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Customer consultation research

Phase 1 - Qualitative report prepared for:

Northern Ireland Electricity

June 2015

Contents

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1. Introduction

Northern Ireland Electricity (NIE), in conjunction with the Consumer Council, the Utility Regulator and the Department for Enterprise, Trade and Investment (DETI) has commissioned Perceptive Insight Market Research to undertake a comprehensive research study with the aim to plan, implement, analyse and report on a comprehensive programme of research designed to ascertain the views and priorities of NIE's consumers. To facilitate this aim the study has been split into a number of phases. This report relates to Phase 1 of the project.

In this phase the emphasis was on establishing the context for the research and on the qualitative exploration of the issues that impact customers and their priorities for investment. It involved undertaking a series of stakeholder workshops, focus group discussions with domestic consumers and a series of in-depth interviews with non-domestic customers.

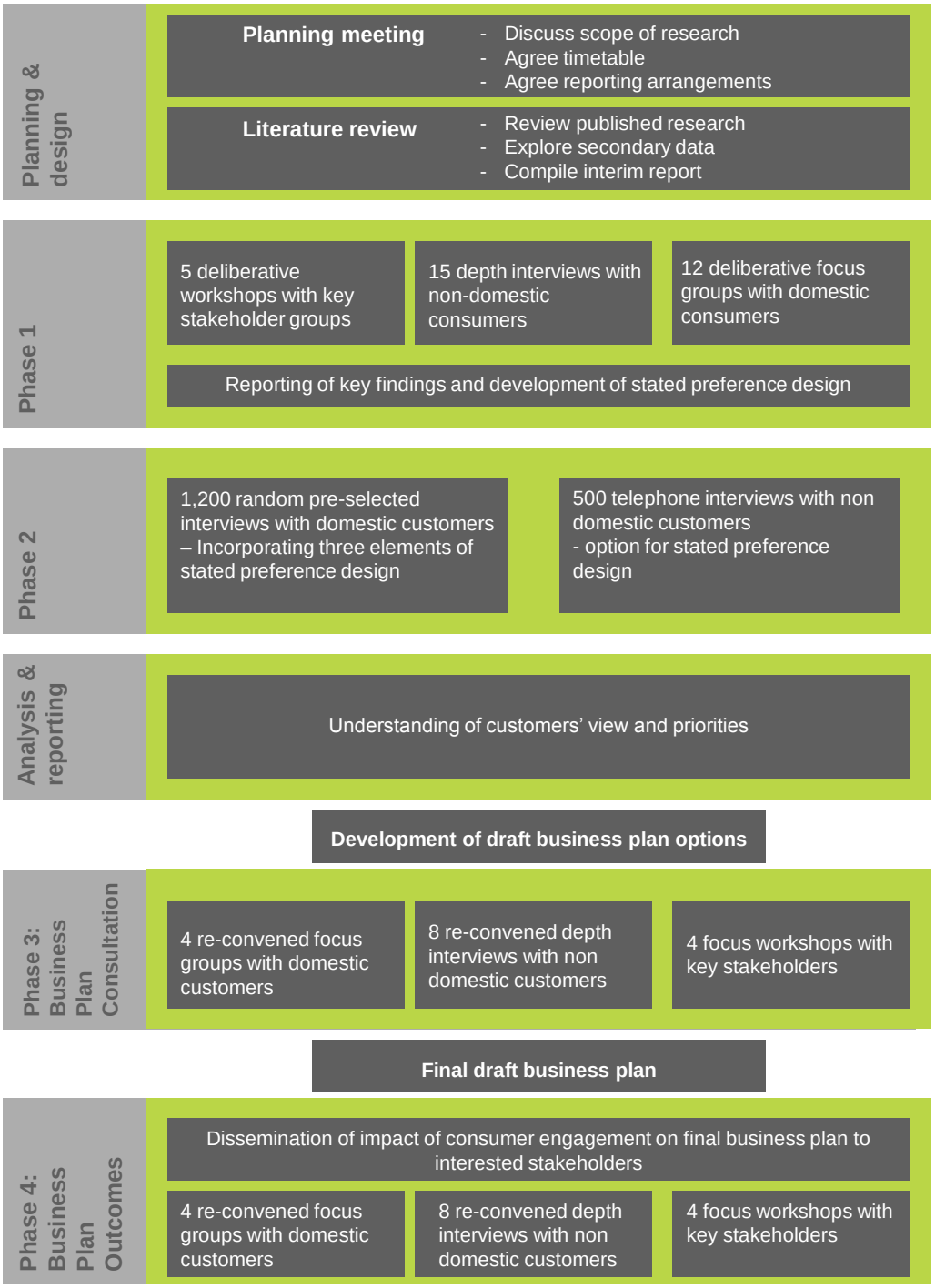
The findings presented in this report will be used to facilitate the measurement of knowledge, interaction and attitudes towards NIE and to allow NIE to determine from its customers what their priorities are for future investment programmes and developments.

In the sections that follow we detail our approach to meeting the terms of reference for the study and present the key findings from Phase 1 of the research.

2. Methodology

In this section we have detailed our approach to meeting the terms of reference for this study.

The diagram below outlines the key steps that were undertaken in the implementation of Phase 1 of this project and provides an overview of the actions to be undertaken in the remaining phases.



Planning

A number of tasks were undertaken to inform the planning stage of the research. They include a tour of the NIE network, an engagement meeting with the Consumer Engagement Advisory Panel, and a literature review on the policy context, previous research and NIE customer data.

2.1 Network tour

NIE arranged a tour of the network and call centre on 5 March 2015 and 11 March 2015 respectively. These were attended by key members of the project team and the CEAP group. The aim of the tour was to provide a greater understanding of the operation of NIE's business and to highlight potential constraints and areas for investment.

2.2 CEAP workshop meeting

Subsequent to the network tour, a meeting was held with the CEAP group on 6 March 2015.

At the meeting Perceptive Insight presented the approach to the research and obtained feedback on the structure of the qualitative Phase 1 research and the potential issues for discussion with consumers and stakeholders.

Phase 1

Phase 1 of the research consisted of 4 strands:

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

Literature review

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

Policy/context

- Function of NIE;
- Structure of the electricity market;
- Programme for Government;
- Strategic Energy Framework;
- Incentives for Renewable Generation;
- NIE's Customer Charter and Codes of Practice;
- Connection Guaranteed Standards of Performance.

Secondary data

- NIE performance against operational KPI's;
- NIE customer feedback;
- CCNI enquiries and complaints report (2012-13);
- Institute of Customer Service: UK Customer Satisfaction Index.

Previous research

- UK wide stakeholder engagement
  - Ofgem's RIIO-ED1 business planning process: 'Consumer priorities for electricity distribution network operators (2012);
  - Ofgem: Business Customers Price Control Research;
  - Western Power Distribution – RIIO-ED1 Business Plan;
  - Electricity North West Limited: Stakeholder engagement (2014);
  - SP Energy Networks;
  - UK Power Networks: SPN Business Plan Willingness to Pay Research (2015 – 2023);
  - Scottish and Southern Energy: Power Distribution (2012/13);
- Research conducted with NI customers
  - Consumer Council 'Energy Research' (2015);
  - Consultation on the Utility Regulator's Consumer Protection Strategy (2015/16 – 2019/20);
  - Customer views of the Guaranteed Standards Scheme (2010).

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 commonality, it was decided that separate stakeholder workshops would be conducted with representatives from similar industries/fields of work. Representatives from the following industries were in attendance[1]:

- Business representative groups;
  - (Institute of Directors, UFU, Manufacturing NI, NIIRTA, NIHF, Smartgrid Ireland);
- Domestic consumer/vulnerable consumer representative groups;
  - (Commissioner for Older People NI, Consumer Council, Energy Saving Trust, National Energy Action NI, Rural Community Network);
- Public administration & emergency planners;
  - (Belfast HSCT, local councils (Belfast, Western, Eastern), PSNI, NIFRS, NI Water, NIHE);
- Environmental groups;
  - (NI Environment Link, Friends of the Earth, Dept of Environment, Rivers Agency);

[1] It should be noted that this is an overview of those who attended the workshops. A wider list of organisations/businesses were invited to attend.

- Suppliers;
  - (System Operator for Northern Ireland, Power NI, SSE Airtricity, Energia).

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

Focus group discussion with domestic consumers

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.

Table 2.1: Phase 1 group structure for domestic customers

	Gender	Age	SEG	Location	Other
1	Mixed	25 to 50	Mixed	Gortin	Rural
2	Male	18 to 30	C2DE	LDerry	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. Taking into account the various types of organisations and their likely electricity usage, the following table details the characteristics of the type of organisations that were targeted for interview:

Table 2.2: Phase 1 in-depth interview structure with non-domestic customers

	Size	Sector	Location	Service usage
1	Large	Manufacturing	Rural	High
2	Medium	Manufacturing	Urban	Med
3	Small	Manufacturing	Urban	Med
4	Large	Agriculture	Rural	High
5	Small	Agriculture	Rural	Generation
6	Large	Utility	Rural & Urban	High
7	Large	Healthcare	Rural & Urban	High
8	Small	Educational establishment	Rural/Semi-urban	Med
9	Large	Commercial/retail	Urban	High
10	Large	Hospitality	Urban	High
11	Medium	Construction	Urban	Med
12	Small	Personal service	Urban	Med
13	Medium	Business Services	Urban	Med
14	-	Voluntary/Charity	Urban	Med
15	-	Sports Club	Rural	Med

The 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.

