customer service, including:

- The need for a dedicated personal service that will achieve efficient results;
- The provision of representatives who are empathetic, interested and willing to listen;
- The provision of representatives who can communicate well and sustain dialogue;
- Representatives who are familiar with the local area; and
- Avoidance of automated lines (though only a few had experience of NIE's High Volume Call Answering (HVCA) system).

Participants also revealed the nature of the information they require in the instance of a fault or power outage. Generally respondents wish to be informed of:

- The cause of the interruption;
- How it will be resolved; and
- A time frame of when the issue will be rectified.

Preferred methods for contacting NIE Networks

Without exception, participants cited personal telephone call as the preferred communication channel in the event of unplanned power cuts, both excluding and including severe weather events. They commented on how they wish to have the opportunity to speak to informed personnel directly, preferably somebody who has the ability to provide assistance and inform them of the scale of the fault. Other accepted communication channels included:

- An automated service in times of high demand (such as during a severe weather event);
- The use of the HVCA system, provided there was accuracy of information;
- The use of innovative technologies, to reflect the potential evolving nature of communication up to 2022;
- The use of social media channels (such as Facebook) where they could access updates on planned and unplanned interruptions;
- A smart phone app to receive updates and as a means to provide meter readings; and
- Text message or real time web information in the event of an unplanned power cut.

Further comments relating to customer service included the need for swift response in the use of all communication methods.

Phase 2 - quantitative

The quantitative survey of domestic customers aimed to build upon the focus group discussions by delving further into the communication methods used by customers in a range of situations (e.g. a planned / unplanned power cut or for non-urgent queries).

The findings have been summarised under the following headings:

- Contacting NIE Networks; and
- Contact methods used by NIE Networks.

Contacting NIE Networks

Survey respondents were asked to identify readily used modes of communication and their preferred methods for contacting NIE Networks. Again, a personal telephone call was consistently the preferred method of contact across a range of scenarios, for example:

- 79% chose a telephone call in the event of an unplanned cut not due to extreme weather;
- 73% chose to contact by telephone in the event of a power cut which is due to extreme weather; and
- 73% would choose a telephone call for non-urgent queries.

Other preferred methods of communication put forward by survey participants have been summarised in table 1.4.1.

Table 1.4.1: Methods used to communicate with NIE

	Overall		
Which method of communication are you most likely to use to contact NIE in the event of…	**An unplanned power cut, which is not due to extreme weather**	**A power cut, which is due to extreme weather and affects a lot of people**	**For non-urgent queries, such as new connections, when there is no power cut**
Phone – personal	79%	73%	73%
Phone – automated message	12%	13%	11%
Email	6%	6%	9%
NIE Website	7%	7%	6%
Text message	7%	7%	7%
Facebook	2%	2%	1%
Twitter	0%	0%	0%
Letter	-	-	10%
App	0%	0%	0%
Online live chat	2%	1%	1%
Other	12%	13%	8%
Total	**100%**	**100%**	**100%**

Contact methods used by NIE Networks

Respondents were asked to provide their opinion on which methods of communication would be considered acceptable for NIE Networks to keep customers up to date.

- Over half (58%) considered a personal telephone call to be an acceptable communication method should NIE need to contact a customer;
- Almost one third (31%) deemed text message to be a suitable method (31%);
- 17% considered e-mail to be acceptable;
- In-person correspondence was deemed to be acceptable by 16% of respondents; while
- Lesser preferred methods included the NIE Networks website (12%); automated telephone calls (11%); press and media (7%); Facebook (4%); Twitter (1%) and the NIE Networks' smart phone app (1%).

As part of the quantitative survey of domestic customers were asked to scale their level of support for a number of suggested investment areas. With regard to improving customer service, 39% of domestic customers would lend their full support to investments to increase the options for communicating with customers during power cuts. Meanwhile, 6% would lend no support to this investment area. Further information on the overall investment priorities of domestic customers has been provided at section 1.7 of this report.

Phase 3 - qualitative

During the reconvened focus groups with domestic customers at Phase 3 of the research, all customers agreed that NIE Networks should focus its investment programme on improving customer service. Customers confirmed that:

- It was very important to them to be able to speak directly to an advisor;
- NIE Networks representatives should be helpful and act effectively on their matter, particularly in the case of reporting an initial power outage or during an emergency situation;
- It is important to be able to talk to someone about their initial query;
- They would be willing to consider other channels of communication for follow-up contact (such as email, social media or text messaging);
- Younger customers may be more comfortable with and trusting of newer forms of electronic communication, in turn highlighting the appropriateness of a multi-channel approach to customer service provision.

When asked their views on whether they would register their telephone number or email to receive service updates from NIE Networks, most confirmed that they would provide this type of information, despite some concerns over how the information might be used.

Domestic customers' views on improving customer service

- Domestic customers expressed a view that good customer service should include responsive, dedicated, knowledgeable and empathetic staff who can communicate effectively and obtain results. There was a general dislike for automated services.
- In the event of a disruption, domestic customers expressed that they would like to be informed of the cause of the interruption; how it will be resolved; and a time frame of when the issue will be rectified.
- Across all phases, telephone was cited as the preferred method of communication, both when contacting NIE Networks, and when receiving information from NIE Networks. However, a high proportion of participants would be supportive of a multi-channel approach to customer service provision (particularly younger participants).
- All domestic customers agreed that NIE Networks should focus its investment programme on improving customer service.

Overall, domestic customers agree with NIE Networks' proposals to improve customer service.

Non-domestic customers' views on improving customer service

Phase 1 - qualitative

This section summarises the non-domestic customer's views on customer service. A series of questions were asked to ascertain what is deemed good customer service, views on any interaction with NIE, and preferred methods of contact. Findings are summarised under the following headings:

- What does good service mean to you; and
- Preferred methods for contacting NIE Networks.

What does good customer service mean to you?

Consistent with other stages of the research, non-domestic respondents were asked to summarise what good customer service means to them. It was found that:

- Good customer contact procedures, communication and the timely resolution of complaints were mentioned by all;
- Non-domestic customers want to know who to contact when they have a query and want straightforward communication with a knowledgeable customer service representative;
- Personal customer service was highlighted as a particularly important aspect of customer service among business contacts (e.g. the use of key customer account managers);
- Good customer service should include understanding and meeting the needs of larger businesses in particular; and
- Participants felt that timely communication and effective resolution of issues are central attributes of good customer service.

Preferred methods for contacting NIE Networks

Across all non-domestic customer groups, respondents consistently cited personal contact as the preferred communication channel. Within this:

- Key account managers were again mentioned as a preferred approach;
- Customers were generally unconcerned with the method of communication provided that they knew they were speaking with a knowledgeable representative who could rectify any issues; and
- Although respondents were not averse to communicating via other methods (including by email, text or through smartphone apps), this was consistently caveated with the statement that they would expect to be communicating with an account manager.

In response to consultation questions on the theme of automated communication methods:

- Automated telephone services are not viewed positively by smaller businesses;
- Some mentioned that this method would be acceptable in the event of an outage provided it gives the right level of detail required (i.e. are NIE Networks aware of the issue, when it will be resolved and what to do if it is not resolved);
- Those that have experienced the HVCA system thought that it was satisfactory; however
- Overall, participants felt that automated telephone systems would be undesirable for issues such as connections or queries regarding planned interruptions.

Phase 2 - quantitative

During the phase 2 quantitative survey, non-domestic respondents were asked to identify readily used modes of communication and their preferred methods for contacting NIE Networks. Findings are summarised under the following headings:

- General contact methods used in business circumstances;
- Contacting NIE Networks; and
- Contact methods used by NIE Networks.

General contact methods used in business circumstances

Of the range of communication methods put forward for 'business to business' communication:

- Personal telephone (54%) and email (41%) were the most commonly identified;
- 28% avail of letters;
- Personal contact was mentioned by 23% of respondents;
- One fifth (20%) use websites;
- 16% tend to interact with businesses via a key account manager; while
- Social media platforms, such as Facebook and Twitter, were less readily utilised communication channels.

Contacting NIE Networks

Respondents were asked a number of questions to ascertain acceptable methods for contacting NIE Networks in certain situations (e.g. a power cut or for non-urgent queries). Key findings include:

- The vast majority want personal telephone access to NIE Networks in the instance of a power outage, regardless of whether it is due to extreme weather or not;
- Respondents were more likely to express tolerance for automated telephone contact and website provision in the instance of a severe weather event, perhaps indicating that they are mindful of the high volume of calls experienced by NIE Networks in such circumstances;
- Respondents were more accepting of other forms of contact in non-urgent cases, for example, when communicating with NIE Networks in relation to new connections (although telephone contact still remains the preferred contact method); and
- Overall, respondents indicated that they are much less likely to use more innovative methods such as social media or text message in any scenarios.

Contact methods used by NIE Networks

Businesses appear to be more flexible in relation to their preferred mode of communication for follow-up contact. For example:

- Two thirds indicated that they would like to be updated by email;
- 51% stated that they would like to be kept informed via personal telephone contact;
- Just over a quarter 26% would find it acceptable to be informed by other press and media;
- A quarter would be content to receive updates via the NIE Networks website;
- 22% would find it acceptable to be contacted via text message;
- A fifth would be happy to receive an automated call for follow-up contact;
- 12% would be satisfied with in-person follow-up; while
- Methods such as social media or smart phone apps gained little support.

The vast majority of non-domestic survey participants (80%) expressed willingness to register their telephone number or email with NIE Networks in order to receive automated updates in the instance of a power cut.

Phase 3 - qualitative

All non-domestic customers interviewed as part of the phase 3 reconvened groups agreed that NIE Networks should focus on improving customer service. Further to this:

- A number of respondents reported that the "Powercheck" app would be of great use to them because it is an efficient way of accessing up-to-date information that helps to manage their expectations;
- Others felt the multi-channel approach to customer service was a great idea, especially communications online, as they have a number of different mediums they can use which are all easily accessible;
- However, there was a small proportion of non-domestic customers who stated online information would be of no use to them as they cannot connect to social media on work technology.

When non-domestic customers were asked if there was anything NIE Networks had not considered, the majority stressed that personal contact through the telephone was still extremely important, particularly in emergency situations. Others took the opportunity to emphasise the importance of dedicated customer contacts for larger organisations.

Non-domestic customers' views on improving customer service

- Non-domestic customers expressed a view that good customer service should include good customer contact procedures, effective communication, timely resolution of complaints, knowledgeable representatives and direct and/or personal contact.
- Respondents consistently cited personal contact as the preferred communication channel, including an expectation that they should be communicating with an account manager.
- Although non-domestic customers still prefer a personal telephone call in the event that NIE Networks contact them, these customers were prepared to be slightly more flexible in relation to their preferred mode of communication for this follow-up contact, for example, two thirds indicated that they would like to be updated by email.
- All non-domestic customers interviewed as part of the phase 3 reconvened groups agreed that NIE Networks should focus on improving customer service, while many took the opportunity to emphasise the importance of strengthening personal contact methods.

Overall, non-domestic customers agree with NIE Networks' proposals to improve customer service.

Stakeholder views on improving customer service

Phase 1 – qualitative

Stakeholders were asked to provide their opinions on effective customer service, and whether this kind of customer service is available from NIE Networks. Findings are structured under the following headings:

- What does good service mean to you; and
- Opinion on service provided by NIE Networks.

What does good service mean to you?

Stakeholder perceptions of good customer service echoed those of domestic representatives. They included characteristics such as:

- Brevity;
- Clarity, and 'jargon-free' delivery;
- Ease of communication; and
- Ensuring customers are kept updated.

Opinion of service provided by NIE Networks

Stakeholders tended to reflect positively on NIE's customer service provision. Specifically:

- A few stakeholders commended NIE Networks' speed of response, with particular praise for its incident management response;
- Some reiterated that there have been recent improvements in NIE's customer service; and
- A few representatives were familiar with the HVCA system and stated that they were impressed with the service.

Although most stakeholder participants' shared positive experiences in relation to NIE Networks' customer service, others shared some more negative views, including:

- Consistent with previous comments, stakeholders across most groups expressed frustration with the cost of connections and the perceived lack of grid capacity;
- Some of the business representatives reflected on a perceived time lag in receiving communications from NIE; and
- A few other stakeholders suggested that they find it difficult to obtain required information.

The suppliers noted that, apart from meter reading, most customers have little interaction with NIE Networks. They stated that it is important that NIE Networks maintain presence and ensure that customers know how to contact them.

Phase 3 - qualitative

During the stakeholder workshop, most were in agreement with the NIE Networks proposal for improving customer service, although some noted that more could be done. For example, it was suggested that NIE Networks could:

- Provide a dedicated member of staff;
- Assist with timelier sharing of information;
- Provide greater assistance for vulnerable customers (e.g. through a call-back service);
- Ensure that information is easily accessible;
- Work more closely with energy suppliers;
- Ensure that information is of a high quality; and

- Provide a key member of staff, at the appropriate level, for business customers to contact in the event of a service problem.

Overall, workshop participants agreed that NIE Networks is going in the right direction with their customer service proposals by providing an out-of-hours service that will offer accessible information. However, there were a small number of concerns about some more technical communication methods such as using online platforms or social media.

Stakeholder views on improving customer service

- Stakeholders had similar views to domestic and non-domestic customers with regard to the characteristics of good customer service. These characteristics include brevity; clarity; ease of communication; and ensuring customers are kept updated.
- Stakeholders commended NIE Networks on their speed of response, improvements in customer service over time, and impressive HVCA system.
- Although the majority of stakeholder participants' shared positive experiences in relation to NIE Networks' customer service provision, others expressed frustration with the cost of connections and the perceived lack of grid capacity, while some business representatives reflected on a perceived time lag in receiving communications from NIE Networks.
- Most stakeholders who attended to phase 3 workshop were in agreement with the NIE Networks proposal for improving customer service, while others thought that the proposal still left room for improvement.

Overall, stakeholders were supportive of NIE Networks' proposals to improve customer service. However, some reported that more could be done to improve customer service than is currently proposed, and recommended that proposals be expanded upon further.

Section 1.4:
Reducing power cuts

1.4 Reducing power cuts

This section details key research findings across all phases of the research (including qualitative and quantitative consultation with domestic customers, non-domestic customers and stakeholders) on the theme of reducing power cuts. The section initially outlines NIE Network's current position, and subsequently details the corresponding views of domestic customers, and stakeholders in turn. Additional information on NIE Networks' investment proposals for reducing power cuts has been included at Annex B.

NIE Networks' current position

On average there are 7,500 power cuts in Northern Ireland every year, which are caused by faulty equipment, contractor damage, weather, vandalism and many other reasons. Good network maintenance programmes, such as those carried out as part of NIE Networks' Business as Usual programmes, help minimise power cuts but will not stop them completely.

In nine out of ten cases, NIE Networks restores power within three hours. However, around 5,000 homes and businesses every year experience unplanned power cuts which last over 10 hours. If there are major storms or extreme weather events, this number may rise significantly.

Domestic customers' views on reducing power cuts

Phase 1 - qualitative

In this section we explore the extent to which domestic customers have had issues with the provision of their electricity services, with specific reference to planned and unplanned interruptions. Key findings are summarised under the following headings:

- Experience of electricity related issues; and
- Power cuts - Perceptions of an acceptable level of occurrence.

Experience of electricity related issues

Few of those who took part in the group discussions had experienced electricity related issues in recent times. Specific findings include:

- Almost all urban participants struggled to recall the last time they had experienced an unplanned power cut;
- One participant had been without power for three days, but commented that this was a rare incidence and expressed understanding that NIE Networks had been under pressure to rectify the problem;
- While there was experience of power cuts in rural groups, this was not viewed as a problem, particularly when compared with previous years; and
- A few knowledgeable customers had negative experiences of NIE Networks connections through their work. Specific concerns related to delays in receiving connection costs.

Power cuts - Perceptions of an acceptable level of occurrence

Perceptions of acceptability of power cuts varied dependant on circumstance. Indeed:

- Continuity of supply was deemed more critical for those classified as 'vulnerable', i.e. the elderly, those with poor health, and those with babies/young children;
- Some of those from the critical care group noted the detrimental impact loss of supply has on their health and lifestyle. As such, they indicated that they could only manage a short-term power cut, lasting a maximum of one or two hours;
- A few considered loss of supply from an industrial point of view. They noted the detrimental impact on productivity and revenue, and cited lower tolerance for longer power cuts;
- On the whole, there was unwillingness to commit to an 'acceptable' duration, however, there was general tolerance for an unplanned power cut lasting up to four hours; and
- A few commented that their tolerance is variable dependent on the time of day, noting that they would be less tolerant of a lengthy power cut in the evening time.

Some noted NIE Networks' achieved target of solving 89% of power cuts in three hours. They considered this to be impressive considering the extent of work involved in identifying a rectifying a fault.

Phase 2 - quantitative

In this section we explore the evidence from the quantitative survey of domestic customers in relation to their experience of power cuts. Findings are detailed under the following headings:

- Incidence and experience of planned power cuts;
- Views on the maximum acceptable number and duration of planned power cuts;
- Incidence and experience of unplanned power cuts.

Incidence and experience of planned power cuts

Respondents were asked a number of questions about their experience of planned power cuts. Analysis of the survey findings found that:

- 45% of respondents do not recall having had a planned power cut;
- One fifth (20%) have experienced a planned power cut within the past year.

Just under half of those who experienced a planned power cut (48%) reported that the incident lasted less than four hours, with 43% reporting that the cut persisted for more than four hours. Again, those who live in rural areas are both more likely to have experienced a planned power cut in the last year and more likely to have experienced these cuts more frequently.

Views on the maximum acceptable number and duration of planned power cuts

When asked to provide their views on the acceptable number of planned power cuts annually:

- Just 3% believe that power cuts are not acceptable at all;
- One third (33%) consider one outage to be tolerable;
- The majority are accepting of up to two power cuts (59%); and
- 17% would accept up to three outages.

When asked to provide their views on the acceptable duration of planned power cuts:

- Few (4%) consider an outage of over eight hours to be acceptable;
- 18% are accepting of a maximum power cut of up to eight hours;
- Two in five (40%) would accept an outage of up to six hours; and
- Almost three quarters (73%) would tolerate an outage of up to four hours.

Incidence and experience of unplanned power cuts

Respondents were asked a number of questions about their experience of unplanned power cuts. Analysis of the survey findings has found that:

- Over two fifths (42%) of customers do not recall having had an unplanned power cut;
- Less than one quarter (22%) recall experiencing an unplanned power cut in the past year, while 27% remember an unplanned power cut taking place over a year ago; and
- 9% of respondents recall having an unplanned power cut, but could not confirm when this had taken place.

While the majority have not experienced a power cut in the last year (78%), 13% reported one outage, 5% two outages and 3% had more than two outages. Meanwhile, of those who had unplanned outages in the last year, one third (33%) where of a shorter duration lasting under 1 hour. 38% reported that their longest power cut was up to three hours, while one quarter had an outage of over three hours. In line with previous findings, those who reside in rural areas are more likely to have experienced either a planned or unplanned power cut, and to have experienced these more recently than their urban counterparts.

Overall, 54% of customers surveyed would lend their full support to investments to limit the number of customers per year who are affected by power cuts over 10 hours in duration, and 55% would lend their full support to limiting the number of households who are repeatedly affected by power cuts. Just 2% would lend no support to each of these investments.

Phase 3 - qualitative

Domestic customers across all focus groups were asked whether NIE Networks should focus its investment on improving the service for homes and businesses by reducing power cuts. All domestic customers were in agreement with this investment plan.

Issues raised during the discussion included:

- Suggestions that NIE Networks needs to increase the operational times of the dedicated fault and emergency services to 24/7, and not just during working hours as proposed; and
- Suggestions that NIE Networks should only be charging customers who live in rural areas for these improvements, as they are more likely to be affected by power cuts.

Domestic customers' views on reducing power cuts

- Few of those who took part in the group discussions had experienced electricity related issues in recent times, although those living in rural areas were more likely to have experienced an outage than those living in urban areas.
- Continuity of supply was deemed more critical for those classified as 'vulnerable'.
- Some noted NIE Networks' achieved target of solving 89% of power cuts in three hours and were impressed.
- 45% of respondents to the quantitative survey do not recall having had a planned power cut, while 20% reported a planned power cut within the past year. Almost half of these lasted less than three hours.
- The majority of survey participants revealed that they would deem up to two power cuts per year to be acceptable. Similarly, the majority would tolerate an outage lasting for up to four hours in duration.
- Over two fifths of customers do not recall having had an unplanned power cut, while 22% recall having had an unplanned power cut within the last year. 3% had more than two unplanned outages.
- Domestic customers suggested that NIE Networks should focus their investment on reducing the duration of power cuts, with some suggesting that even more should be invested in order to increase the operational times of fault and emergency services further.

Overall, domestic customers were supportive of NIE Networks' proposals to reduce power cuts, with most suggesting that NIE Networks should focus investment in this area.

Non-domestic customers' views on reducing power cuts

Phase 1 - qualitative

In this section we explore the extent to which non-domestic customers have had issues with the provision of their electricity services, with specific reference to planned and unplanned interruptions. Key findings are summarised under the following headings:

- Experience of electricity related issues; and
- Power cuts - Perceptions of an acceptable level of occurrence.

Experience of electricity related issues

Few respondents reported electricity related issues over the last 12 months. Of those that did:

- It was mainly infrequent occurrences of brown-outs or a one-off power failure;
- Some of the experiences discussed were planned interruptions, in which case the organisation was notified in advance;
- Large organisations reported little impact of outages due to the use of generators; and
- One organisation did not experience any power outage following notification by NIE Networks and assumed the work was carried out successfully without any interruption.

Respondents with experience of connections all reported issues with NIE Networks and the process. While there was an understanding that this was not necessarily an issue regarding supply, respondents were keen to point out how problematic connections have proved.

Power cuts - Perceptions of an acceptable level of occurrence

With regard to the non-domestic customers' opinion on the acceptable level of occurrence of power cuts:

- There was general agreement that a small number of power cuts a year is acceptable;
- It was suggested that outages are to be expected as NIE Networks cannot completely eradicate all reasons for power cuts, such as third party damage;
- Instead, non-domestic customers were more concerned about the duration of power cuts, stating that infrequent power cuts are easier to deal with than sustained outages; and
- A small number of non-domestic customers recognised that location is a factor in terms of power cuts, and suggested that rural and exposed areas are more likely to be susceptible.

Phase 2 - quantitative

This section explores the extent to which non-domestic customers experienced power cuts as revealed in the phase two quantitative survey. Findings are summarised under the following headings:

- Use of a backup generator;
- Incidence and experience of planned power cuts;
- Views on the maximum acceptable number and duration of planned power cuts;
- Incidence and experience of unplanned power cuts; and
- Contacting NIE Networks in the instance of a power cut.

Use of a backup generator

In order to contextualise the findings, the survey initially assessed the number of organisations in possession of a backup generator, and, if this provision is in place, the length of time that it can provide backup power. One quarter (24%) indicated that they have a backup generator, most of which were located in rural settings and from the agricultural and

manufacturing/construction trades. The vast majority (95%) stated that the generator is for emergency use only.

Incidence and experience of planned power cuts

With regard to planned outages:

- One fifth of businesses have experienced a planned power cut in the last 12 months;
- 23% recalled a planned interruption over one year ago, but within the last five years;
- 7% revealed that they had experienced a planned outage more than five years ago; and
- Just under half (49%) cannot recall experiencing a planned power cut at all.

Over half (58%) of those who reported a planned power cut in the last 12 months indicated that it was more than 4 hours in duration, and those in the agriculture sector and in a rural setting were reportedly more likely to have experienced a planned interruption and for interruptions to be more frequent.

Views on the maximum acceptable number and duration of planned power cuts

Organisations were asked what they deem a reasonable amount of time to be without electricity supply to enable planned maintenance works.

- Over half (55%) perceived up to four hours to be acceptable;
- 9% perceived it to be acceptable to be without power for up to 8 hours;
- Whilst only 3% reported a figure in excess of 8 hours.

It should be noted that one fifth (19%) believe it is unacceptable to be without power for any length of time to enable planned maintenance. The response was most likely to be cited by organisations in the agricultural (27%), public administration, health, education (24%) and the wholesale, retail, hospitality (21%) trades.

Incidence and experience of unplanned power cuts

With regard to the experience of unplanned electricity related issues:

- Two fifths (41%) indicated that they could not recall having an unplanned power cut; and
- Around one quarter (26%) have experience of unplanned interruptions in the last year;

As was the case for planned outages, rural customers are more likely to have experienced unplanned outages (32%), and on a more frequent basis, than their urban counterparts (21%).

With reference to the duration of unplanned power cuts:

- One third of respondents reported an unplanned outage lasting one hour or less;
- A further third experienced an outage lasting up to three hours in duration;
- 29% experienced a lengthier power cut, lasting between three and ten hours; and
- Just 2% experienced an unplanned power cut lasting for more than ten hours.

Contacting NIE Networks in the instance of a power cut

Respondents were asked who they contacted when they experienced either a planned or unplanned outage.

- 44% contacted NIE Networks only;
- 7% contacted their electricity supplier only;
- 1% made contact with both NIE Networks and their electricity supplier; and

- One third indicated that they did not make contact with any organisation in relation to the supply interruption.

Almost three quarters (73%) of those who contacted NIE Networks engaged with a customer representative. Just under one fifth (18%) experienced the HVCA system, whilst only 2% contacted NIE Networks via online methods. Respondents were generally satisfied with the contact methods used.

Phase 3 - qualitative

During the re-convened focus groups with non-domestic customers during phase 3:

- Almost all agreed that NIE Networks should focus on reducing power cuts; while
- Just a small number of non-domestic customers felt that NIE Networks should not focus on reducing power cuts. This was because they considered it to be a rare issue for them given that they are located in urban areas.

Most non-domestic participants indicated that Option two (to both reduce the number of customers who experience power cuts lasting over 10 hours in duration by 25% and to reduce the number of customers who experience six or more power cuts in an 18 month period by 20%) would be their preference as it seemed to provide greatest value for money. They also expressed that a larger amount of investment is needed with regard to reducing power cuts. There was a small proportion who reported that Option one (to reduce the number of customers who experience power cuts lasting over 10 hours in duration by 25% only) was the better of the two options. Most reportedly did so because it was the cheaper option.