3. Key findings from focus groups and stakeholder workshops

In this section we present the findings from the group discussions with domestic customers, while the key themes arising from the stakeholder workshops are integrated throughout. The findings from the depth interviews with non-domestic customers can be found in Chapter 4 of this report.

The findings are structured under the following key headings:

- Setting the context
  - Opinions of a range of public services;
  - Knowledge of and interaction with NIE;
  - Experience of electricity related issues;
- Investment preferences
  - Dealing with power cuts;
  - Network resilience to extreme weather;
  - Environmental impact of the network;
  - Customer service;
  - Future strategy;
- Overall priorities.

3.1 Setting the context

Opinions of a range of public services

At the commencement of the discussion participants were asked to reflect 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 identify if NIE was identified spontaneously as a good or poor provider of services.

Within all discussions health and education were foremost in participants' minds. These were viewed as the public services which have most impact of them and those which they hear about most often.

Other aspects of public administration that were mentioned spontaneously were public transport, roads, policing and justice, and local councils. Utilities tended to be less commonly mentioned overall. A few reflected on electricity and deemed it a 'vital' public service, however, one which is generally taken for granted. Such participants did not mention NIE specifically, rather, comments reflected on the general provision of electricity, with little distinguishability between NIE and the suppliers.

"I don't think of electricity as a public service. It is just there. We take it for granted." (Craigavon)

"We can't survive without electricity. We need it 24/7." (Craigavon)

"It is essential, we take it for granted" (Enniskillen)

"It's a public necessity." (L'Derry)

Knowledge of and interaction with NIE

Upon probing it was evident that all had heard of NIE. In order to further assess participants' knowledge, particularly in relation to NIE's role as a distribution network operator rather than a supplier of electricity, preliminary questions assessed whom participants would contact in a range of scenarios (e.g. with a billing query; in a power outage; to arrange a meter reading; to arrange a connection etc).

Across groups, several accurately indicated that they would contact NIE in the instance of an electrical fault, power outage, and to arrange a meter reading. A few, particularly males and those living in rural areas, were knowledgeable about the structure of the market. They spontaneously noted that NIE has ownership of the transmission and distribution network in Northern Ireland.

However, in some instances there was confusion about the role of NIE and the suppliers. Some remarked that NIE are the general 'providers' of electricity in Northern Ireland. Simultaneous comments comparing NIE with the suppliers and querying whom to contact in relation to billing revealed a lack of differentiation in service provision. Confusion was particularly evident between NIE and Power NI. Despite later being informed of NIE's role, some struggled to 'grasp' how it differed from the suppliers. A few also suggested that NIE generates electricity.

"NIE produce electricity for the grid which other companies sell on." (Those who live in close proximity to pylons)

"They own the grid and sell it [electricity] *off." (L'Derry)*

"NIE do the same job as Airtricity. They provide electricity." (Craigavon)

"If I have a problem with my key card I am always told to contact NIE. They deal with all the faults." (Craigavon)

"If you have an emergency relating to your electricity it is NIE you would call." (Rathfriland)

"I'd be less aware, I just look at it as a bill to be paid." (L'Derry)

It was apparent that level of knowledge was somewhat dependent on the amount of contact with NIE. Participants from urban areas tended to have limited interaction. Almost all indicated that they have had no reason to make contact with NIE, particularly as they have experienced few issues with their electricity supply. They struggled to remember the last time they had experienced a power cut. Some recalled NIE calling to take a meter reading, while a few others indicated that they have sent their reading in, however it was evident they were not sure whom the reading had been sent to.

Those in rural areas had experienced more outages, however not all had contacted NIE. Some recalled contacting NIE in previous years, yet noted that the frequency of outages has decreased in recent times. Some were confident that the fault would be rectified and power restored expediently, therefore, indicated that they have had little necessity to contact NIE. Others relied on neighbours/other members of the community to make contact on their behalf.

"No issues these days in comparison to what it would have been like years ago." (Gortin)

"Power cuts used to be a part of everyday life." (Gortin)

"I would just wait it out, I think that's what most of us would do." (Future customers)

"I don't contact anyone anymore. You know that it'll be back on soon enough." (Rathfriland)

"I don't report it if the electricity is cut, I just wait for someone else to report it." (Knowledgeable consumers)

Feedback from stakeholder workshops

In contrast to the domestic customers, stakeholders had a generally good understanding of the electricity market. However, they acknowledged that there is confusion amongst most customers about the role of NIE. Some noted that domestic customers tend to have least interaction with NIE. As such, domestic representatives recommended the need for clearer information to ensure increased awareness about whom to contact if issues arise.

"If the customer has no interruption of supply they only have interaction via meter readings." (Electricity suppliers)

"I think customers, particularly vulnerable customers, need to know who to contact for different issues. Who to phone if they have a query, NIE or the supplier." (Domestic representatives)

Although business representatives noted confusion relating to billing arrangements and the proportion of the bill belonging to NIE versus the supplier, most were of the sentiment that non-domestic customers have a greater understanding of NIE's operations than domestic customers. A few suggested that businesses have 'made themselves aware' as a consequence of increases in the price of electricity. However, a few noted that commercial awareness is dependent on the size of business and level of usage.

"At the industrial end I would say consumers are very aware as they see the proportion of NIE costs on their bill. Domestic customer views of NIE are very much controlled by continuity of supply." (Electricity suppliers)

"[Level of knowledge] *depends on the scale of business. Some of the businesses we represent have energy managers, they have such large bills that they make themselves aware. Their complaint is primarily in relation to the size of the bill." (Business representatives)*

"Sometimes I think there is a degree of confusion about which are NIE, which are Power NI. There is some uncertainty about the bill. A lot of our members made themselves aware when the prices increased five years ago." (Business representatives)

There was agreement that both domestic and business customers need to be better informed about the role of NIE compared to suppliers. Some of the suppliers suggested that customers require information on the investments made by NIE so they have clarity on where their money is being put to use.

"They do need to know. I was representing an investor who did not have the capacity. I think there is a level of ignorance about what NIE do." (Business representatives)

"It is important that people know the difference as NIE are only responsible for a proportion of the bill. Getting that across is very important. People need to know that NIE are securing funding through the bill to keep the network running effectively." (Electricity suppliers)

Some suppliers suggested that customers do not require extensive detail on NIE's operations versus their own. They suggested concise information relating to the investment areas in the next price control period, to enable confidence in NIE and its network performance.

"There is a balance between customer needs and how much information they actually want. They don't need to know the ins and outs, they just need simplistic information on how it will impact them financially and benefit them in the long run." (Electricity suppliers)

"Domestic customers really only want confidence in the review process. There is a role with NIE and Utility Regulator to present it in a way that customers are paying a fair price." (Electricity suppliers)

Experience of electricity related issues

Participants were asked if they had experienced any problems with their electricity within the past 12 months.

Few had experienced electricity related issues in recent times. As previously noted, 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, however, noted that this was a rare incidence and that NIE were under pressure to rectify the problem.

"I had a power outage last year. I contacted NIE and was told that it would be fixed in 24 hours but they were under too much pressure." (Those who live in close proximity to pylons)

While there was experience of power cuts in rural groups, this was not viewed as a major problem, particularly compared with previous years. One or two noted the impact that adverse weather has on continuity of supply.

"Years ago every household would have had a cupboard for candles. The electricity went out so often everyone knew what to do." (Gortin)

"The electricity is great now. We would very seldom have any issues." (Rathfriland)

"It doesn't take much to knock my electricity off." (Rathfriland)

"Mine would go off about twice a year." (Rathfriland)

"Up to about ten years ago the electricity would have been off and on again. Once they updated the pylons it wasn't an issue anymore." (Rathfriland)

A few knowledgeable customers had negative experiences of NIE connections through their work. Specific concerns related to delays in receiving connection costs.

"NIE could take six months to get a cost back to you when it should have taken them one month." (Knowledgeable consumers)

Feedback from stakeholder workshops

Similar to domestic customers, the stakeholders noted that the frequency of unplanned interruptions has reduced significantly in recent years. Some reflected on their personal experiences of power cuts. They noted a reduction in the frequency of interruptions experienced by customers, particularly North West of the province.

"I think the number of power cuts is reducing. 15 – 20 years ago, the power would be out any time the wind blew. I think the tree cutting has reduced this." (Public admin & emergency planners)

"We have much fewer power cuts than we used to in the West of the province." (Public admin & emergency planners)

"I grew up in a rural Western area. If there were high winds the electricity went off. Since then there has been massive improvements." (Environmental group)

"I lived in Ballycastle growing up and there were so many power cuts. Now I live in Belfast and it is much better. But with climate change I think the vulnerability we previously experienced is coming back. That will require high investment to improve resilience." (Environmental group)

Indeed, suppliers stated that they could not recall the last time a customer made contact to report a power cut. They attributed this reduction to increased resilience in the network. Several suggested that businesses are no longer reliant on generators as they have such confidence in the network. However, a few stakeholders expressed concern about a lack of preparation amongst some businesses.

"I couldn't tell you the last time one of our customers contacted us to say the power was out. Compared to seven or eight years ago, it seems much more resilient." (Electricity suppliers)

"I think we are quite spoilt. We have had few power cuts in recent years so many organisations have gotten rid of generators." (Public admin & emergency planners)

"Businesses are not as prepared as they should be. Customers say it is hardly ever off so they can't justify the cost of a generator. When the transformer went on fire in Castlereagh we had to turn [a prominent theatre] *off. They didn't have a generator because supply had been so reliable." (Electricity suppliers)*

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

included affordability and accessibility, with the latter relating to capacity to connect to the grid. Some of the stakeholders expressed concern about the price of electricity in Northern Ireland compared to other parts of the UK and Ireland.

"The priority issues for domestic customers are affordability, reliability and accessibility." (Domestic representatives)

"Businesses are very concerned about the cost of supply. Domestic consumers will take it for granted and not worry about it." (Business representatives)

"NIE have some of the most expensive electricity prices in the UK." (Environmental group)

Business representatives were more likely to cite difficulties relating to connection, with specific mention of lack of grid capacity.

"In terms of keeping the electric on, NIE do a first class job. However, in terms of the infrastructure and ensuring the capacity is 'fit for purpose', that is an issue." (Business representatives)

The environmental group also spontaneously expressed concern about the increasing incidence of renewable energies and their impact on the network.

"Is a privatised infrastructure the ideal starting point for the kind of necessary changes that we need for renewables? Do they need to be compensated for the changes needed to bring us to a decarbonised energy network? What needs to be done to deliver non-profitable decisions without nationalisation?" (Environmental group)

3.2 Investment preferences

The following section summarises the key themes arising from group discussions and stakeholder workshops relating to priorities for investment. In total, five service areas were considered:

- Power cuts;
- Network resilience;
- Environmental impact of the network;
- Customer service; and
- Future strategy.

Participants were provided with contextual information relating to each aspect of service, and the improvements which could be made with medium and high investment. Participants were then asked to consider where they would 'place' the investment. The rationalisation for the 'trade-offs' are considered in the following sections.

3.2.1 Dealing with power cuts

Discussions relating to power cuts commenced with questions to gauge perceived acceptability of the current duration and frequency.

Perceptions of an acceptable level of occurrence

Perceptions of acceptability varied dependent on circumstance. 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.

"I use a stair lift, in a power cut I wouldn't be able to get up and down the stairs. My independence is completely diminished." (Critical care group)

"It's important to think about people with families and especially with young children." (Critical care group)

"You wouldn't like to be off any more than a couple of hours. Especially if you have children or are elderly." (Craigavon)

A few considered loss of supply from an industrial point of view. They noted the detrimental impact on productivity and revenue, and consequently cited lower tolerance for longer power cuts.

"There's a difference between a factory, a house or a hospital in terms of how people will be affected" (Enniskillen)

"This is a farming community. Four hours would be the maximum amount of time that would be acceptable." (Enniskillen)

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 three/four hours. Some indicated that there is a need for frequent updates in the instance of power cuts exceeding a few hours.

"Four hours, that would be ok. As long as you are updated." (Craigavon)

"Three hours isn't that long to be without power." (Future customers)

"I would be prepared to deal with a couple of hours." (Enniskillen)

A few commented that their tolerance is variable dependent on the time of day. For example, some noted that they would be less tolerant of a lengthy power cut in the evening time.

"The worst time for a power cut would be if you were making dinner. Or really any time at all if you have young children." (Gortin)

"During the day wouldn't be so bad. In the evening you couldn't do anything." (Critical care group)

"I wouldn't really be bothered by a power cut if it was shorter than 12 hours, and if it was at night then I wouldn't mind if it was longer." (Future customers)

Some noted NIE's 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.

"Considering the amount of work that needs to be done [to find and rectify a fault] *, three hours is very quick" (Ballymena)*

Feedback from stakeholder workshops

Stakeholders also noted that the impact of unplanned power cuts depends on personal circumstances, either from an industrial stance or a critical care point of view. A few noted that rural customers are more susceptible, while they cited the sick and elderly as the most vulnerable.

"It is very dependent on your circumstances. If you are a dairy farmer and have to feed the cattle…if you are on dialysis and there is no alternative. Acceptable duration is dependent on the situation." (Domestic representatives)

"Those who are most susceptive are those in rural areas, if the electricity goes off it could be off for 48 hours. More vulnerable groups like the sick or the elderly are susceptible. More needs to be invested as we can expect increased freak weather events." (Environmental group)

"Definitely more susceptible in rural areas. The security of supply is less robust. In urban areas there is a greater continuity of supply." (Business representatives)

"I live at the bottom of the Glenshane and we get a power cut at least four times a year. I would say interruptions are more frequent than you think. I would say rural areas are more susceptible as they have access to a narrower network of lines." (Domestic representatives)

Nonetheless, several considered that the current level is acceptable. They reiterated the reduction in power cuts overall, particularly on a 'day to day' basis and not in the instance of severe weather.

"Focusing on transmission system, the general level of interruption to transmission is quite acceptable. Without severe weather it is reasonable, so long as investment is maintained to keep it at that level." (Electrical suppliers)

Despite such perceptions, the suppliers reiterated the importance of security of supply.

"I think the argument has moved on from reliability to security. People expect some reliability. Security of supply is much more important." (Electricity suppliers)

"As a supplier, reliability is important. NIE is the vehicle to supplying the electricity to my customers." (Electricity suppliers)

Prioritisation of service areas

Participants were asked which area relating to 'dealing with power cuts' was important to them for future investment. As part of a task to facilitate the 'trade off' discussion they were provided with 20 'chips' as an indication of the budget that is available to improve service provision and asked to distribute the budget to the areas that they felt required the greatest levels of attention.

The following table illustrates the distribution of chips made by each group and the total number of 'chips' attributed to each area of service relating to 'power cuts'.

Table 3.2.1 illustrates that groups attributed a similar number of chips to the 'number of people experiencing power cuts' and 'customers at higher risk'. Perhaps not surprisingly, in most instances those from rural areas tended to place more chips in 'customers at higher risk'. Some urban groups also prioritised this area, whilst others shared the investment fairly evenly. On the whole, the 'average duration of power cuts' received lower levels of investment.

Table 3.2.1: Investment on 'dealing with power cuts' by group

	Group	Number of people experiencing power cuts	Average duration of power cuts due to faults on the network	Customers at higher risk of power cuts
1	Gortin	6	4	10
2	L/Derry	10	7	3
3	Enniskillen	5	6	9
4	Rathfriland	10	5	5
5	Future customers	7	3	10
6	Ballymena	10	5	5
7	Ballycastle	10	0	10
8	Bangor	5	4	11
9	Craigavon	4	1	15
10	Living near pylons	10	0	10
11	Critical care	6	4	10
12	Knowledgeable	7	0	13
	Total	**90**	**39**	**111**
	Average	**8**	**3**	**9**

In the following paragraphs we detail the rationale behind the trade-offs that were made in relation to power cuts.

It should be noted that not all stakeholder groups engaged in the 'trade-off' exercise for each service area. Therefore, an overview of their prioritisations within the 'chip' exercise is not included. However, where applicable, stakeholders' rationalisations for investment are integrated throughout this section.

Number of people experiencing power cuts due to faults on the network

Trade-offs relating to unplanned power cuts were based on the number of customers affected and the frequency with which they are affected.

As previously noted, most perceive that they do not experience many power cuts, therefore indicated that they are satisfied with the current level of service. Others suggested that a 1 in 6 chance of experiencing a power cut was not sufficiently high to warrant significant investment.

Some 'weighed' up the benefits of investing in reducing power cuts for the 'general population' as a whole, rather than those at higher risk only. Some deemed it a worthier investment to improve service for up to 14,000 customers, rather than one or two thousand at higher risk. Others queried whether those at greater risk may also experience improvement by investing in the 'overall number of people affected by power cuts', and therefore considered dual benefits in investing in this area of service.

"Improving service for 14,000 people. That is a big improvement and would help a lot of people." (Craigavon)

"If you reduced power cuts overall that would help out high risk customers as they too would have less power cuts." (Critical care group)

"Spend the money on upgrading the network overall, high risk customers are only a small portion." (Knowledgeable consumers)

"The money goes further in this area compared to the trying to invest in reducing the average duration of power cuts." (Gortin)

Feedback from stakeholder workshops

Some stakeholders queried which type of investment would have greater impact on NIE's operations and public perceptions of the organisation.

"What has greater impact for customers and NIE as a business? Frequent rural interruptions or less frequency in an urban area but where more people are impacted?" (Domestic representatives)

"Do we want to help those who are more annoyed or help more people?" (Environmental group)

A few of the domestic representatives saw merit in reducing the number overall as they perceived it to have the greatest impact. They also suggested that a reduction in the overall number of power cuts would have a 'knock on' effect on the average duration.

"I would want to see the overall number experiencing power cuts reduced as that would presumably affect the duration." (Domestic representatives)

"I originally felt that more investment should go into customers at higher risk of power cuts. However, I think the number of people affected overall is much higher. In my opinion, it is a case of 'hitting' as many areas as possible." (Domestic representatives)

Some stakeholders noted that, regardless of whether investment is placed in reducing the number of power cuts overall or targeting those at greater risk, ongoing investment is required to maintain the current level and ensure asset replacement, where necessary.