Non-domestic customers' views on reducing power cuts

- Few reported any electricity related issues over the last 12 months, and there was general agreement that a small number of power cuts a year is acceptable.
- Non-domestic customers were more concerned about the duration of power cuts, stating that infrequent power cuts are easier to deal with than sustained outages.
- Under half (49%) of survey respondents cannot recall having a planned power cut while two fifths (41%) indicated that they could not recall having an unplanned power cut.
- Over half of the organisations surveyed (55%) perceived a planned cut lasting one to four hours to be acceptable but one fifth (19%) believe it is unacceptable to be without power for any length of time to enable planned maintenance.
- Almost all non-domestic customers interviewed agreed that NIE Networks should focus on reducing power cuts while a minority (who were least likely to experience electricity related issues) felt that NIE Networks should not focus investment in this area.
- Most non-domestic participants indicated that Option two would be their preference

The majority of non-domestic customers were supportive of NIE Networks' proposals to reduce power cuts, with most suggesting that option two should be prioritised (to both reduce the number of customers who experience power cuts lasting over 10 hours in duration by 25% and to reduce the number of customers who experience six or more power cuts in an 18 month period by 20%).

Stakeholder views on reducing power cuts

Phase 1 - qualitative

As part of the interviews undertaken with stakeholders during phase 1, stakeholders were asked to provide their views on the prevalence of power cuts. Stakeholders noted that:

- The frequency of unplanned interruptions has reduced significantly in recent years;
- There was a noticeable increase in the level of resilience in the network;
- Confidence in the network has increased; and
- Businesses are less likely to rely on generators.

Phase 3 - qualitative

During the phase 3 workshop, stakeholders were asked if they felt NIE Networks should focus its investment programme on improving the service for homes and businesses by reducing power cuts. Qwizdom responses indicated that 43% of stakeholders agree that NIE Networks should focus investment on improving the service by reducing power cuts. With regard to the rationale behind their vote, comments included:

- The objective to reduce unplanned power cuts was a valid one, and therefore action is needed to support the electricity network;
- Reducing unplanned power cuts is worth investment from NIE Networks, but some had concerns that the proposed investment is not enough;
- Reducing unplanned power cuts is not a significant issue (given the stakeholder view that many business customers have generators, and as such, are unlikely to be negatively impacted by an unplanned power cut if the electricity is back on in a short period of time); and
- Investment in the reduction of unplanned power cuts was only going to benefit a small number of customers, and in particular, those living in rural areas.

During the discussions with stakeholders, cost appeared to be the most prevalent factor when deciding which option for investment to choose. A large proportion of stakeholders reported that neither option is suitable (70%), while some chose not answer the question as they are unwilling to pay (20%). A large proportion of stakeholders stated that NIE Networks should not be charging the customer at all. Meanwhile, of the few stakeholders who were willing to choose an option, Option two seemed to be favoured (10%) primarily because respondents felt that this option would have a greater impact on service improvement.

Stakeholder views on reducing power cuts

- Stakeholders noted the diminishing frequency and impact of power cuts, enabling confidence in the network to increase.
- Stakeholders had mixed views on the proposed investment to reduce power cuts. Some stakeholders maintained that this would be a valid investment, as some are still impacted by power cuts, while others argued that it should not be prioritised as cuts are no longer a significant issue for most.
- Cost appeared to be the most prevalent factor when deciding which option for investment to choose, with the majority reporting that neither option is favourable.

Overall, stakeholders were unsupportive of NIE Networks' proposals to reduce power cuts given the diminishing frequency and impact of cuts on customers. Similarly, stakeholders were unsupportive of the investment proposals due to the relative costs.

Section 1.5: Increasing resilience to severe weather

1.5 Increasing resilience to severe weather

This section details key research findings across all phases of the research (including qualitative and quantitative consultation with domestic customers, non-domestic customers and stakeholders) on the theme of increasing resilience to severe weather. The section initially outlines NIE Networks' current position, and subsequently details the corresponding views of domestic customers, and stakeholders in turn. Additional information on NIE Networks' investment proposals for increasing resilience to severe weather has been included at Annex B.

NIE Networks' current position

In the last five years, Northern Ireland has experienced severe ice, snow, winds and floods, all of which have affected the electricity network and left thousands of NIE Networks' customers without power (some for several days).

Ice-accretion, which is the cause of the most extreme events for customers, occurs when ice or snow builds up on overhead lines. The weight of this ice or snow often breaks conductors with a smaller cross-sectional area and can lead to broken poles as well. Electricity lines that are built from stronger poles and conductors with a larger cross-sectional area are less likely to be damaged by ice-accretion, thus reducing the impact on customers.

Although these events are relatively rare, the impact on homes and businesses may be significant.

Domestic customers' views on increasing resilience to severe weather

Phase 1 - qualitative

During the phase 1 focus groups with domestic customers, customers provided their views on network resilience. Findings are discussed under the following headings:

- Perceived frequency and impact of extreme weather;
- Perceptions of an acceptable time to be without power in a severe weather event; and
- Prioritisation of service areas in the case of extreme weather.

Perceived frequency and impact of extreme weather

Discussions relating to network resilience commenced with questions to assess the perceived frequency and impact of extreme weather on the electricity network. Overall:

- There was strong agreement that the frequency of severe weather events is on the rise, and that the situation has deteriorated in the past few years;
- There was particular mention of increased incidences of flooding and high winds;
- All noted the potentially 'devastating' effect of severe weather events on the electricity network, with some recalling the impact of extreme weather on the electricity network in previous years (1998, 2010, 2013);
- Severe weather was believed to be a factor in most unplanned power cuts; and
- Discussions revealed the sentiment that NIE Networks should be prepared for the impact of extreme weather.

Perceptions of an acceptable time to be without power in a severe weather event

Participants were asked to provide their views on power cuts as a result of a severe weather event, with reference to the amount of time considered acceptable when faced with a resulting power cut. Views were mixed, and included:

- Recognition of the challenges facing NIE Networks in locating and rectifying a fault in a severe weather event (consequently expressing tolerance for longer power cuts);
- Acknowledgement that acceptability is dependent on the severity of the conditions; and
- Less tolerance for a lengthy power cut in severe weather, due to concern over the lack of heating and meeting the needs of the likely impact on vulnerable customers.

Given the mixed views, participants failed to come to consensus on a 'reasonable' length of time to be without power, with views ranging from a couple of hours to 12 hours.

Prioritisation of service areas in the case of extreme weather

Participants were asked which areas of service relating to network resilience to extreme weather were most important to them for future investment. Indeed all agreed that investment is required to increase network resilience to severe weather and several noted the 'knock on' impact in reducing the overall number of power cuts.

With specific reference to the type of investments favoured:

- Participants were inclined to invest in flooding, high winds and ice accretion, in that order;
- Participants were generally unfamiliar with ice accretion, and whilst informed that it has affected the network three times in five years, it was perceived it to be less of a risk;

- Some placed higher investment in flooding and high winds as they are can happen at any time, while ice accretion was considered a winter event;
- Feedback appeared to stem from greater awareness and experience of flooding, both on a personal basis and through recollections of those affected via the media, and as such, flooding was deemed the greatest problem with the greatest impact;
- Some were of the opinion that the risk of flooding is on the increase, and therefore action needs taken to reduce the risk;
- When considering the investment required, some took into consideration the number of people (50,000) who are supplied from substations deemed to be at risk of flooding;
- Participants reflected on the common nature of high winds, therefore considerations for investment in this area focused on the fact that all parts of Northern Ireland are at risk.;
- Participants noted that high winds occur all year round, regardless of seasonality; and
- A few considered investment to protect against high winds as worthwhile as they perceived it would be less costly to protect against compared with ice accretion and flooding.

Phase 2 - quantitative

As part of the quantitative survey undertaken with domestic customers, participants were asked to provide their views on overall investment priorities. The findings detailed below highlight the key findings with regard to increasing resilience to severe weather.

Investment priorities – extreme weather

Results from the survey show that:

- Strengthening the network prevailed as one of the top three priorities for 71% of respondents, and was therefore the most favoured prioritisation area; and
- When asked to rate their level of support, the majority (94%) expressed high support for investment in this area.

When asked to confirm overall investment priorities, and the level of support customers would lend to each investment area, 58% of respondents reported that they would lend their full support to reducing the likelihood of power cuts during severe weather by strengthening the network, protecting substations at risk of flooding, or reducing the likelihood of trees falling on power lines during storms. This represents the highest proportion of respondents across all suggested prioritisation areas. Just 2% of respondents would not support this investment at all.

Phase 3 - qualitative

Domestic customers were asked to discuss whether they think NIE Networks should increase investment to improve resilience to severe weather, as well as to discuss what option for investment they prefer. Findings are summarised under the following headings:

- Overall priorities for increasing resilience to severe weather; and
- Options for investment.

Overall priorities for increasing resilience to severe weather

Discussion participants were supportive of NIE Networks' proposals for increasing the network's resilience to severe weather. Indeed:

- Almost all agreed NIE Networks should increase investment in this area; and

- The general consensus was that this is an appropriate area for investment given the apparent increase, and predicted increase, in severe weather events.

Options for investment

When asked which of the investment options proposed by NIE Networks they support:

- Approximately three out of four initially chose Option two (which includes upgrading 20% of the 11,000 volt network over a 20 year period to increase resilience to sever weather (which will reduce the risk of power cuts for 15,000 homes between 2017 and 2024), protecting nine major substations and 400 local substations from flooding (impacting on 73,000 homes and businesses) and cutting back trees on a 15 year programme to reduce the likelihood of power cuts during storms (addressing 43% of the main network)).
- Option two was favoured due to the perception that flooding is becoming increasingly an issue (and option two provided the greater level of investment in this area).

During the in-depth discussion about the options, on reviewing the cost of provision, many participants changed their mind about the option they had chosen, saying that they would prefer a higher level of investment involving a combination of key areas for investment from both Option one and Option two to be put together to create a hybrid 'Option three'. Domestic customers reported that the higher level of investment in ice accretion from Option one and substation defence and cutting back trees from Option two should remain key areas for investment.

Domestic customers' views on increasing resilience to severe weather

- Across all phases of the research, domestic customers expressed high levels of support for investment in strengthening the network by increasing resilience to severe weather.
- There was strong agreement that the frequency of severe weather events is on the rise, and that the situation has deteriorated in the past few years.
- Participants were more inclined to pledge their support for investment to reduce the impact of flooding than other severe weather events.
- Participants suggested that NIE Networks should invest in a higher investment involving a mixture of investment options one and two.

Overall, domestic customers were supportive of NIE Networks' proposals to strengthen the network by increasing resilience to severe weather, with particular reference to mitigating the impact of flooding which is perceived to have had the greatest impact on the network in recent years.

Non-domestic customers' views on increasing resilience to severe weather

Phase 1 - qualitative

Non-domestic participants were asked to provide their views on the impact of severe weather on the electricity network. Findings are structured under the following headings:

- Perceived impact and frequency of severe weather;
- Perceptions of an acceptable time to be without power in a severe weather event; and
- Prioritisation of service areas.

Perceived impact and frequency of severe weather

Although few experienced issues relating to extreme weather, customers agreed that there have been more extreme weather events over recent years but some questioned whether this indicates a longer term trend or just a 'phase' of particularly bad weather. For example:

- The recent snow and ice events of 2013 and 2010 were mentioned along with some localised flooding issues; and
- Participants were keen to point out that high winds are not generally 'top of mind' but are recognised as an issue affecting the electricity network.

Perceptions of an acceptable time to be without power in a severe weather event

There was a degree of acceptance among non-domestic customers that NIE Networks faces a number of difficulties when trying to repair network faults during extreme weather. However, non-domestic customers still felt that:

- Power should be restored within two to three hours, or at most, within 24 hours;
- Regardless of weather, business still have to operate and they expect NIE Networks to take cognisance of this fact; and
- NIE Networks should allow time to make plans and put contingencies in place.

Prioritisation of service areas

Non-domestic respondents were asked to score each service area as high (10), medium (5) and low (0) in terms of the investment in improving service provision.

- As was the case with domestic customers, non-domestic customers were more inclined to prioritise investment in flood prevention, followed by high winds. Again, ice accretion was viewed as less of a priority; and
- Network resilience is viewed as an important area of investment given that it would impact on power outages and therefore business continuity.

With specific reference to the type of investments favoured:

- Familiarity with ice accretion is low, as is knowledge of its impact on the electricity network;
- Some non-domestic customers, despite not thinking ice accretion is a priority, still think some level of investment is necessary due to the impact it has when it occurs;
- Flooding was viewed as the greatest weather related threat to the electricity network and so non-domestic customers tended to say this required high investment;
- There was some scepticism regarding the risk of flooding versus the level of occurrence;
- Most mentioned that high winds are the most likely extreme weather event to be experienced in Northern Ireland, perhaps explaining why it was not necessarily mentioned 'top of mind' due to its regular occurrence; and

- Larger users of electricity were less concerned about high winds as they thought that investment in this area would not necessarily impact their business.

Phase 2 - quantitative

The phase 2 quantitative survey assessed support for strengthening the network to cope with extreme weather conditions overall. The findings detailed below highlight the key findings with regard to increasing resilience to severe weather.

Investment priorities - extreme weather

Results from the survey show that:

- The majority (81%) expressed high support for investment in this area;
- 55% indicated that they were in full support of investment in this area;
- Organisations operating in the public admin, health and education sector, as well as those in the agricultural trade, were more likely to support investment in this area; and
- A similar percentage of urban (82%) and rural (80%) organisations expressed high levels of support to strengthen the network against extreme weather.

Phase 3 - qualitative

Non-domestic customers were asked to discuss whether they think NIE Networks should increase investment to improve resilience to severe weather, as well as to discuss what option for investment they prefer. Findings are summarised under the following headings:

- Overall priorities for increasing resilience to severe weather; and
- Options for investment.