"From a system operator perspective, the general level of interruption to the transmission network is quite acceptable. Without the impact of severe weather events it is quite reasonable. So long as investment is maintained to keep it that way." (Electricity suppliers)

"The graph shown suggests there should be more investment in upgrading the network and preventing third party damage. If you were to invest more in assets you would expect the number of faults to go back down." (Environmental group)

"I think if you invest in the number of faults overall then you are investing in upgrading the network." (Electricity suppliers)

Contrastingly, some business representatives suggested that investment is required to ensure some form of improvement. They queried whether customers will be satisfied with the base level of performance by the end of RP6.

"Will customers be satisfied in 2022 if they are still at the status quo?" (Business representatives)

Average duration of power cuts due to faults on the network

Discussions revealed that the average duration of power cuts is important to customers. In earlier discussions, most cited tolerance for a power cut lasting a few hours. Some commented on frustration and anxiety in the case of longer power cuts.

"The number of power cuts is not as big an issue as the actual length of time. This impacts on how much it actually affects you." (Bangor)

"The longer the power is off the more anxious/annoyed you get." (Critical care group)

However, very few have experience of 'lengthy' power cuts. Many considered the average duration of 1 hour and 27 minutes, and deemed this to be fairly reasonable. Furthermore, there was general agreement that the medium and high investment options do not yield a significant difference from the status quo. Subsequently, suggested improvements of 4.5 minutes and 9 minutes were not key influences to investing in this attribute, particularly when considering the potential improvements in the other areas of service.

"There is not a lot of gain there for high investment [duration]" *(Enniskillen)*

"The duration one isn't important. If you are off for 2 hours you may as well be off for 2 hours 15 minutes." (Craigavon)

"Nine minutes less of a power cut just doesn't seem worth it." (Ballymena)

"The reduction of minutes is not overly convincing." (Rathfriland)

"Spend it efficiently there is no point in saving 9 or 10 minutes. Save for on-going maintenance." (Knowledgeable consumers)

"High investment for 9 minutes. That's nothing compared to 20% of high risk customers." (Those who live in close proximity to pylons)

Feedback from stakeholder workshops

Consistent with domestic customer feedback, stakeholders were not influenced by average improvements of 4.5 and 9 minutes. They were of the opinion that investment in other areas results in 'greater dividends'.

"I think you are getting more for your money by investing in the average number of people affected. A 4.5 minute improvement in duration is not going to make much difference." (Domestic representatives)

"We are all aware of the cost. Any trade off for me is down to cost benefit. For a medium investment you are not getting a lot of 'bang for your buck'." (Electricity suppliers)

"Nine minutes less duration for high investment. I don't think it's worth it." (Environmental group)

"When you are talking about investing in duration I don't really see the benefit. What is the difference?" (Electricity suppliers)

However, a few noted the adverse impact of nine minutes from a business point of view. Therefore they perceived this investment to be more beneficial for commercial than domestic customers.

"Nine minutes means nothing to me. However, from a business point of view it will have more of an impact. Continuity is critical to business operation." (Business representatives)

Customers at higher risk of power cuts

Considerations relating to those at higher risk were primarily influenced by the current situation facing these customers. Quite a few deemed eight power cuts in 18 months to be unacceptable. They considered this relative to the average incidence of power cuts on an overall basis (one in six) and thus deemed it a worthier investment to assist those experiencing a higher number of power cuts.

"That is really high. Eight power cuts in 18 months." (Craigavon)

"You couldn't really justify helping any other group than those who are getting more than eight power cuts." (Those who live in close proximity to pylons)

"I wouldn't like to live somewhere I was getting power cuts all the time." (Ballymena)

Some pointed out that rural customers are most susceptible and more likely to be worst served by provision in the local area. For example, they noted that urban residents can avail of local facilities e.g. nearby restaurant/café in the instance of an unplanned power cut. Contrastingly, they reflected on the isolation facing rural residents. Some also perceived that, in a large scale power cut, urban residents are in an advantageous position as the power will be restored more quickly.

"The city is reconnected first because there are more businesses and hospitals which have priority." (Knowledgeable consumers)

"I don't believe that urban areas should be prioritised over rural areas." (Knowledgeable consumers)

A few knowledgeable consumers were concerned that the situation facing 'at risk customers' would be likely to deteriorate without investment. Others noted the positive impact that investment can make in reducing the number of customers at risk.

"Invest in rural customers and higher risk customers. If you don't invest it is going to get worse." (Knowledgeable consumers)

"You reduce the number who are high risk to almost half." (Rathfriland)

While a few consider that power cuts are 'part and parcel' of rural living, others noted that those in rural settings deserve the same level of service as their urban counterparts. One or two queried whether higher risk customers are compensated for frequent power cuts.

"People living in rural areas are paying the same amount for their electricity so they have a right to get help." (L'Derry)

"People who live in high risk or rural areas deserve a working service as they are paying the same as people who live in a city. They should not have to put up with so many power cuts" (Bangor)

"The people who are high risk, do they get compensated on their bill?" (Ballymena)

Feedback from stakeholder workshops

Stakeholder concerns primarily related to ensuring equality of service for those at higher risk. A few noted the negative implications for rural business as a consequence of more frequent power losses.

"If I was coming to invest in Northern Ireland and saw those figures I would be more inclined to invest in setting up a business in an urban area. The frequency of power cuts is detrimental to rural business." (Domestic representatives)

"I don't think you should be more vulnerable because you live in a rural area. (Domestic representative)

"Customers at higher risk…they are still paying the same amount of money, they deserve the same level of service." (Public admin & emergency planners)

Some reviewed the output of this type of investment and deemed it more attractive than investment in other areas.

"I am probably attracted to the customers most at risk. To reduce it by increments of 1,000 customers." (Electricity suppliers)

However, a few were of the perception that some customers have chosen to live in a rural setting, and therefore should not expect the same security of supply. Others echoed the

view that more frequent power cuts are 'par for the course' in rural environments.

"Why are these people at risk? Have they chosen a rural setting? In social justice I think we should target more people-they are likely to be poorer/have lower income in urban areas. Have these people made a choice to live in the country?" (Environmental group)

"If people inherited a lifestyle I feel for them but not if they made the lifestyle choice. If you choose to live in a rural area you can't expect the same level of performance." (Environmental group)

"There will always be pockets of people who will experience 'above the norm' number of power cuts based on where they live. It is part of the price of living in a rural setting. To some extent it's the quality of where they live and the quality of the infrastructure." (Electricity suppliers)

A few of the stakeholders indicated that they would be more inclined to invest to reduce power cuts for those most at risk, particularly if this group have other characteristics which result in criticality of supply.

"Are the 3,000 who may benefit on life support machines?" (Business representatives)

Other issues to consider - who are the vulnerable customers?

The issue of vulnerability was frequently mentioned by both domestic customers and stakeholders when making trade-offs relating to power cuts. A variety of characteristics were mentioned when discussing vulnerable groups. These incorporate those who require electricity for health related purposes, including both long term and 'transient' needs (i.e. those recently released from hospital), as well as hospitals and nursing homes. Furthermore, domestic customers also identified those who live in remote rural settings and thus are more prone to isolation. Some rural customers noted that they have challenges with mobile network and 3G coverage, and thus, are less well served by mobile phone provision.

The following comments reflect the above points and emphasise the criticality of supply to some customers.

"I would be at a loss, I use a nebuliser and would not be able to get to sleep." (Critical care group

"It's important to think about those who are most vulnerable in society, nursing homes or even elderly people living at home alone." (Gortin)

"Investment should be targeted to people who would be most affected by power cuts; the most vulnerable in society such as very young children and the elderly, and those who repeatedly have to suffer through power cuts." (Future customers)

Feedback from stakeholder workshops

Stakeholders mentioned the same issues as focus group attendees when discussing vulnerable customers. Those who work in the health sector reiterated the impact of power cuts on daily operation. They noted the critical service of hospitals and the high level of disruption facing health professionals in the instance of a power cut. Comments reflected

on the sensitivity of equipment/scanners and the implications of power surges on equipment operation.

"It feels that there has been an increase [in power cuts] *in the health sector. Say, if the frequency changes, we use a lot of power to generate our health scanners. If power goes out, say it is only 30 minutes, if the generators have not been on the surgeons can't see what is going on with a patient. We experience that yearly." (Public admin & emergency planners)*

"If the lights go out and you have someone's chest open…it has a significant impact on patient recovery time." (Public admin & emergency planners)

A few noted that challenge in identifying and meeting the needs of various groups, particularly the 'transient' vulnerable.

"It is important that we look at vulnerability. Those depending on life or death situations for security of supply. There are groups who are more vulnerable, more research needs to go into identifying the groups. People can be vulnerable because of income, illness, those who need supply continuously." (Domestic representatives)

"Life circumstances can change. Someone can become vulnerable very quickly and should be prioritised as quickly as everyone else. Manning and policing the vulnerable is a difficult task." (Domestic representatives)

Across workshops, stakeholders made inferences to a 'hierarchy' of supply. They queried how NIE decides whom to prioritise in an unplanned power cut, and questioned how they assess customer risk. A few reflected on the importance of maintaining the critical care register and ensuring accuracy of details. Some of the emergency planners indicated that it would be useful if agencies were able to share information relating to critical care groups. However, they also acknowledged data protection issues in enabling this type of multi-agency approach.

"I would imagine that NIE have an 'at risk' category of people to get the electricity back on quickly." (Environmental group)

"How are you going to assess and triage priorities based on customer risk? We all think that we are important but the risk to customers' needs to be recognised." (Public admin & emergency planners)

"It would be useful to see how NIE prioritise customers based on criticality and ascertain where they see the vulnerable groups." (Public admin & emergency planners)

"Is there a prioritisation of customers? Is it those in hospitals?" (Business representatives)

3.2.2 Network resilience to extreme weather

It should be noted that the terms 'extreme' and 'severe' have been used interchangeably throughout this section.