Overall priorities for increasing resilience to severe weather

Phase 3 interview discussions revealed:

- All non-domestic customers believe that increasing resilience to severe weather is something that NIE Networks should focus on; and
- A select few stated that NIE Networks should have been already tackling this issue.

Options for investment

With regard to the preferred investment proposals:

- The majority of respondents felt that a mixture of the two options would be the best way forward; meanwhile
- A small number felt that Option two would be better because they are not affected by ice accretion, but they are more vulnerable to the impact of trees falling on the lines.

Non-domestic customers' views on increasing resilience to severe weather

- Non-domestic customers expressed high levels of support for investment in strengthening the network by increasing resilience to severe weather.
- As was the case with domestic participants, non-domestic customers were more inclined to pledge their support for investment to reduce the impact of flooding.
- Again, non-domestic participants suggested that NIE Networks should invest in a mixture of investment options one and two.

Overall, non-domestic customers were supportive of NIE Networks' proposals to strengthen the network by increasing resilience to severe weather, with particular reference to mitigating the impact of flooding.

Stakeholder views on increasing resilience to severe weather

Phase 1

Stakeholders provided their views on the perceived frequency and impact of extreme weather. All stakeholder groups noted the increasing severity of NI weather, for example:

- Several cited the increased regularity of extreme events; and
- As a result, severe weather was deemed an imminent risk to the electricity network.

The threat of severe weather and the detrimental consequences were cited by all. Stakeholders noted that:

- An interruption to supply resulting from severe weather is likely to take much longer to identify and rectify than other unplanned interruptions; and
- In a worst case scenario, it could take 'years' to recover from an extreme event depending on the severity of the repercussions.

Phase 3 - qualitative

During the phase 3 workshop, stakeholders were asked to discuss whether they think NIE Networks should invest in resilience to severe weather.

- The consensus was that NIE Networks should increase investment in this area, with approximately three out of four agreeing with the proposal;
- A small number were unsure about whether investment was needed in this area; and
- A few considered that there was no need for additional money to be spent in this area.

Reasons cited for these responses included:

- Increased frequency of severe weather events heralds the need for increased investment (cited by those in favour of increased investment); and
- Electricity outages as a result of extreme weather primarily impacts on rural customers (cited by those who considered that there was no need for additional investment).

It is pertinent to note that some stakeholders had an issue with NIE Networks asking that customers pay for these investments, stating that the associated costs should have been in NIE Networks original plan. Similarly, some felt that this work should already be being carried out and that the funding should be coming from the core governmental budget.

Stakeholder views on increasing resilience to severe weather

- All stakeholder groups noted the increasing severity of NI weather.
- The general consensus was that NIE Networks should increase investment in this area, with three quarters agreeing with the proposal.
- However, stakeholders expressed strong views with regard to who should be responsible for paying for such improvements. For example, some suggested that increasing resilience to severe weather should be part of NIE Network's 'business as usual' plan, while others felt that funding should come from other core budgets.

Overall, stakeholders were supportive of NIE Networks' proposals to strengthen the network by increasing resilience to severe weather, however, they felt strongly that this should be of no additional cost to NIE Networks' customers.

Section 1.6:
Future strategy

1.6 Future strategy

This section details key research findings across all phases of the research (including qualitative and quantitative consultation with domestic customers, non-domestic customers and stakeholders) on the theme of future strategy. Specifically, there were two areas under consideration:

- Sustainability, with a focus on forward investing to enable a low carbon economy; and
- Investing in stronger infrastructure to support the growth of the NI economy.

The section initially outlines NIE Networks' current position, and then details the corresponding views of domestic customers, and stakeholders in turn, in relation to key investment areas.

NIE Networks' current position

From electric vehicles to photovoltaic (PV) panels installed on the roofs of houses, the way that electricity is produced is changing. NIE Networks needs to understand the effect that these changes may have on the electricity flows on the network. This means that NIE Networks has recognised that they need to invest in the exploration of innovative technologies that can contribute to getting the most out of the electricity network in the future. This, in turn, will help NIE Networks to understand how new technology can be used to increase the flexibility of the network and to avoid costly reinforcements.

It is therefore NIE Networks' intention to explore a range of technologies and approaches which potentially could be rolled out across the network in the future.

Domestic customers' views on future strategy

Phase 1 - qualitative

During the phase 1 focus groups with domestic customers, participants were asked a series of questions relating to the two key areas for consideration. Findings from the focus group discussions have been summarised under the following headings:

- Initial views on future strategy;
- Sustainability; and
- Investing in stronger infrastructure to support the NI economy.

Initial views

Domestic groups provided mixed reactions to the concept of future strategy. For example:

- It was evident that some groups struggled to identify with the concept and the connotations of this type of investment; however
- Almost all believed that NIE Networks should be undertaking measures to forward plan for the future.

Sustainability

Despite mixed views, most customers cited support for forward investing to help enable a low carbon economy.

- There was general recognition that low carbon technologies are 'on the rise' and, for several, 'the way forward';
- However, a few queried the cost/benefits of this type of investment, particularly if the predicted demand does not manifest; and
- In response, some noted the importance of evaluating trends to ascertain demand prior to extensive investment.

Investing in stronger infrastructure to support the NI economy

The concept of 'power parks', where stronger backbone infrastructure is put in place which would enable NIE Networks to provide additional capacity to meet business demand, was generally perceived to be an area which NIE Networks should not consider in isolation. Indeed:

- Customers suggested that, in order to assess the need for this type of investment, NIE Networks must undertake extensive planning alongside other governmental bodies; and
- In terms of who should fund this type of investment, several were opposed to the idea that it should come from the 'customer purse'.

When asked to confirm their level of support for investing in future strategy, 38% of domestic customers who responded to the survey reported that they would lend their full support to investment to try out and text new equipment which could support the rising levels of renewable technology connecting to the electricity network. Meanwhile, 7% indicated that they would not lend any support to investment in this area.

Phase 3 - qualitative

As part of the research into future strategy, domestic customers were asked to provide their views on a range of potential trials to be undertaken by NIE Networks. Details of these trials and NIE Networks' investment options have been included at Annex B.

Overall, there was agreement that NIE Networks should be focusing investment on their future strategy. Indeed, when asked how many trials they thought NIE Networks should take forward:

- Most (72%) were in favour of the greatest level of investment proposed i.e. five trials;
- There were a smaller number of domestic customers who felt that three trials would be the best choice; while
- Some participants felt constrained in giving an opinion due to their lack of knowledge/expertise of the need for this type of investment.

There was a consensus that NIE Networks should be making these decisions, as domestic customers do not have enough knowledge about the best way to build a smarter network.

Domestic customers' views on future strategy

- Although it was evident that some groups struggled to identify with the concept and the connotations of this type of investment, almost all believed that NIE Networks should be undertaking measures to forward plan for the future.
- When asked how many trials they thought NIE Networks should take forward, most (72%) were in favour of the greatest level of investment proposed i.e. five trials, although some participants did not feel qualified to make this judgement.

Overall, domestic customers were supportive of NIE Networks' proposals to invest in future strategy. Despite the majority suggesting that NIE Networks should take forward five trials, there was a consensus that NIE Networks should be making these decisions, as domestic customers do not have enough knowledge about the best way forward.

Non-domestic customers' views on future strategy

Phase 1 - qualitative

Similar to domestic customers and stakeholder groups, there were two areas under consideration specific to future strategy, namely:

- Sustainability; and
- Investing in stronger infrastructure to support the growth of the NI economy.

Findings have been summarised under the following headings:

- Initial views on future strategy;
- Sustainability; and
- Investing in stronger infrastructure to support the NI economy.

Initial views

Non-domestic customers suggested that future strategy is an important consideration as:

- It could mitigate some of the issues they are currently experiencing (such as difficulties with connections); and
- Forward planning is essential for all businesses, and as such they believe that NIE Networks should be preparing the network for the future.

Sustainability was also mentioned spontaneously as something NIE Networks has to consider in their future planning as demand increases in line with government targets.

Sustainability

Sustainability was reportedly viewed as important, particularly due to the current drive to encourage low carbon technologies and sustainability. Respondents suggested that:

- Forward investing in the network is essential to support these wider aims; and
- Such forward planning would ensure NIE Networks is keeping up with changes in business that are already happening.

Investing in stronger infrastructure to support the NI economy

Again, most non-domestic customers think that NIE Networks should be investing in the electricity network to support the NI economy, but this is not viewed as a burden for NIE Networks exclusively. Specifically, non-domestic customers are of the opinion that:

- Given that the economic policy and goals are set by the NI Executive, respondents were of the opinion that any investment to support the economy should be supported by government; and
- Regardless of how this investment should be funded, a number of respondents think it is vital to keep the local economy competitive, although they suggested that bill increases would be the least favoured avenue to fund this investment.

Phase 3 - qualitative

Again, non-domestic customers were asked to provide their views on a range of potential trials to be undertaken by NIE Networks. Non-domestic customers agreed that NIE Networks should focus on building a smarter electricity network.

- Almost all non-domestic customers interviewed felt NIE Networks should take forward all five trials listed;

- The reasoning was if NIE Networks trial all five they might find one or two that could be rolled out over the next regulatory period which would benefit all customers; and
- Of the small portion who chose three trials, they reported that they did so because it was the least expensive option.

Larger organisations were more likely to express the view that they felt that the future strategy planning did not represent value for money. They also reported that they would not mind paying if it managed to reduce electricity bills in the longer term, and if it meant that NIE Networks would be more efficient.

Non-domestic customers' views on future strategy

- Non-domestic customers were in agreement that investing in future strategy is important.
- Sustainability was mentioned spontaneously as something NIE Networks has to consider in their future planning as demand increases in line with government targets.
- Almost all non-domestic customers interviewed felt NIE Networks should take forward all five trials listed in the hope that one or two could be rolled out over the next regulatory period. Of the small portion who chose three trials, they reported that they did so because it was the least expensive option.

Overall, non-domestic customers were supportive of NIE Networks' proposals to invest in future strategy.

Stakeholder views on future strategy

Phase 1 - qualitative

Future strategy was spontaneously mentioned as a priority issue by some stakeholders prior to consideration of other service areas, particularly given that some were surprised that this is not a priority in RP5. Discussions revealed that:

- Stakeholders were particularly interested in investing in smarter ways to operate the network to support innovation and sustainability;
- There is a keen interest from most in relation to sustainability and low carbon technologies;
- Some believe it is 'foolhardy' to not forward invest to enable a low carbon economy;
- They deemed it essential that NIE Networks forward invest to prepare for the long term growth of these technologies; and
- They suggested that sustainability should be prioritised for investment, with some arguing that NIE Networks do not 'have a choice' in relation to forward investment.

Phase 3 - qualitative

During the phase 3 workshop, stakeholders were asked to provide their views on whether NIE Networks should spend money on exploring new technologies.

- Almost all agreed that NIE Networks should focus on this as a strategic area for investment. Participants noted that it is extremely important to future proof the grid;
- There was a small proportion of participants who felt that Northern Ireland was too small and is in no position to be a trial area. Instead, stakeholders suggested that Northern Ireland should be "fast followers" by copying what other countries are doing; however,
- Stakeholders were keen to note that the customer should not be paying for these investments, while others suggested that only the customers and/or government departments who have interest in the trials should pay.

Out of the five suggested trials:

- Most stakeholders were unsure which trials they would choose; and
- A high proportion noted that they would require more information to decide as it is unclear which investment would benefit the customer the most.

When asked how many trials they thought NIE Networks should take forward:

- Most stakeholders reported that between two and five trials would be enough;
- However, a high share of stakeholders would not be willing to pay for these investments.

Stakeholder views on future strategy

- Future strategy was spontaneously mentioned as a priority issue by some stakeholders prior to consideration of other service areas.
- Stakeholders were particularly interested in investing in smarter ways to operate the network to support innovation and sustainability.
- 90% agreed that NIE Networks should focus on this as a strategic area for investment.
- However, stakeholders expressed strong views that the customer should not have to pay for these investments. Instead, funding should be sought from interested government departments.

Overall, stakeholders were supportive of NIE Networks' proposals to invest in future strategy, but stressed that this should not come at a cost to the customer.

Section 1.7:
Willingness to pay and overall investment priorities

1.7 Willingness to pay and overall investment priorities

As part of the research conducted on behalf of NIE Networks, one of the key aims was to determine willingness to pay/contribute to investment options. In order to fulfil this aim, Perceptive Insight enlisted the help of George Hutchinson and Alberto Longo from the Gibson Institute at Queen's University, who are experts in experimental survey design for stated choice analysis and in the design of behaviourally robust econometric analysis of choice data.

This section outlines the methodology enlisted to ensure successful determination of willingness to pay, followed by the headline results of the willingness to pay exercise.

Discrete choice experiment approach

Phase 2 - quantitative

Introduction to discrete choice experiments

Discrete Choice Experiments (DCE) is a survey-based technique used to investigate the trade-offs that people are prepared to make between different goods or policies. The technique can be used to find the monetary value that people place on goods and services or the value of a policy change. DCE is a stated-preference technique, in that it relies on individuals saying what they would do under hypothetical circumstances, rather than observing actual behaviours in marketplaces. Contingent valuation (CV), is a popular method for placing a value on a good, and is another example of a stated-preference technique, which can be interpreted as a special case of DCE.