Perceived impact and frequency of severe 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.

"They say that severe weather is to become more frequent so you would think more investment would be needed" (Ballymena)

"Severe weather is definitely becoming more frequent." (Rathfriland)

"In the last few years the weather has gotten worse." (Craigavon)

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). Others cited severe weather as an underlying factor in most unplanned power cuts.

"In 1998 the storm just after Christmas hit, and people were put out of their houses. This was a turning point for the improvement of emergency weather response." (Gortin)

"You only hear about power cuts when it has been really bad weather." (Craigavon)

On the whole, discussions revealed the sentiment that NIE should be prepared for the impact of extreme weather. Some noted that severe weather affects the electricity network more than it should. A few compared the resilience of Northern Ireland's electricity network to that of countries which are accustomed to extreme weather, and assumed the latter to be superior. Some noted the merit of a preventative versus reactionary approach to dealing with the impact of severe weather.

"Extreme weather events seem to affect our electricity more than they need to." (Critical care group)

"There are countries, like Canada, which get more severe weather than us and they deal with it much better." (Knowledgeable consumers)

"The issue is that we don't really get seasons here. You never know what weather you're going to get. I suppose NIE just has to prepare for the possible worse case scenarios." (Gortin)

"In bad weather you expect them to be prepared for it so it doesn't take so long to come back on." (Craigavon)

Feedback from stakeholder workshops

All stakeholder groups noted the increasing severity of NI weather. Several cited recorded data which has shown the increased regularity of extreme events. Taking such concerns into consideration, severe weather was deemed an imminent risk to the electricity network. Some noted the impact of climate change on the weather.

"Severe weather events are becoming more frequent." (Business representatives)

"On average we are getting one or two severe weather events per year. The seasons are becoming more and more unpredictable. Weather patterns are not going to improve. Severe flooding is on the rise and we are experiencing large tidal surges." (Public admin & emergency planners)

"Scientifically, the number of extreme weather events is increasing. Extreme weather events are more likely to happen in the next 10/20 years, evidence shows it. It is scientific fact that weather is changing, cables will be under extreme duress, have to think about what future requirements will be needed." (Environmental group)

"A temperature rise is on way. What is extreme now will be normal in 30/40 years. You have to look at that when forward investing." (Environmental group)

Perceived impact of severe weather events on 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. Some of the emergency planners emphasised the severity of the repercussions and noted that it could take 'years' to recover from an extreme event.

"The consequence of the severe weather events…it is not going to be an hour long outage. It is a major issue." (Business representatives)

"People don't realise how extreme an event can be. I don't think we are prepared. It could take years to recover." (Public admin & emergency planners)

Some noted the safety element associated with resolving network issues due to severe weather. As a consequence, one or two were surprised that more investment was not given to this area in RP5.

"You said that there is a smaller budget for network resilience in the current price control. There is a safety element associated with severe weather, should more investment not be going into that area? I am just surprised that safety is a priority but lesser investment is being placed in resilience to severe weather." (Public admin & emergency planners)

Some noted NIE's improved performance in relation to severe weather events, particularly regarding its incident response compared with 1998. However, they noted the impact improved response has had on customers' expectations, with the belief that NIE will be able to deal expediently with all power outages due to severe weather.

"NIE now has a series of arrangements in place to deal with severe weather events. I think that is due to 1998. It is now an expectation that NIE will deal effectively with severe weather events." (Electricity suppliers)

"NIE's performance has gotten better year on year. But as their performance has gotten better, so have people's expectations. After a couple of days people now go 'ok, when is it coming back on?' (Electricity suppliers)

"From dealing with a customer who has been off for three or four days, their toleration goes down by length and duration. The 2010 ice accretion was much better managed than prior events." (Electricity suppliers)

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

Some recognised the challenges facing NIE in locating and rectifying a fault in a severe weather event, and consequently expressed more tolerance for longer power cuts. However, participants struggled to come to consensus on a 'reasonable' length of time to be without power; views on acceptable duration varied from a couple of hours to 12 hours, while several commented that acceptability is dependent on the severity of the conditions.

"There would be some degree of sympathy and understanding in cases of severe weather as there potentially would be difficulties facing the engineers." (Those who live in close proximity to pylons)

"In severe weather it is much more acceptable to have your electricity off for a wee bit longer, but after three hours you would start to ask questions." (Gortin)

"It really depends, if there is bad weather outside, you would be more tolerant." (Gortin)

"In severe weather conditions, a power outage of 24 to 48 hours would be acceptable, although four hours ideally." (Enniskillen)

"24 hours would be acceptable to wait in bad weather conditions because you know that NIE are doing the best they can and there are obvious places that would need to be prioritised." (Future customers)

Interestingly, some expressed less tolerance for a lengthy power cut in severe weather. Concerns related to lack of heating and being able to 'keep warm'. Others reiterated the importance of meeting the needs of vulnerable customers.

"It is more understandable [to be without electricity for longer in a severe weather event]. *However, you are more anxious in case it is cold and you don't have any heat." (Craigavon)*

"In colder weather people would be anxious to get their electricity back on." (Rathfriland)

Prioritisation of service areas

Similar to the activity conducted in relation to power cuts, participants were asked which areas of service relating to network resilience to extreme weather were most important to them for future investment. All agreed that investment is required to increase network resilience to severe weather, with several noting the 'knock on' impact in reducing the overall number of power cuts. When considering the areas of service, trade-offs focused on the likelihood and impact of the various weather conditions on the electricity network

Table 3.2.2 illustrates that groups were more inclined to invest in flooding (total: 110 chips). Whilst fewer chips were placed on ice accretion and high winds overall, the level of investment placed in both areas was fairly consistent.

Table 3.2.2 Investment on network resilience to extreme weather by group

	Group	Ice accretion	Flooding	High winds
1	Gortin	2	10	8
2	L/Derry	3	11	6
3	Enniskillen	2	4	14
4	Rathfriland	4	9	7
5	Future customers	4	11	5
6	Ballymena	4	10	6
7	Ballycastle	2	10	8
8	Bangor	6	9	5
9	Craigavon	8	10	2
10	Living near pylons	10	8	2
11	Critical care	8	6	6
12	Knowledgeable	8	12	0
	Total	**61**	**110**	**69**
	Average	**5**	**9**	**6**

Ice accretion

Participants were generally unfamiliar with ice accretion, and whilst informed that it has affected the network three times in the last five years, it was perceived it to be less of a risk in Northern Ireland compared to flooding and high winds.

"I think you need to protect the substations from flooding. When was the last time there was ice accretion?" (Craigavon)

"Ice accretion would not really be an issue around here and it doesn't seem to happen that often elsewhere." (Gortin)

There was less consideration of the impact of ice accretion, which again appeared to stem from lack of familiarity of the phenomenon. Although there was recollection of power outages due to ice accretion in 2010 and 2013, nobody in attendance had been off long enough for it to have had a severely detrimental effect[2]. There was generally less consideration of the fact that some customers had been without power for up to five days.

"The most recent severe weather that caused a power cut for me was the 2013 snow. And I don't think it was off for too long." (Future customers)

[2] One person reported a power outage lasting three days (participant living in close proximity to pylons, Belfast)

The group from Gortin were able to recall the impact of severe weather on the network in 1998. However, they were of the perception that service had improved drastically since then.

"Boxing day in 1998 we had a terrible storm, the electricity went off and people were put out of their houses for 14 days. Since then there has been so much improvement to the electricity network." (Gortin)

Some were influenced to place higher investment in flooding and high winds as they perceive that such occurrences can happen at any time of the year, while ice accretion was considered a winter event.

"Ice accretion will only occur in the winter." (Craigavon)

"You might only have three months of the year when that might happen." (L'Derry)

However, a few took cognisance of the increasing incidence of ice accretion in the last few years and cited the need for investment. One or two knowledgeable consumers noted the cost implications in repairing faults to the network if it did occur. Therefore, they saw merit in investing to prevent the risk of ice accretion.

"More needs to go into ice accretion. If you don't put much it is going to have a large impact." (Craigavon)

"If ice accretion is going to get more common investment should be made here." (Ballymena)

"Issues associated with ice accretion are much more expensive and could happen anywhere." (Knowledgeable consumers)

There was consideration of the fact that ice accretion is more common in rural, less populous areas. There was some concern that these areas are already more vulnerable and experience the highest number of power outages.

"Rural areas suffer much more especially in the snow." (Knowledgeable consumers)

"Ice accretion has become a more common issue in the last few years. I think this has to be recognised by NIE and measures taken to ensure vulnerable areas aren't at risked. In cold weather it is much more dangerous to have a power outage." (Those who live in close proximity to pylons)

However, others deemed it a priority to place investment in areas where more people are at risk. They suggested that flooding is more likely to impact the network for people living in urban areas.

"Flooding is happening much more frequently, especially in Belfast." (Knowledgeable consumers)

Feedback from stakeholder workshops

Stakeholder discussions also reflected on the likelihood and impact of ice accretion. Consistent with domestic customers, a few noted that the areas at higher risk tend to be in rural settings. Some suggested that, compared with other severe weather events,

investment in this area will only benefit a small minority.