In a typical DCE survey, respondents are shown alternative variants of a good described by a set of attributes, and are asked to choose the most preferred one. The alternatives differ from one another in the levels taken by two or more of the attributes. Statistical analyses of the responses can be used to obtain the marginal value of these attributes and the willingness to pay for any alternative of interest.

In this project, the DCE process involved presenting customers with alternative bundles of characteristics of the service offered by NIE Networks, arranged according to the principles of experimental design, and asking them to choose their favourite bundle from the available set. In order to establish trade-offs between electricity service characteristics and money, one of these characteristics must be the cost of the bundle. When customers chose one bundle (package of electricity services) over others, they implicitly revealed their trade-off between money and the single services included in each bundle in their choice set. Such trade-off is the marginal value of that characteristic of the complex good.

The DCE exercise was implemented as part of the phase 2 quantitative survey with domestic customers.

The tables below outline the service level options that were used. These were arranged in a number of alternative bundles and presented to customers. Customers were asked to state which bundle of services they would choose. It should be noted that the bundles also included options for the cost.

Table 1.7.1 Investments to deal with power cuts

Attributes	Description	Current	Level 1	Level 2
Longest Duration	Number of customers per year who are experiencing power cuts over 10 hours in duration	About 5,000 customers per year.	About 3,750 customers per year (longdur1)	About 2,500 customers per year (longdur2)
Most at risk of power cuts	Customers experiencing 6 or more power cuts in the last 18 months	About 12,000 customers.	About 9,600 customers (mostriskcuts1)	About 7,200 customers (mostriskcuts2)
Communication during power cuts		Automated messages or telephone operators to respond to customer calls	Automated messages or telephone operators to respond to customer calls PLUS real-time information on NIE's website (communication1)	Automated messages or telephone operators to respond to customer calls PLUS real time information on NIE's website PLUS text messages to provide information updates (communication2)

Table 1.7.2 Reducing risk from extreme weather

Attributes / Description	Current	Level 1	Level 2
Ice and snow has affected the network 3 times in the last 5 years and some customers were without power for a number of days. NIE know the areas which are most at risk to ice and snow and can strengthen the network in these areas	46,000 homes and businesses are deemed to be at higher risk	About 34,500 homes at higher risk. (Icesnow1)	About 30,820 homes at higher risk. (Icesnow2)
In an average year there are about 5 storms which cause power cuts to approximately 18,000 homes and businesses each time. Many of these power cuts are caused by trees falling on power lines. Some of these trees could be cut back over the next five years.	NIE will address 20% (one fifth) of the main network.	NIE will address 25% (one quarter) of the main network. (Storm1)	NIE will address 33% (one third) of the main network. (Storm2)
Over the next five years, NIE can protect substations from flooding to reduce the risk of power cuts. **Since 2011, 2 major substations have flooded incurring costly repairs. In January 2014, 6 others came within inches of flooding due to tidal surges.**	Five substations will be protected, leaving 38,500 homes and businesses at risk of power cuts due to flooding.	10 substations will be protected, leaving 27,000 homes and businesses at risk of power cuts due to flooding. (Flood1)	15 substations will be protected, leaving 15,500 homes and businesses at risk of power cuts due to flooding. (Flood2)

Table 1.7.3 Special investments for the future

Attributes	Description	Current	Level 1	Level 2
Overhead lines in urban areas	Over the next five years, NIE can put underground some of the 1,500km of overhead lines in urban areas	No overhead lines are put underground in urban areas	Underground 15km of overhead network in urban areas (UnderUrban1)	Underground 30km of overhead network in urban areas (UnderUrban2)
Overhead lines in tourist areas / areas of natural beauty	Over the next five years, NIE can put underground some of the 3,500km of overhead lines in tourist areas / areas of natural beauty	No overhead lines are put underground in tourist areas / areas of natural beauty	Underground 25km of overhead network in tourist areas / areas of natural beauty (UnderTour1)	Underground 50km of overhead network in tourist areas / areas of natural beauty (UnderTour2)
Smart network technology	Over the next five years, NIE can investigate new technology to support the rising levels of renewable energies which are now connecting to the electricity network (e.g. heat pumps, solar panels and electric vehicle charging points).	Background studies of what is done in other countries.	Background studies of what is done in other countries PLUS 3 small projects to improve the network for renewable technologies (Renew1)	Background studies of what is done in other countries PLUS 6 small projects to improve the network for renewable technologies (Renew2)

Discrete choice experiment results

Phase 2 - quantitative

Results from the DCE are reported based on results of the 'clean sample'.

It is typical in stated preferences studies to analyse the data after removing respondents who provide "protest" responses to the payment questions or who did not engage with the hypothetical scenarios. Protest respondents may decline to pay, or announce that they are not willing to pay anything because they disagree with certain aspects of the scenario or the provision mechanism. In addition to protest respondents, it is also important to identify "yes-sayers". These are respondents who did not pay attention to the cost of the hypothetical scenario and therefore did not engage with the hypothetical scenarios.

Protest respondents and "yes-sayers" were identified as those who motivated their DCE choices as follows:

- "I was just guessing mostly";
- "I didn't really understand the choice cards";
- "I always chose the current situation at no additional cost because I think that consumers should not pay for these improvements"; and
- "I was interested in improving the environment irrespective of the additional cost".

The full sample comprised 1,179 respondents, whilst the clean sample is composed of 929 respondents. This indicates that a total of 21.2% of respondents either protested the hypothetical scenarios or did not engage with the DCE questions (a percentage consistent with good quality DCE studies).

For policy decisions, it is recommended that values from the clean sample are used, as they report more robust and credible willingness to pay figures. It is also standard practice in environmental economics to use the median willingness to pay value for policy recommendations, as it is a more conservative value and because it represents the value at which the policy change would be implemented at a referendum vote. The results for clean sample, including both mean and median values, have been presented below.

Results for the DCE of the investments to deal with power cuts block

The estimation results from the 7,236 choices data collected from the DCE of the investments to deal with power cuts block show:

- The current situation was chosen 51.16% of the times for the clean sample.

For this block of attributes, it can be concluded that by using the data from the clean sample, about half of the sample preferred the current situation rather than other hypothetical options. The first attribute, "longest duration," is the one that respondents consider most important and worth investing in.

Results for the DCE of reducing risk from extreme weather block

The estimation results from the 7,236 choices data collected from the DCE of the reducing risk from extreme weather block show:

- The current situation was chosen 44.71% of the times for the clean sample.

For this block of attributes, respondents considered it quite important to invest in reducing extreme weather effects. The output showed positive and increasing willingness to pay for all the attributes.

Results for the DCE for the block on special investments for the future

The estimation results from the 7,236 choices data collected from the DCE of the special investments for the future block show:

- The current situation was chosen 50.48% of the times for the clean sample.

There was a preference towards the current situation and there was also strong preferences heterogeneity for these attribute levels. The only attribute where respondents appeared to have clear preferences is for undergrounding network connectors in urban areas.

Results for the willingness to pay estimates for the highest improvement

Answers to a double-bounded question exercise and an open ended question were used to estimate the willingness to pay for the highest improvements in all attributes.

- For the clean sample, a mean and median willingness to pay of £9.94 and £7 was found respectively.

It is worth noting that the mean and median willingness to pay differed by household income. Indeed, in the full sample, there are 266 respondents in income poverty (defined as those households whose income is below the 60% of the median household income), which equates to 206 respondents in the clean sample. This group of respondents has a mean and median WTP equal to:

- £7.61 and £5 respectively (for the clean sample).

The table and charts that follow exemplify the overall willingness to pay results that have been discussed above.

Table 1.7.4 Willingness to pay by percentile and selected measures, all respondents and only for respondents in income poverty (clean sample)

	All respondents	Only respondents in income poverty
GBP (£)	Clean sample (n=929)	Clean sample (n=205)
Mean	9.94	7.61
median	7	5
min	0	0
25th	0	0
50th	7	5
75th	12	10
max	100	60

Figure 1.7.2 Distribution of WTP, CV open ended questions (clean sample, n=929)

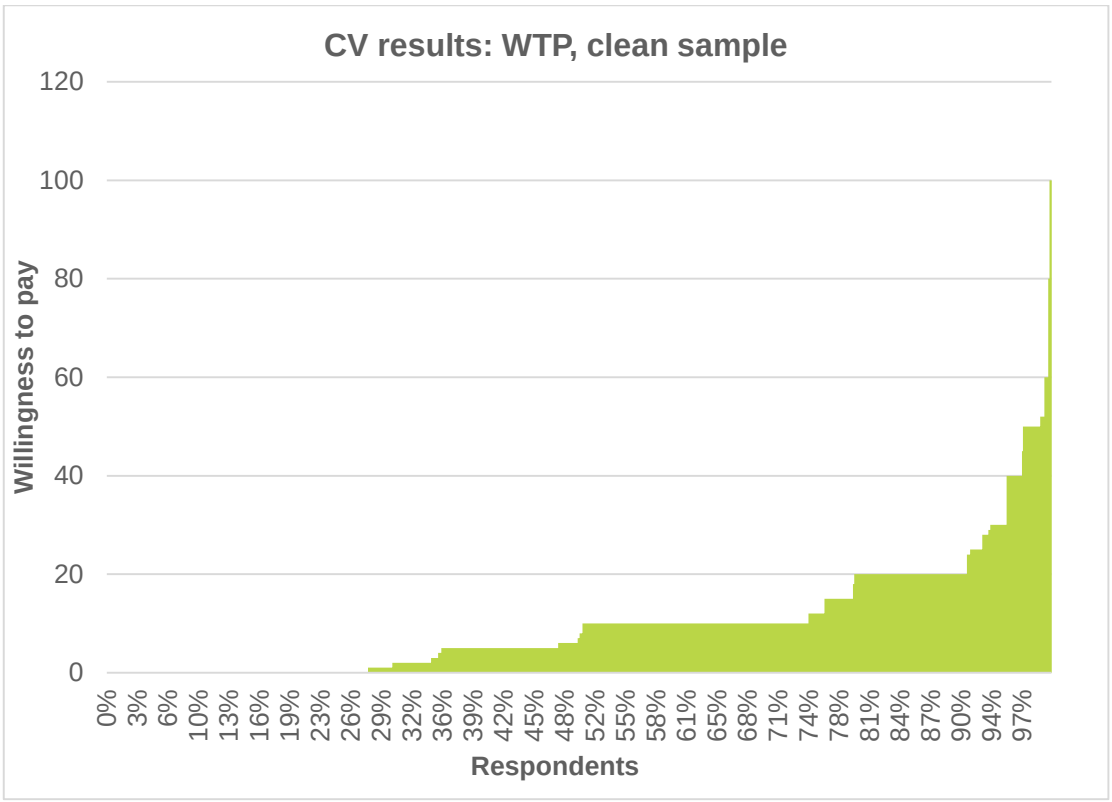
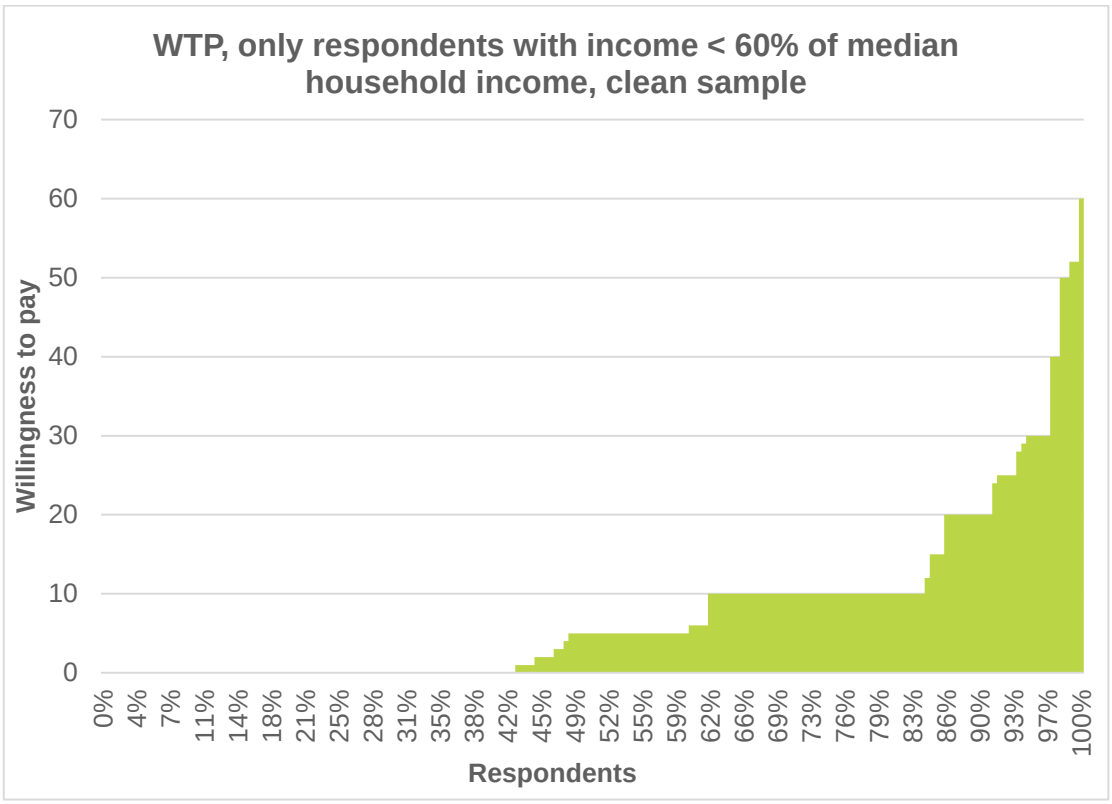


Figure 1.7.3 Distribution of WTP, CV open ended questions, only respondents in income poverty (clean sample, n=205)



Overall investment priorities

Phase 2 - quantitative

On the basis that NIE Networks is planning ahead for the next six to seven years, one of the objectives of the quantitative survey was to ascertain what customers think their priorities should be for future investments.