"But then again, to what extent are Belfast, L'Derry affected? It is only the highland areas affected." (Business representatives)

"Wherever these costs lie, investment or response, they come out of all customer bills. I don't see a societal benefit. Where ice accretion risk lies, who is that really going to benefit? Only 5% of people, it is their choice to live in those areas." (Electricity suppliers)

Other comments suggested that ice accretion is fairly localised and less common than other severe weather conditions.

"Ice accretion is more NIE critical. However, some events are very localised." (Business representatives)

"I appreciate that ice accretion affects more people but it is rare." (Domestic representatives)

Nonetheless, stakeholders tended to take greater cognisance of the impact of ice accretion on the transmission network. Some queried whether it would cause power failure on a 'catastrophic' scale.

"Is ice accretion most likely to put us at a full black out?" (Environmental group)

"My instinct is ice accretion. From a transmission system point of view it would be the worst experience for us." (Electricity suppliers)

"If ice accretion occurs, it would likely result in a black out across NI." (Electricity suppliers)

"I am concerned from rural point of view that ice accretion could be catastrophic." (Business representatives)

The environmental group wondered whether investing in thicker conductors would provide the dual benefit of increased network capacity.

"Is there a pay off to install thicker cables for ice accretion. Would that allow greater capacity in network?" (Environmental group)

Flooding

Group discussions in relation to extreme weather revealed most concern about the impact of flooding on the network. 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. It was deemed the greatest problem overall and perceived to be the weather event which has adversely impacted on most people.

"Flooding is the biggest problem." (Ballycastle)

"Flooding has affected a lot of people.'' (Craigavon)

"Flooding would do the most damage." (Ballymena)

"Money should be set aside for flooding as the impact is largest." (Ballymena)

Some were of the opinion that the risk of flooding is on the increase, and therefore action needs taken to reduce the risk.

"Flooding is an increasing risk. It is happening more often." (Knowledgeable consumers)

"Flooding affects so many people, this is a main issue that needs to be tackled. Every year it is getting worse." (Gortin)

Several commented on the implications of flooding. They were of the perception that any damage to the network due to flooding would be costly and time consuming, both to assess the extent of the damage and to undertake repairs. 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.

"Flooding would take the longest as they have to wait until it dries out so they can find the fault." (L'Derry)

"I would have concerns that a flooded substation would cause power cuts to a lot of people." (Those who live in close proximity to pylons)

Some noted the media attention given to flooding. It was suggested that NIE would be strongly criticised in the instance of an event which had not be prepared for.

"Every year the news talks about the same areas being flooded and every year they talk about fixing it." (Gortin)

Feedback from stakeholder workshops

Stakeholders reflected on projections relating to flooding and stated that the increased likelihood is proven. Some of the environmental representatives suggested that tidal floods may become an annual occurrence.

"Flooding is more regular and equipment can be destroyed if stations are flooded." (Domestic representatives)

"We did a flood risk in 2010. It projected that 'once in a century' events will be 'once in a decade' in coming years." (Environmental group)

"In our experience flooding is most likely to happen and most likely to affect many people. It is happening on an annual basis. That is going to rise." (Environmental group)

The environmental group noted that it is easier to monitor the risk of flooding and ensure preventative action than it is for ice accretion. Therefore, they saw merit in investing in a preventative measures.

"Predicting flood maps are quite good but we can't do that with ice accretion. We can invest in flooding and target areas at risk. We don't know if we can target areas at risk of ice accretion." (Environmental group)

Consistent with domestic customers, stakeholders were of the opinion that lack of

investment in flood prevention would lead to the most public criticism of NIE.

"As a customer, I would be likely to say 'Why is something not being done?' as there are so many mechanisms in place to predict flooding." (Environmental group)

"The amount of media attention relating to flooding could be highly negative. As they [NIE] *are expected to have infrastructure to deal with flooding." (Electricity suppliers)*

"Flooding is going to happen regardless of the precautions put in place. I would focus on mitigatory measures." (Electricity suppliers)

"If you had a station flood people would say 'why didn't you put up a defence'. It is so easy to prevent against." (Electricity suppliers)

High winds

Similar to flooding, all had experience high winds. Participants reflected on the common nature of high winds, therefore considerations for investment in this area focused on the likelihood and the fact that all parts of Northern Ireland are at risk. Participants noted that high winds occur all year round, regardless of seasonality.

"High winds are an issue across Northern Ireland and are the main issue here." (Enniskillen)

"High winds would be very common." (Rathfriland)

"The North Coast and places such as Coleraine would experience strong winds more frequently than other areas." (Knowledgeable consumers)

"High winds are definitely an issue around this area. And happen all year round." (Gortin)

"Wind can affect us at different times of the year too." (Ballymena)

A few weighed up the cost/benefits of increasing network resilience against high winds. They considered it a worthwhile investment as they perceived it would be less costly to protect against compared with ice accretion and flooding. Others suggested that they required more information on the number of customers at risk before prioritising it above other weather conditions.

"Wind requires less investment but would make a substantial enough change." (Those who live in close proximity to pylons)

"It is important to know how many customers are being affected by high winds." (Ballycastle)

Feedback from stakeholder workshops

Stakeholders assessed the likelihood of outages due to high winds. Some deemed the risk of high winds to be greater than that of other weather conditions. However, others thought customers would be more tolerant of an interruption due to high winds.

"If a tree falls it is a more tolerable risk, flooding is not a tolerable risk." (Environmental group)

"Every time winds come there is concern of a power cut. I must confess that I have never heard that the power was off due to a flood in a substation. But have heard many times that the power was off due to winds." (Electricity suppliers)

A few consider that the tree cutting programme is sufficiently evolved and action already underway to tackle the impact of high winds.

"I would prioritise ice and flooding. There is a programme for wind and tree cutting already. I also presume it is easier to identify faults due to high winds if a tree has come down." (Domestic representatives)

"Action is currently underway to tackle high winds on a statutory basis anyway." (Electricity suppliers)

"I think the number of power cuts is reducing. 15 – 20 years ago, the power would be out any time the wind blew. I think the tree cutting has reduced this." (Public admin & emergency planners)

3.2.3 Environmental impact of the network

Environmental impacts arising from the electricity network

During group discussions, participants reflected on the environmental impacts arising from the electricity network. Several mentioned the impact of renewable energies on the network and spontaneously noted the rising incidence of solar panels, wind generation etc. A few have installed renewable energies on their property/premises. Although most were positive about the increasing incidence of 'green' energy, one or two of those who have installed solar panels queried the cost benefits of installation.

"I am not sure that the 'pay off' for installing renewable energies is worth it." (Enniskillen)

There was some concern amongst younger participants about the environmental impact of cutting down trees.

"Tree cutting occurs too often, we're meant to try to preserve trees and the wildlife that live in them." (Future customers)

"The environmental impact of cutting down trees has to be considered." (Future customers)

Prioritisation of service areas

Participants were again provided with 20 priority points and asked to allocate them among various aspects of environmental services, including reducing NIE's energy consumption footprint; undergrounding overhead lines, and bird fouling.

Table 3.2.3 illustrates that, with the exception of bird fouling, groups were inclined to place fairly equal levels of investment in the environmental attributes.

Table 3.2.3 Investment in environmental impact of the network

	Group	Reduce NIE's energy consumption	Undergrounding overhead lines in AONB/tourist sites	Undergrounding overhead lines in urban areas	Resolving bird fouling issues
1	Gortin	8	4	6	2
2	L/Derry	20	0	0	0
3	Enniskillen	4	7	8	1
4	Rathfriland	4	5	9	2
5	Future customers	4	9	6	1
6	Ballymena	2	6	6	6
7	Ballycastle	7	6	6	1
8	Bangor	4	7	8	1
9	Craigavon	2	4	14	0
10	Living near pylons	8	8	2	2
11	Critical care	7	5	6	2
12	Knowledgeable	12	8	0	0
	Total	**82**	**69**	**71**	**18**
	Average	**7**	**6**	**6**	**1**

The following paragraphs provide an overview of the trade-offs made by participants when deciding upon environmental attributes.

Reduce NIE's energy consumption footprint

On the whole, some were surprised to learn about NIE's energy consumption, with a few expressing particular surprise at its mileage. Some provided suggestions to reduce the miles 'clocked up' by NIE staff. For example, one group recommended a text facility to enable customers to send in their own meter reading.

"We phone our meter reading in. Or we could text it. That would save someone coming out." (Craigavon)

Nevertheless, many perceived it to be a corporate responsibility to reduce NIE's energy consumption footprint. Some did not view it as a priority issue compared with other service attributes.

"They have to deal with the main issues first and their carbon footprint just doesn't seem to be one of their main issues." (Gortin)

"Why does the customer have to pay for increased efficiency?" (Knowledgeable consumers)

It should be noted that, in the absence of interest in other environmental attributes, some placed most investment in this area. Discussions revealed general apathy amongst such participants, they did not have a strong opinion on NIE's energy consumption overall.

Feedback from stakeholder workshops

Several stakeholders suggested that a reduction in NIE's energy consumption should not be funded by the customer. There was also disagreement on the extent to which investment in this area would make a significant difference to performance overall. Some reflected on potential 'pay offs', particularly relating to monetary savings arising from better efficiency. Others argued that there only minimal improvements to NIE's energy efficiency with high and medium investment.