Findings from both the DCE exercise and general findings from the survey of domestic customers have been summarised below.

DCE findings

From the DCE exercise, areas where households have shown stronger preferences for new investments are:

- Reducing power outages from the risk of flooding;
- Reducing the number of customers affected by power outages lasting more than 10 hours;
- Reducing the number of customers at high risk of power outages from ice and snow;
- Reducing power cuts to customers experiencing six or more outages in the last 18 months;
- Reducing power cuts from storms causing trees to fall on power lines; and
- Improving the communication with customers in the event of a power outage.

Survey of domestic customers

To support the work undertaken as part of the DCE exercise, a number of additional questions were asked in the domestic survey to gain further insight into the overall investment priorities of domestic customers.

Firstly, participants were asked to scale their level of support for a number of suggested investment areas. The headline findings have been outlined at Table 1.7.5.

Table 1.7.5 Prioritisation of investments

Overall	Level of support						
How much would you support investments in each of the following areas? (Using a scale of 1 to 5 where 1 is no support and 5 is full support)	1 (No support)	2	3	4	5 (Full support)	Not sure	Total
Limit the number of customers per year who are affected by power cuts over 10 hours in duration (about 5,000 customers per year)	2%	2%	14%	24%	54%	4%	**100%**
Limit the number of households who are repeatedly affected by power cuts (about 12,000 customers experience 6 or more power cuts in 18 months)	2%	3%	13%	23%	55%	4%	**100%**
Reduce the likelihood of power cuts during severe weather (by strengthening the network, protecting substations at risk of flooding, or reducing the likelihood of trees falling on power lines during storms)	2%	2%	13%	22%	58%	4%	**100%**
Try out and test new equipment which could support the rising levels of renewable technology connecting to the electricity network	5%	9%	20%	20%	38%	8%	**100%**
Increase the options for communicating with customers during power cuts	6%	10%	21%	19%	39%	6%	**100%**

In summary, more than half stated that they would give their full support (scale 5) for the following initiatives:

- Limiting the number of customers affected by power cuts over 10 hours in duration (54%);
- Limiting the number of households who are repeatedly affected by power cuts (55%); and
- Reducing the likelihood of power cuts during severe weather.

Meanwhile, a high proportion of respondents also gave each of these initiatives a support level of four (24%, 23% and 22% respectively). As such, in each case, almost three quarters of respondents would deem a reduction in power cuts (duration, number affected and likelihood due to weather) to be of high level priority (support score of four or five).

Other investment areas, however, also gained a high level of support from survey participants. Over one third of respondents would lend their full support to:

- Trying out and testing new equipment which could support the rising levels of renewable technology connecting to the electricity network (38%); and
- Increasing the options for communicating with customers during power cuts (39%).

However, public opinion on the prioritisation of these investment options is generally more mixed than the suggested investments to tackle power cuts.

To verify the prioritisation of investment, customers were asked to provide their opinion on what potential investment areas require the most improvement.

- Respondents confirmed that their main priorities tend to include options that will ultimately reduce the number of power cuts for NIE customers;
- Strengthening the network prevailed as one of the top three priorities for 71% of respondents; and
- Limiting the number of households repeatedly affected by power cuts (69%) and limiting the number of customers who are affected by power cuts for longer than 10 hours in duration (65%) were also notable priorities.

Section 1.8: Approaches to consumer engagement

1.8 Approaches to consumer engagement

In Perceptive Insight's original proposals, a fourth phase of research was proposed to present consumers and stakeholders with the draft business plan and inform them of how their views have been taken on board. It was proposed that this phase would be used to highlight any significant changes from previous proposals and to seek to identify from the research participants the key performance measures that they would like to see in place to monitor progress towards delivering on the business plan.

However, having reviewed the research findings and the progress made to date, in discussion with the CEAP group, Perceptive Insight considered that the requirements for phase 4 had evolved and therefore a revised approach was required. It was subsequently agreed by all parties involved that desk based research, around the theme of consumer engagement, would better suit the needs of NIE Networks and their research into consumer engagement services for RP6.

As such, Perceptive Insight undertook in-depth desk based research to better understand methods for enhanced consumer engagement through analysis of existing research, case studies and best practice examples. The revised overall aim for this phase of the research is to better understand methods for enhanced consumer engagement through analysis and assessment of case study and best practice examples from an array of sectors, and countries, from which lessons and recommendations may be transferable. In meeting these aims, Perceptive Insight reviewed approximately 20 research reports on the theme of best practice customer and stakeholder engagement across several sectors, including electricity, water, gas, transport and policing.

This section highlights the key findings from the revised phase 4 desk based research phase, and is structured under the following sub-headings:

- Consumer engagement objectives;
- Inclusion of consumer engagement within organisational policy;
- Approaches to engagement;
- Timetabling and costs;
- Outputs and use of consumer engagement findings; and
- Conclusions and recommendations.

Literary evidence of approaches to consumer engagement

Phase 4

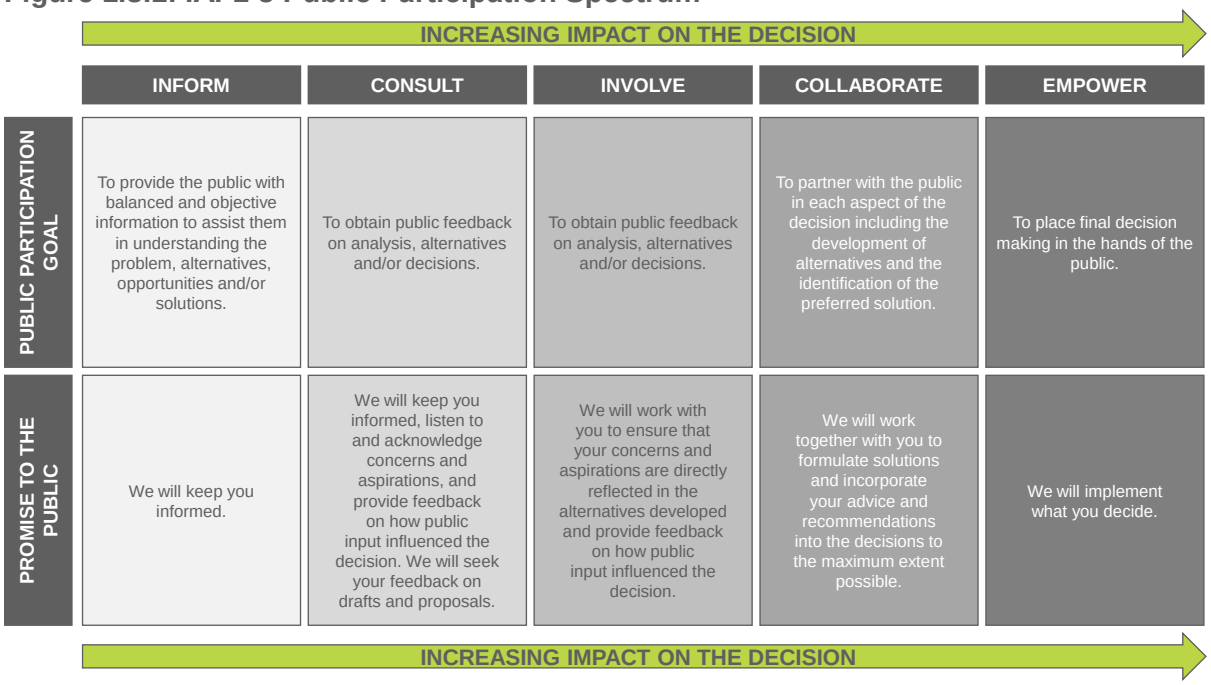
Consumer engagement objectives

Defining consumer engagement

Many existing examples iterate the importance of defining consumer engagement prior to commencement of any research. This includes to clearly define the purpose of the engagement and the desired level to which engagement should occur. Key messages unearthed through the literature review of best practice highlighted that:

- The International Association of Public Participation (International Association of Public Participation, 2007) published a particularly useful public participation spectrum which clearly outlines the varying levels of participation and impact. Using this spectrum as a guide, by deciding in advance the level to which consumers will be informed, consulted, involved, collaborated with or empowered, NIE Networks has the potential to set clear boundaries and make early decision regarding the level to which the public can and should be involved in the decision making process.

Figure 1.8.1: IAP2's Public Participation Spectrum



- Clear, simple but specific guidelines and definitions are useful both in terms of engagement planning, but also how to communicate directly with consumers when informing them of their input at any given stage.
- Overall, consumer engagement is about working openly and collaboratively with consumers and providing opportunities for their views and preferences to be heard and to influence service providers' decisions.

Key objectives for effective consumer engagement

On the theme of consumer engagement objectives, all literature reviewed outlined clear research objectives and highlighted the importance of setting clear objectives from the outset. Typically, these objectives tended to fall into one or more of the following three categories:

- Emphasising the importance of consumer engagement;

- Empowering the consumer; and
- Supporting wider strategic and social aims.

The majority of consumer engagement projects are implemented with the overall objective to empower the customer and to ensure that the consumer voice is heard.

Inclusion of consumer engagement within organisational policy

The importance of embedding engagement in core strategy

The literature review of best practice consumer engagement highlighted that:

- There has been an increase in the inclusion of consumer engagement in both governmental and organisational strategy reflecting the growing recognition amongst government and regulators that securing the long-term interests of consumers necessitates input from those consumers; and
- Access to information, consultation and active participation in policy-making are noted to be important factors in the contribution to good governance.

Examples of embedding engagement in core strategy

Lessons could be learnt from organisations that embed community engagement within their planning and strategies, which in turn has impacted upon their day-to-day administration. For example:

- In Australia, for example, embedding engagement into strategy has been taken one step further, as the National Electricity Rules have imposed strict guidelines around the planning, implementation and presentation of consumer engagement activities; and
- The PSNI is another example of the extent to which engagement can be embedded in organisational policy. Their aim is to 'ensure that engagement and partnership with communities are at the core of everything the police do'.

Conditions for successful inclusion of consumer engagement in organisational policy

Literary evidence highlighted the need for organisations to take action to ensure that consumer engagement is given the opportunity to be successful, given that the public cannot be expected to get behind either governmental or organisational policies if they do not receive full and clear information. It was suggested that:

- Company policies will lack support if they are liable to unravel under public pressure;
- Only if consumers buy into and engage with policies can they be expected to meet their objectives; and
- Flexible arrangements are required to ensure that the benefits of choice are enjoyed by all consumers.

Approaches to engagement

The multiple approaches to engagement

It became clear that many different approaches to effective consumer engagement exist. Indeed, throughout the literature review, no two case study examples utilised the same approach to consumer engagement, which emphasises the challenge in attempting to assess the relative merits of each initiative in comparison to another. Some key characteristics of the approaches studied include:

- A predominantly qualitative approach;

- The use of customer or stakeholder forums as useful platforms to engage effectively with a range of participants;
- Advocating the early involvement of stakeholders; and
- The use of customer advisory panels or committees as a method tends to evoke a feeling of responsibility or common ownership from the selected participants.

Other case studies employed a mixed approach to consumer engagement, including a quantitative survey or the inclusion of handheld audience response devices, however, it is important to note that throughout this in-depth period of literature review, no examples that employed a purely quantitative approach were found.

The number and type of participants involved

In many cases, information regarding the exact number of participants, or indeed the type of participant, was not made clear. What was made clear from the examples studied included:

- Almost all examples place high importance on the involvement of experts or stakeholders (either in the form of a stakeholder workshop, or through targeted in-depth interviews);
- The approaches considered to be more comprehensive tended to utilise a wider variety of participants from more varied backgrounds;
- When a customer forum, advisory group or committee was involved, project managers emphasised the importance of including a diverse range of profiles with various level of knowledge and experience. This diversity can help to create the conditions for very productive conversations; and
- While some organisers of consumer panels argue that participants should participate in a personal capacity rather than as 'stakeholders', in order to ensure every member could contribute their own views and allow them to evolve freely, others advocate the use of the 'stakeholder' approach as it gave the group a sense of authority.

The level of input required

With regard to the level of input required from those who commit to the engagement process, evidence suggests that:

- The participant should be informed of what would be expected of them from the outset to enable them to make an informed decision as to their capacity to contribute to the level expected by the research team. However, the requirements of participants should not be limited or downplayed just to encourage participation; and
- Participants should be provided ample opportunity to make their voices heard, and should be given responsibilities within the engagement process as this tends to elicit a feeling of duty.

Conducting genuine engagement

Across all examples of consumer engagement, a significant amount of importance was put on the effectiveness of such engagement. In order to elicit effective engagement from consumers, stakeholders or other participants, there had to be genuine buy-in and interest from all parties. Suggestions for ensuring genuine engagement included:

- An engagement process was perceived to be more meaningful and genuine when it had the support of top-level management and senior executives and where the contributions made by people participating in the process were valued;

- Eliminating bias, identifying the appropriate people to undertake engagement and accounting for consultation feedback are considered to be indispensable to a meaningful engagement process; and
- There needs to be a two-way dialogue between the customer and the business.