"Why should energy usage not be self financing? I don't think any investment should go on that." (Electricity suppliers)

"But is it public or private money that goes into the corporate responsibility. There is a pay off but do we spend public money here?" (Environmental group)

"I think the carbon footprint is NIE's corporate responsibility. Also, the improvements are low, investment doesn't make a huge difference." (Domestic representatives)

"Any impact on carbon consumption could potentially have long term impacts for customers." (Domestic representatives)

Some of the domestic and environmental representatives felt a need to highlight the importance of reducing NIE's carbon footprint. A few suggested that NIE has a role to play in 'leading by example' and promoting renewable energies. The environmental group also queried the extent to which NIE's energy consumption is monitored against renewable targets.

"NIE should be encouraging strategic change. I don't know what role they have in renewable energies but I think they should be promoting it." (Environmental group)"

"From an organisational mandate I can only go for reducing NIE's carbon emissions. Perhaps introduce e-cars, provide green fleet advice etc." (Domestic representatives)

"DETI set renewable targets. NIE has to follow the legislation laid out. Government makes decision on renewable targets, therefore you need to invest money to meet that target. Climate change targets are worldwide." (Environmental group)

Undergrounding overhead lines

There were two attributes for consideration in relation to undergrounding overhead lines:

- Undergrounding overhead lines in Areas of Outstanding Natural Beauty (AONB) / tourism sites;
- Undergrounding overhead lines in urban areas.

General comments about undergrounding were related to improved resilience, with less focus on the aesthetic benefits. While a few suggested that pylons are unsightly, they indicated that the visual impact of the 11kv network is not sufficiently displeasing to warrant investment for undergrounding.

"The visual effect of pylons…these need put underground." (Knowledgeable consumers)

"Pylons are unsightly." (Ballycastle)

"Just because it looks better doesn't seem like reason enough to put the lines underground." (L'Derry)

"I've never looked at a line and thought that it was ugly. What would annoy me more is if a road was blocked because of digging it up." (L'Derry)

The few who expressed concern about the visual impact were primarily focusing on overhead lines in AONB. There was much less consideration for the visual impact of overhead lines in urban areas.

"Underground lines around tourist sites would be very important. The visual impact of them is huge." (Knowledgeable consumers)

Comments revealed that the perceived primary benefit of undergrounding is in relation to resilience and functionality. Many queried whether underground lines would be more durable and thus cost effective in the long term, particularly if there is a reduced need for ongoing maintenance. They were of the perception that underground lines would lead to less faults, especially as a consequence of severe weather.

"Overhead lines should be put underground. That would stop a lot of people worrying." (Critical care group)

"There will be particular savings with regards to maintenance costs if underground lines were introduced." (Ballycastle)

"You would imagine there would be less problems if they are kept underground with regards to repairs. You would imagine that the underground lines would last longer." (Critical care group)

"It would be a 'one-off' large payment if investment was put into underground lines." (Enniskillen)

"I think the undergrounding would be a really good idea. That would help with the storms and floods." (Craigavon)

However, some expressed concerns about undergrounding overhead lines. They noted the expense involved in undergrounding compared to replacing 'like with like', and therefore queried the cost/benefits of this investment.

"We are paying for this no matter how you look at it and it's a lot cheaper to fix a cable up in the air." (L'Derry)

"The introduction of underground lines seems to fix a lot of the issues. But it is whether the cost to install them is much greater than the benefit for customers." (Rathfriland)

A few were concerned about digging up roads. Others queried the difficulty in 'getting to' and rectifying faults if they are underground.

"But if there is a fault you have to dig it all back up again." (Craigavon)

Comments relating to the resilience of underground lines tended not to distinguish much between urban areas and AONB. Thus, both attributes received relatively equal levels of investment. There were some who placed greater onus on undergrounding overhead lines in AONB as they suggested that this would attract more tourism to the area.

"An investment into protecting Northern Ireland's landscape is an investment into tourism." (Those who live in close proximity to pylons)

Others could not see the point in undergrounding in tourist areas. Some felt it should be the responsibility of the tourism provider:

"I wouldn't put anything on lines in tourists areas going underground." (Ballymena)

"I think putting underground lines in tourist areas is a waste of money." (Ballymena)

"Surely you would have to dig up that area of natural beauty to put them underground." (L'Derry)

Some indicated that there are more practical benefits in undergrounding in urban areas as people live in these localities, and therefore would benefit from improved service due to reduced interruptions.

"Urban areas should be considered before areas of beauty because people actually live here day in and day out." (Rathfriland)

"I would put more on undergrounding in urban areas. It is more practical as more people live in urban areas." (Craigavon)

Feedback from stakeholder workshops

In keeping with domestic customer feedback, stakeholders were less likely to negatively comment on the visual characteristics of overhead lines. Rather, the environmental group questioned the negative implications in digging up roads. They suggested that, if aesthetic benefits are the primary reason for undergrounding overhead lines, then they would prefer the investment to be placed elsewhere.

"I think overhead lines are just a nuisance on people's lives. If there is only so much investment, I would rather it goes into smart networking the grid." (Environmental group)

"What impact would digging up the ground for underground lines have on the environment?" (Environmental group)

Some stakeholders stressed the importance of only undergrounding when the overhead line has reached the end of its 'lifespan'. Some expressed disagreement with undergrounding overhead lines unless there is a network need. The suppliers were most likely to express strong disagreement about this type of work if it were not necessary for functionality.

"Should undergrounding not be a reactive thing? When it has reached its 'sell by date'?

(Environmental group)

"You are removing lines which don't necessarily need replaced." (Electricity suppliers)

"I don't agree with people upgrading existing lines that don't require it." (Electricity suppliers)

"Unless there is a network need to replace the lines…existing lines in AONB do not require replacement." (Electricity suppliers)

A few stakeholders noted the economic benefits relating to increased visitation if lines are undergrounded in AONB.

"AONB are the 'jewels' of our economy – it is a reasonable strategic interest. Bird fouling is not a strategic interest." (Environmental group)

"Will NIE not come under some pressure to do some undergrounding in certain areas for tourism etc." (Electricity suppliers)

However, some of the suppliers deemed undergrounding in urban areas to be a worthier investment. Consistent with domestic groups, they stated that there are network benefits in improving the infrastructure in urban areas and saw it as a form of maintenance.

"Urban undergrounding, is that really a form of asset replacement? It doesn't seem unreasonable to place investment in that." (Electricity suppliers)

"In urban areas there are more benefits than the visual impact." (Electricity suppliers)

However, the environmental group noted that 1,500km of overhead network is within 30mph zones. They queried how NIE would decide where to commence this activity, considering the vastness of the network.

"Where do you start with urban undergrounding? It is a 'drop in the ocean'. (Environmental group)

Resolving bird fouling issues

Whilst recognised as a 'nuisance' and frustrating for those affected, nonetheless few deemed bird fouling a priority issue. Some suggested that 100 complaints did not justify investment, and that it would better placed in areas impacting larger numbers of people.

"100 complaints doesn't appear to be a major issue." (Those who live in close proximity to pylons)

"Bird fouling does not seem like a major issue as there were only 100 complaints in three years. I feel like money spent here would only benefit a small minority." (Future customers)

"Bird fouling is not a big enough issue. It does not affect a lot of people." (Ballycastle)

"If you are affected by bird fouling and underground lines were introduced it would seem like value for money. If you weren't affected by bird fouling then it would seem like a waste." (Those who live in close proximity to pylons)

Some argued that little can be done to solve the problem. However, a few others suggested that undergrounding in urban areas would have a dual benefit as it would ensure a positive reduction on bird fouling.

"We have ruled bird fouling out. They can't do anything about it." (Craigavon)

"I'm not so worried about bird fouling, there doesn't seem like there is a lot that could be done." (Critical care group)

"Underground lines in particularly affected areas would significantly reduce this problem." (Critical care group)

"When complaints of bird fouling are made, the areas most affected could be targeted and the power lines put underground." (Ballymena)

Feedback from stakeholder workshops

Whilst stakeholders generally placed little 'weight' on resolving bird fouling, two participants reflected on their own experience of the issue, which they deemed abhorrent. They therefore empathised with those who are affected by bird fouling.

"I have experienced bird fouling and I know how much of an issue it is. Having a car plastered…it is horrible. NIE own the lines, they own the grid, they should have a responsibility to deal with that. I am lucky that I live in a rural area and can move my car, however in urban areas, where there is less space, I don't know how I would cope. Bird fouling affects people's lives." (Domestic representatives)

"I have encountered some bird fouling incidents. On one occasion the background was practically uninhabitable." (Electricity suppliers)

However, a few suggested that the cost of rectifying the problem should not be placed on customers as a whole. One or two recommended allowances or subsidies for affected customers.

"Should other customers really be paying for bird fouling? Should there not be an allowance where the affected customer's proportion is subsidised?" (Electricity suppliers)

3.2.4 Customer service

Having reviewed customers' investment priorities in relation to power cuts, network resilience and the environmental impact of the network, this section summarises participants' views on customer service. It should be noted that the 'trade-off' exercise was not employed in this section of discussions. Rather, 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.

What does good customer service mean to you?

Participants were asked to summarise what quality customer service means to them. They highlighted a variety of characteristics which they deem markers of quality customer service. Many cited the need for a personal service, with representatives who are empathetic, interested and willing to listen to consumers' complaints. A few expressed lack of tolerance for automated lines; however, it should be noted that only a few have experience of NIE's High Volume Call Answering (HVCA) system.