Methods of communication

Common channels of communication could include (but are not limited to):

- Letters;
- Press releases;
- Information leaflets;
- Face-to-face discussions;
- The use of an online project page;
- Social media channels;
- Email;
- Telephone contact; and
- Meetings.

When deciding upon a fit-for-purpose method of communication, literary evidence suggests that consideration should be given to the various types of customers with whom contact may be necessary and tailored communication methods should be designed to suit any specific needs. Indeed, best practice examples show that by providing a range of options by which to engage with customers, the opportunity for more frequent engagement could be enhanced.

Suitable presentation of information

Consideration should be given to how to present information to participants. For example:

- Information should be presented in plain English and be 'jargon free'. It should also be framed in such a way that it is made relevant to the participant and should remain unbiased, objective, impartial and accessible for all;
- Customers should be armed with more accessible information could help to drive greater engagement; and
- It is critical to breakdown complex terminology into digestible components which customers can relate to, in order to ensure that engagement is accessible, meaningful and transparent.

Timetabling and costs

The total duration of engagement research

It became clear that there is little to no uniformity in the amount of time dedicated to consumer engagement activities across various organisations. Indeed, the information provided across ten case studies exemplifies the varying level of time dedicated to consumer engagement in each specific case – ranging from a couple of months, to seven years. However, some examples of best practice highlighted that organisations may wish to consider alternatives to a defined period of consumer engagement. For example:

- Some would argue that consumer engagement should be a continuous and ongoing process rather than a 'programme'; and
- Others suggested that the frequency and depth of engagement could be considered more important as these attributes would demonstrate the level to which organisations have embedded consumer engagement into their practices.

Costs of engagement

Although details of consumer engagement costs were not revealed across any of the examples studied, it was made clear that:

- Meaningful and robust stakeholder engagement does not come free or easy; and
- Engagement costs can be viewed as a longer term investment from which the organisation has the potential to reap rewards.

Outputs and use of consumer engagement findings

Some organisations found that consumer engagement processes helped in a number of practical ways, including:

- More direct help for customers; and
- Empowered customers.

Other notable outputs from effective consumer engagement processes included:

- Using consumer engagement to feed directly into policy or regulatory processes;
- Developing new opportunities for consumer participation for future implementation;
- Providing the opportunity to develop consumer priorities that will support consumers in selecting services that suit their needs;
- Enabling consumers to make informed choices about the way they use electricity which in turn can lead to more efficient investment across both demand and supply sides, ultimately impacting on the price consumers pay;
- Establishment of a more customer credible and focused result in terms of price and priorities;
- Developing plans and strategies that are more likely to withstand scrutiny;
- The potential to use the engagement process as a tool for staff development; and
- Stimulating a shift in culture – towards an ethos which puts customers first and engages and empowers staff.

Conclusions and recommendations

Based on the key findings from the desk based research on best practice consumer engagement, Perceptive Insight provided NIE Networks with a number of recommendations which could enhance their consumer engagement processes, which have been outlined in the table below:

Table 1.8.1: Consumer engagement recommendations

Theme	Number	Recommendation
Defining consumer engagement	1	Review the IAP2 Public Participation Spectrum to determine its potential use for NIE Networks.
Defining consumer engagement	2	Prior to the commencement of engagement activities, decide upon a fit-for-purpose definition of consumer engagement and align desired outcomes of the engagement process with key activities. The definition and desired outcomes should be clear and realistic.

Defining consumer engagement	3	Consider the potential benefits of designing a consumer engagement 'process' rather than a 'programme'. Should this option be unfavourable, NIE Networks should facilitate engagement which takes place on a regular basis.
Key objectives for effective consumer engagement	4	Continue to acknowledge the importance of consumer engagement and support with continued action to engage with consumers.
Key objectives for effective consumer engagement	5	Place customers at the heart of organisational processes by continuing to provide the opportunity for customers to voice their opinions thereby allowing for customer feedback to feed directly into price control setting and other organisational decisions.
Key objectives for effective consumer engagement	6	Assess current organisational policies and strategies, as well as sectoral or governmental aims, in order to better align consumer engagement endeavours with wider strategic aims.
Inclusion of consumer engagement within organisational policy	7	Firmly embed consumer engagement activities within organisational policy.
Inclusion of consumer engagement within organisational policy	8	Ensure strategic consumer buy-in by ensuring that organisational policies are flexible, will withstand scrutiny and will encompass the needs of all consumers.
Approaches to engagement	9	Continue to utilise a mixed approach to consumer engagement (including qualitative and quantitative strands of research).
Approaches to engagement	10	Consider adapting existing consumer engagement activities to include the development and maintenance of a customer/stakeholder advisory panel.
Number and type of participant	11	Focus participant recruitment on obtaining quality rather than quantity – i.e. including stakeholders and experts in the discussions.
Number and type of participant	12	Include a diverse range of participants across all stages of consumer engagement.
Number and type of participant	13	Consider including stakeholders in engagement activities but ask them to comment from a personal perspective in order to profit from freedom of speech, while also benefitting from expert knowledge.
Level of input	14	Endeavour to inform participants of the level of commitment and responsibility required prior to engagement.
Undertake genuine engagement	15	Endeavour to undertake genuine engagement with consumers which should include support from top-level management and senior executives. I.e. Engagement should have a meaning and purpose and should not be considered a 'tick-box' exercise.

Undertake genuine engagement	16	Engagement processes should be tailored in such a way so as to ensure that the participant feels valued. Amongst other attributes, this should include keeping the participant informed, incorporating their feedback into decisions and eliminating bias.
Contact methods	17	Employ a range of methods when communicating with various participants.
Presenting information	18	Careful consideration of how information is presented to each type of participant should be made in advance of any engagement activity. This should include the use of plain English, ensuring material is relevant to the participant and ensuring information is accessible.
Timetabling	19	Consumer engagement processes, and their timings, should be tailored to individual organisational needs. NIE Networks should therefore design an engagement plan and timetable that is specific to their own requirements and deadlines.
Costs	20	NIE Networks should not underestimate the costs and resources required to undertake genuine, valued and meaningful engagement.
Outputs	21	NIE Networks should determine the desired outputs of consumer engagement in advance of the engagement activities. (I.e. a practical, policy or customer driven initiative). This early planning will enable NIE Networks to develop tailored and appropriate consumer engagement activities and mechanisms for delivery and to better understand the potential benefits of engagement from the outset.
Outputs	22	Upon completion of the consumer engagement period, NIE Networks should take the time to evaluate and review of engagement tools, mechanisms and activities. This evaluation may also take place at intervals throughout the engagement process. This should include an evaluation of any key outputs.

It is notable, however, that the review highlighted that the existing methods utilised by NIE Networks and the CEAP group, with particular reference to their RP6 planning, are not dissimilar from existing examples of best practice. Indeed, the review of existing best practice highlighted that the extent to which NIE Networks has already invested in consumer engagement, combined with their wide-ranging methodology and inclusion of varied participant types, is commendable. The challenge for NIE Networks is how to build on the best practice approach to customer engagement beyond the RP6 planning process in a cost effective and meaningful way.

Final consumer input

Phase 4

In line with prior commitments made as part of the original Phase 4 proposals, it was acknowledged that it would still be important to make contact with those who had participated in other phases of the research. As such, NIE Networks created a booklet containing feedback

to customers and stakeholders which was subsequently distributed to those that participated in the research throughout Phases 1 and 3. This booklet included:

- Details of how their views have been taken on board;
- What options are being proposed as part of NIE Networks' business plan; and
- How NIE Networks propose to engage with customers and stakeholders during RP6.

Following the dissemination of the booklets and questionnaires, Perceptive Insight made contact with those who had originally taken part in phase 1 or 3, in order to prompt them for further feedback on the business plan proposals. Indeed, all domestic customers, non-domestic customers and stakeholders who participated across phases 1 to 3 were re-contacted for comment. A total of five participants were willing to provide direct feedback on NIE Networks' 'The Way Forward' document. It is worth noting that all of the responses received were from stakeholders. Domestic and non-domestic customers, in general, said that they were content with the extent to which NIE Networks had sought and incorporated their views.

Non-domestic customer comments

Respondents reported that they were pleased with the outline of NIE Networks' investment plans for 2017-2024, acknowledging that many of the discussion points from their previous involvement in the research have indeed been included. For example, issues emphasised as being important to respondents included:

- The ability for vulnerable customers and households to receive guidance and help via telephone;
- The availability of a multi-channel approach to customer service provision; and
- Investing for the future (including reducing carbon emissions, investment in renewable energy and grid improvements).

However, additional feedback from the five respondents recognised that NIE Networks' still have a number of important decisions to make. In general, it was suggested that these decisions should be made based on the options that will:

- Have the greatest longevity;
- Affect the most amount of customers;
- Represent greatest value for money; and
- Provide maximum return on investment.

For others, 'The Way Forward' document raised more questions. For example, it appeared to generate further interest for some, with particular reference to how the timescale, costs for customers and the overall implementation process will be applied going forward.

With regard to the overall engagement process undertaken as part of NIE Networks' RP6 planning, one respondent was keen to express a view that the consumer engagement process that has been implemented to date should be regarded as a 'paper exercise'; expressing the view that the general consumer does not have enough knowledge on the subject to make an informed decision. Indeed, the respondent expressed concern that the average customer may be more inclined to select the cheapest option available, which is not a view shared by the respondent who believes that NIE Networks should be making these important decisions themselves to ensure that there is sufficient investment for the future.

Annex A:
Detailed methodology

Annex A: Detailed methodology

Details of the approach taken to this research have been outlined in the subsequent paragraphs. The key methodological tasks have been summarised by phase.

Phase 1 - qualitative

Subsequent to initial planning, Phase 1 established the context for the research and fully explored the range of issues that influence customer opinion, priorities and preference for investment in customer service, network performance, environmental performance and innovation. This phase was focused on qualitative research techniques that allowed the issues to be fully uncovered. It included workshops with stakeholders, depth interviews with non-domestic customers and focus group discussions with domestic customers.

In summary, Phase 1 of the research consisted of four key strands, including:

- A literature review to set the context for the study;
- Five workshops with key stakeholders, as identified and agreed at the planning stage;
- 12 focus group discussions with domestic consumers; and
- 15 in-depth interviews with non-domestic customers.

Literature review

The aim of the literature review was to set the context for the research findings. Key policy documents and sources of secondary data referenced within the review included:

Policy/context	Previous research
Function of NIE Networks	Ofgem's RIIO-ED1 business planning process: 'Consumer priorities for electricity distribution network operators (2012)
Structure of the Electricity Market	Ofgem: Business Customers Price Control Research
Programme for Government	Western Power Distribution – RIIO-ED1 Business Plan
Strategic Energy Framework	Electricity North West Limited: Stakeholder engagement (2014)
Secondary data	SP Energy Networks
NIE Networks' performance against operational KPI's	UK Power Networks: SPN Business Plan Willingness to Pay Research (2015 – 2023)
NIE Networks' customer feedback	Scottish and Southern Energy: Power Distribution (2012/13)
CCNI enquiries and complaints report (2012-13)	Consumer Council 'Energy Research' (2015)
Institute of Customer Service: UK Customer Satisfaction Index	Consultation on the Utility Regulator's Consumer Protection Strategy (2015/16 – 2019/20)

The output from the literature review was a concise interim report

Stakeholder workshops and domestic focus groups

The aim of the stakeholder workshops and focus group discussions with domestic consumers was to provide an understanding of attitudes, current experiences and relative priorities in relation to customer service, network performance, environmental performance and future strategy, and to provide input into the design of the quantitative survey.

Qualitative research is not meant to be representative but rather should be designed to represent the full range of views that exist among customers. Therefore considerable thought was given to deciding who the stakeholders and group discussions should be held with.

Stakeholder workshops

In total, five workshops were conducted with various stakeholder groups. To ensure that issues were explored in depth, it was decided that separate stakeholder workshops would be conducted with representatives from similar industries/fields of work. As such, each workshop focused on specific themes and included representatives of the following:

- Business customers;
- Domestic customers;
- Public administration; and
- The environment.

The stakeholder workshops took place between 21st and 30th April 2015. Each discussion took approximately three hours and a total of 33 stakeholders took part.

Focus group discussion with domestic consumers

The aim of the focus groups with domestic customers was to provide an understanding of customers' attitudes experiences and relative priorities in relation to customer service, network performance, environmental performance and innovation, and to provide input into the design of the quantitative survey. In determining the focus group structure factors including age, gender, location, and life stage were taken into account. The following table details the structure of the focus groups.

	Gender	Age	SEG	Location	Other
1	Mixed	25 to 50	Mixed	Gortin	Rural
2	Male	18 to 30	C2DE	L'Derry	Young family
3	Male	30 to 55	ABC1	Enniskillen	Older family
4	Female	55 plus	C2DE	Rathfriland	Rural/older
5	Mixed	18 to 24	Mixed	Belfast	Future customers/students
6	Female	18 to 35	C2DE	Ballymena	Young family
7	Mixed	25 to 45	Mixed	Ballycastle	Rural
8	Male	55 plus	ABC1	Bangor	Coastal/older
9	Female	30 to 55	C2DE	Craigavon	Older family
10	Mixed	45 to 60	Mixed	Belfast	Located close to pylons
11	Mixed	-	-	Belfast	Those with critical care issues and /or their carers*
12	Mixed	-	-	Belfast	Knowledgeable consumers**

***Those with critical care issues** – this group had health issues which means they are eligible to be on the critical care list.

****Knowledgeable consumers** are those who, while not directly related to the provision of electricity, have a career in a professional field that means they have an insight into the provision of services, infrastructure and what is required to deliver business continuity.

The group discussions took place between 21st April and 6th May 2015. Each discussion took between 90 – 120 minutes and in total 96 consumers took part (an average of 8 per group).

During each discussion participants were requested to speak about their knowledge and interaction with NIE, experience of electricity related issues, preferences and expectations in relation to customer service and their priorities for future investment in electricity services. Participants were provided with contextual information relating to each aspect of service, and the improvements which could be made with medium and high investment. Projective and enabling tasks were undertaking to allow participants to debate and rank their priorities for investment.

In-depth interviews with non-domestic customers

The aim of this stage of the research was to explore the issues that impact non-domestic customers and to prioritise the aspects of transmission and distribution service provisions that are of most importance to their organisation.

A total of 15 in-depth interviews were conducted with non-domestic customers between 23rd April and 8th May 2015. When choosing the participant for the in-depth interviews, consideration was given to the various types of organisations and their likely electricity usage.

Phase 2 - quantitative

Phase 2 of the research comprised two key waves:

- Wave one was quantitative research with non-domestic customers; and
- Wave two was quantitative research with domestic customers.

As part of wave two, willingness to pay analysis was also conducted whereby Discrete Choice Experiments were included as part of the domestic quantitative survey, and subsequent analysis was undertaken by Queen's University, Belfast.

Telephone interviews with non-domestic customers

The purpose of the telephone interviews with non-domestic customers was to explore in-depth the issues that arose from the interviews with non-domestic customers during phase 1, and to ascertain whether these views were the general consensus among non-domestic customers.

A total of 508 telephone interviews were conducted with non-domestic customers between July and August 2015.

A detailed interim report was produced detailing the findings of the non-domestic customer research.

Face to face survey with domestic customers

The purpose of the survey with domestic customers was to obtain the views of a representative sample of domestic customers. Domestic customers were asked questions on the main themes that arose throughout the qualitative phase 1 research.

A total of 1,205 surveys were conducted with domestic customers between July and September 2015 and a report was produced detailing the findings of the domestic customer research that had been completed.

Discrete choice experiments

Discrete Choice Experiments (DCE) is a survey-based technique used to investigate the trade-offs that people are prepared to make between different goods or policies. The technique is used to find the monetary value that people place on goods and services or the value of a policy change. DCE is a stated-preference technique, in that it relies on individuals saying what they would do under hypothetical circumstances, rather than observing actual behaviours in marketplaces.

In this project, the DCE process involved presenting customers with alternative bundles of characteristics of the service offered by NIE Networks, arranged according to the principles of experimental design, and asking them to choose their favourite bundle from the available set. In order to establish trade-offs between electricity service characteristics and money, one of these characteristics was the cost of the bundle. When customers chose one bundle (package of electricity services) over others, they implicitly revealed their trade-off between money and the single services included in each bundle in their choice set. Such trade-off is the marginal value of that characteristic of the complex good.

Phase 3 - qualitative

The research during phase 3 consisted of:

- Four reconvened focus groups with domestic customers;
- Eight reconvened depth interviews with non-domestic customers;
- A stakeholders workshop; and
- Qwizdom audience responses (from stakeholders and domestic customers).

The research of phase 3 was largely conducted with those who had participated at phase 1. This was because of the deliberative nature of the research and the learning curve that participants went through to understand the nature of NIE Networks' business. This insight was carried forward to phase 3 so that views could be given based on this heightened insight.

Reconvened focus groups

Four reconvened focus groups were conducted with those who had previously attended discussions as part of the Phase 1 research in Craigavon, Belfast, Derry/Londonderry and Ballycastle. The focus groups were split into four categories; an older family (Craigavon), a young family (Derry/Londonderry), people living in rural areas (Ballycastle) and a mixed group which consisted of future students; knowledgeable customers; those on the critical care list; and those living close to pylons (Belfast).

Depth Interviews

A total of eight reconvened in-depth interviews were conducted with non-domestic customers as part of phase 3 of the research. The following types of organisation were chosen for interview:

	Size	Sector	Location	Service usage
1	Small	Agriculture	Rural	Generation
2	Large	Manufacturing	Rural	High
3	-	Sports Club	Rural	Med
4	Small	Personal service	Urban	Med
5	Small	Manufacturing	Urban	Med
6	Large	Utility	Urban/Rural	High
7	Medium	Construction	Urban	Med
8	-	Voluntary / Charity	Urban	Med

The reconvened interviews were conducted with the person within each organisation that had responsibility for electricity services. Each interview took between 45 to 90 minutes to complete.

Stakeholder workshop

A stakeholder workshop was conducted with various stakeholder groups on Thursday 12th November 2015. Overall, 88 representatives were invited to attend the workshop, where NIE Networks presented details of their draft outline business plan and options for investment proposals. Those who attended (25 attendees) were provided with an opportunity to discuss the extent to which these proposals reflected their previous feedback at phase 1 of the research and met their expectations, prioritisations and preferences[1].

Qwizdom

Qwizdom is an audience response hardware system (sometimes known as clickers, voting tools or voting systems) that allows the user to gather feedback, measure understanding and response, gauge opinions and collect votes and produce instant reports all while increasing interactivity and audience engagement. The consultation questions were used with Qwizdom to gather an overview of opinion from stakeholder and domestic customers who participated in the focus groups.

Phase 4 - qualitative

In Perceptive Insight's original proposal from January 2015, a fourth phase of research was proposed to present consumers and stakeholders with the draft business plan and inform them of how their views have been taken on board. It was proposed that this phase would be used to highlight any significant changes from previous proposals and to seek to identify from the

[1] It should be noted that while we attempted to include as many stakeholders as possible who had participated at Phase one, a number of those attending at Phase three had not taken part in this previous research. As such they will not have gone through the deliberative process exploring the rationale for investment.

research participants the key performance measures that they would like to see in place to monitor progress towards delivering on the business plan.

However, having reviewed the research findings and the progress made to date, in discussion with the CEAP group, Perceptive Insight considered that the requirements for phase 4 had evolved and therefore a revised approach was required. It was subsequently agreed by all parties involved that desk based research, around the theme of consumer engagement, would better suit the needs of NIE Networks and their research into consumer engagement services for RP6.

Perceptive Insight undertook in-depth research to better understand methods for enhanced consumer engagement through analysis and assessment of case study and best practice examples from an array of sectors, and countries, from which lessons and recommendations may be transferable.

The findings were summarised into a formal report to NIE Networks, which made recommendations for RP6 engagement based on best practice.

Additional phase four activities

In line with prior commitments made as part of the original Phase 4 proposals, it was acknowledged that it would still be important to make contact with those who had participated in other phases of the research (including domestic and non-domestic customers).

NIE Networks created a booklet containing feedback to customers and stakeholders which was subsequently distributed to those that participated in the research throughout Phases 1 and 3. This booklet included:

- Details of how their views have been taken on board;
- What options are being proposed as part of NIE Networks' business plan; and
- How NIE Networks propose to engage with customers and stakeholders during RP6.

Stakeholder telephone calls

Following the dissemination of the booklets and questionnaires, Perceptive Insight made contact with stakeholders and customers, who had originally taken part in phase 1 or 3, in order to prompt them for further feedback on the business plan proposals.

Annex B: Investment options for RP6

Annex B: Investment options for RP6

Maintaining current service levels

NIE Networks' proposal

From 2017-2024 NIE Networks will continue to:

- Keep the network safe and provide a reliable service for homes and businesses;
- Inspect & maintain the network to identify and deal with problems;
- Develop the network to meet increasing demand from existing and new customers;
- Repair faults and keep customers up to date with information over the phone and online; and
- Replace and upgrade equipment due to age and condition.

From 2017 to 2024 about 6.5% of the network will need to be updated due to age and condition. In addition, new legislation recently introduced increases safety requirements particularly with respect to clearances from overhead lines. Some additional expenditure will be required over the next ten years to achieve compliance.

Improving customer service

NIE Networks' proposal

Throughout RP6, NIE Networks plans to provide a new multi-channel communication approach that will allow customers to:

- Report a power cut;
- Receive up to date information on the progress of the repair teams;
- Receive notifications about planned work on the network;
- Submit their own meter reading; and
- Receive up to date information about their application for a connection to the electricity network.

In addition, they are planning to:

- Increase their social media coverage to allow people to contact them via twitter on a 24/7 basis;
- Proactively promote their critical care list to raise awareness of the list's benefits amongst customers who depend on electricity operated healthcare equipment; and
- Provide a dedicated contact at each local incident centre for their critical care customers to contact during weather events that cause widespread power cuts.

Reducing power cuts

NIE Networks' proposal

For the period 2017-2024, there are two options of investment:

Option1

Service Improvement	How?	***RP614 Cost*** (£m)	***Domestic*** Customers	***Small and Medium I & C*** Customers	***Large I & C*** Customers
Reduce the number of customers per year who are experiencing power cuts over 10 hours in duration by 25%	**1. Investment in low voltage generation and associated technology to resupply customers whilst the fault is located.** **2. Increasing the number of dedicated resources available for fault and emergency response by approximately 80%**	**11.48**	**1.15**	**11.05**	**668**
Total		11.48	1.15	11.05	668

Option 2

Service Improvement	How?	RP614 Cost (£m)	Domestic Customers	Small and Medium I & C Customers	Large I & C Customers
Reduce the number of customers per year who are experiencing power cuts over 10 hours in duration by 25%	1. Investment in low voltage generation and associated technology to resupply customers whilst the fault is located. 2. Increasing the number of dedicated resources available for fault and emergency response by approximately 80%	**11.48**	**1.15**	**11.05**	**668**
Reduce the number of customers who experience 6 or more power cuts in an 18 months period by 20%.	Investment in the 20 worst performing rural circuits through a mix of: ▪ **Circuit reconfiguration** ▪ **Targeted network reinforcement** ▪ **Application of distributed automation to automatically locate and isolate faulty sections of network (self healing network).**	5	0.18	1.70	103
Total		16.48	**1.33**	12.75	771

Increasing resilience to severe weather

NIE Networks' proposal

For the period 2017-2024, there are two options of investment:

Option1

Service Improvement	How?	***RP6*14 *Cost*** (£m)	***Domestic*** Customers	***Small and Medium I & C*** Customers	***Large I & C*** Customers
Reduce the likelihood of power cuts during severe weather	Upgrade 20% of the 11,000 volt network over a 15 year period to increase resilience to ice accretion. This will reduce the risk of power cuts for 20,000 homes and businesses between 2017 and 2024.	**21.87**	**0.77**	**7.42**	**449**
	Protect 9 major substations and 200 local substations from flooding from 2017 to 2024. This will reduce the risk of power cuts caused by substation flooding for 53,000 homes and businesses.	**4.4**	**0.16**	**1.49**	**90**
	Cut tree back on a 20 year programme to reduce the likelihood of power cuts during the storms. Over 2017 – 2024	**7.57**	**0.27**	**2.57**	**155**
Total		**33.84**	**1.20**	**11.48**	**694**

Option 2

Service Improvement	How?	***RP6*14 *Cost*** (£m)	***Domestic*** Customers	***Small and Medium I & C*** Customers	***Large I & C*** Customers
Reduce the likelihood of power cuts during severe weather	**Upgrade 20% of the 11,000 volt network over a 20 year period to increase resilience. This will reduce the risk of power cuts for 15,000 homes and businesses between 2017 and 2024.**	**14.09**	**0.5**	**4.78**	**289**
	Protect 9 major substations and 400 local substations from flooding from 2017 to 2024. This will reduce the risk of power cuts caused by substation flooding for 73,000 homes and businesses.	**7**	**0.25**	**2.38**	**144**
	Cut trees back on a 15 year programme to reduce the likelihood of power cuts during storms. Over 2017 – 2024, this will address 43% of the main network.	**11.36**	**0.40**	**3.85**	**233**
Total		**32.45**	**1.15**	**11.01**	**666**

Future strategy

NIE Networks' proposal

NIE Networks' plans for 2017 – 2024 are to explore a range of technologies and approaches which potentially could be rolled out across the network in the future. One of the ways that they propose to do this is by carrying out a number of discrete network trials.

Trial Name	Description	Customer Benefit	Category
A - Network Capacity	Install technologies to monitor both low voltage and high voltage networks and re-configure in real time to release more capacity to support renewable generation and reduce peak demands on the network.	Will help to facilitate the on-going connection of new technologies such as wind, demand side generator units, photo-voltaics, heat pumps and electric vehicle charge points.	Connecting Renewables
B - Active Fault Level	Investigate technologies that could potentially solve network fault level issues caused by increasing levels of renewable generation.	• Facilitate the increased connection of renewable generation • Releases network capacity faster and at a much lower cost than traditional re-enforcement	
C – Battery Technology	Participate in collaborative research that will facilitate the connection of battery technologies used for energy storage.	• Facilitate the increased connection of renewable generation by releasing network capacity. • Provide valuable research on the connection of battery technology that will be applicable to domestic and commercial customers.	
D – Smart Fault Location	Investigate technologies that will help NIE Networks to locate faults faster.	Lead to faster restoration times during power cuts.	Getting the power back on
E – Condition Monitoring	Install more technologies that will help NIE Networks to manage substation assets such as transformers.	• Will optimise the life of existing network assets ensuring customers get full value for money.	Making your money go further