"Good customer service is having someone to talk to. I hate automated lines." (Craigavon)

"If you have a problem, someone who will listen." (Rathfriland)

"Someone who can give you a proper answer instead of a machine. And not someone saying 'I don't know'. It is ok if someone will find out and then phone you back with answer." (Rathfriland)

"It is important that, when you speak to someone, you feel like you are getting a result." (Enniskillen)

Communication was deemed to be key to good customer service. For some participants, quality service was about ensuring a dialogue between the business and the consumer. Many stressed the importance of keeping customers updated during an interruption to supply (planned and unplanned). The need for expedient provision of information was highlighted by many participants, particularly in the instance of an unplanned fault.

"To be able to speak to someone who will listen and can understand you" (Enniskillen)

"Speed and response time are very important" (Enniskillen)

"Quick and efficient." (Ballymena)

"Easy to contact and speedy to respond." (Rathfriland)

Participants 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 realistic time frame of when the issue will be rectified. Some commented that they would be able to tolerate lengthier power cuts, as long as they were informed that action was underway to resolve the situation.

"Keeping you informed about what is happening in both planned and unplanned power cuts. Telling you when planned power cuts are going to take place and for how long." (Ballycastle)

Several stated that they benefit from a local service. Some older participants commented on difficulty understanding customer representatives from outside Northern Ireland. Others recognised the benefit in speaking to somebody with local knowledge of the area.

"It would be helpful to speak to a local person." (Ballycastle)

"Someone who understands our accent and preferably who knows the local area." (Enniskillen)

"Speaking to someone who knows your area is reassuring." (Enniskillen)

"It's important to have an understanding voice at the end of phone and someone who can make out what you're saying." (Gortin)

Feedback from stakeholder workshops

Stakeholder perceptions of good customer service echoed those of domestic representatives. They included brevity, clarity, ease of communication, and ensuring customers are updated.

"Swift contact. Swift resolution." (Domestic representatives)

"Clarity. Information on what is going to happen next. Ensuring 'jargon free' delivery of information." (Domestic representatives)

"A human, local voice. Not having to go through a number of difference choices." (Domestic representatives)

"Keeping people informed in relation to the status of their fault." (Electricity suppliers)

Experience of contacting NIE

Discussions revealed that few participants had reason to contact NIE as they have not experienced a power outage or problem with their electricity supply. Therefore they had generally little engagement with the company.

Comments suggested that there was some uncertainty about whom to contact in various scenarios (supplier vs NIE). Further, a few noted that they were not sure where to obtain a contact number for NIE, however, assumed it would be on their bill.

One or two had experience of the HVCA system. On the whole, it was deemed a useful mechanism. Such participants were satisfied with the information provided, and stated that it was an effective, accurate system. However, a small number from rural settings noted potential difficulty in the system interpreting localised accents and noted the importance of ensuring usability via the telephone keypad.

"I have used the HVCA system and it was quite useful. It told me how long I would be off." (Craigavon)

Some of the knowledgeable consumers reiterated challenges encountered with NIE through their line of work. Concerns were related to connections and length of time to receive information. One or two expressed frustration about information provision in an unplanned power cut.

"I found NIE very hard to work with. They were slow to respond and not willing to work with you." (Knowledgeable consumers)

"There is no such thing as customer service. Not enough communication and no one tells you when electricity will be back on." (Knowledgeable consumers)

"Response time and getting to the right person is very slow." (Knowledgeable consumers)

On the whole, customers lack awareness of the critical care register. Upon being informed, some noted that friends or family members could benefit from the service. Quite a few noted the benefits of the system and were satisfied to hear that vulnerable customers are prioritised during an interruption to supply.

"I wouldn't mind being off that bit longer if I knew somebody more vulnerable was getting the support." (Craigavon)

"You don't know yourself when you would need something like this so it would be good to be informed about the way the register works beforehand." (Rathfriland)

One participant commended NIE's customer service and the support received when experiencing a power cut upon release from hospital.

"I had a power cut the night I was out of hospital from having a baby. I rang up and they were great. They came out to check that I was ok." (Gortin)

Feedback from stakeholder workshops

Overall, stakeholders tended to reflect positively on NIE's customer service provision. A few stakeholders commended NIE's speed of response, with particular praise for its incident management response. Some reiterated that there have been improvements in NIE's customer service over time.

"I have no problem with NIE's customer service. The minute you call in and report a problem they tell you if there was a fault…it is always dealt with swiftly." (Domestic representatives)

"In relation to emergency response…there is no doubt that NIE has significantly focused on incident response and incident management. We should aspire to be at the position NIE is." (Public admin & emergency planners)

"They were rightly criticised in 1998, now many improvements have been made. There is much more onsite communication." (Electricity suppliers)

A few representatives were familiar with the HVCA system and stated that they were impressed with the service.

"I have experience of the HVCA system. I thought it was brilliant as it informed me that

there was a fault, provided me with reassurance, gave me all the information I needed." (Domestic representatives)

Despite such positive feedback, some took this opportunity to comment on issues with connections. Consistent with previous comments, stakeholders across most groups expressed frustration with the cost of connections and the perceived lack of grid capacity.

"Some of those we represent were getting group connection quotes for half a million pounds. There were issues in relation to connecting to the network." (Business representatives)

"There is a real sticking point in enabling connection to the grid. People received grants to go renewable but once the turbine was on the farm they were unable to connect." (Domestic representatives)

"Businesses want to put generators on to save their bill and use self-generation as part of business continuity. There are many domestic customers who want to use renewable energies but cannot connect to the grid." (Public admin & emergency planners)

In keeping with feedback from the knowledgeable consumers, some of the business representatives reflected on a perceived time lag in receiving communications from NIE. A few other stakeholders suggested that they find it difficulty to obtain required information.

"Our biggest issue is in relation to the time lag between discussions. A lot of the businesses we represent are at an international level and it is very difficult to get timely answers due to the time lag." (Business representatives)

"NIE is impenetrable. I have requested information in the past and not been able to obtain it. I can't find it anywhere." (Electricity suppliers)

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

"As 'separation from the supplier' has occurred, people contact suppliers about their bills, they have little interaction with NIE. Nevertheless, NIE has a customer role. They need to keep abreast of that role and provide continuity of customer service." (Electricity suppliers)

"In terms of NIE contact with the customer, meter readers are the 'face'. Accuracy and courtesy are highly important." (Electricity suppliers)

"As the reliability of supply becomes the norm...NIE becomes invisible. How do they keep a presence? How do I know how to contact NIE?" (Electricity suppliers)

Preferred methods for contacting NIE

Without exception, participants cited personal telephone call as the preferred communication channel in unplanned power cuts, both excluding and including severe weather events. They commented on how they wish to have the opportunity to speak to somebody directly, preferably somebody from an informed background with the ability to provide assistance and inform them of the scale of the fault. This was deemed important to provide reassurance and prevent isolation.

"If I did ring I would rather speak to someone than get an automated phone line." (Critical care group)

"Electricity is a necessity, it is good to have someone reassuring you at the end of the phone when it 'goes out'." (L'Derry)

"If there is an unplanned power cut, talking to an actual person is important. It is very frustrating dealing with an automated line." (Gortin)

However there was some acceptance that an automated service may be effective in times of high demand, such as in a severe weather event. Upon the provision of information relating to the HVCA system, most indicated that they would be satisfied if they encountered this service, provided accuracy of information.

"If there's a lot of people phoning in, I appreciate an automated service would be ok in that instance." (Ballymena)

Several, regardless of age, commented on a need for alternative, innovative technologies, particularly as they noted the evolving nature of communication up to 2022. Several noted that they use Facebook, and could see the merit in an NIE Facebook page which they could access to receive updates on planned and unplanned interruptions. Only one or two were aware that NIE has a Twitter account; they suggested that this requires manning as much as possible, particularly in a severe weather event.

"I would like to see NIE invest in new communication technologies." (Critical care group)

"Facebook would be good for updates. Not for complaints though." (Craigavon)

Quite a few queried whether NIE has a smartphone app. They indicated that they would be willing to use this to receive updates and also as a means of providing meter readings. Some noted the benefits of a GPS enabled app which could identify a customers' location, particularly in the instance of reporting a fallen power line.

"Do they have a smartphone app? That would be a great idea. People could enter their postcode for updates or use it to provide a meter reading." (Craigavon)

"A smartphone app would be good to find out what is happening, for updates." (Ballymena)

"A smartphone app is a quick way for people to see that whether a fault in their area has been logged. This would take the pressure off the telephone line. The phone could be then reserved for critical cases." (Ballycastle)

Several commented on the benefits of 'live' information in an unplanned power cut, either via text messaging or real time web information. Some felt this would be useful to track repairs and assess the impact to their own service.

"Text alerts would be good so you would know what's going on and what's going to happen." (Future customers)

"Texting would be a good way to communicate. I would be happy for NIE to text me to tell me there was a fault in the line and how long it was going to take them to fix it." (Critical care group)

"Live online chat, that's quick." (Ballymena)

"I would like to track to see what NIE is doing, for example be able to track the fault to see what is happening with it and see how quickly they are dealing with the problem." (Knowledgeable consumers)

Some noted difficulties in communications in a power outage. Many noted that they are reliant on traditional methods, such as the landline telephone, in a lengthy power outage. Furthermore, the rural issue of limited mobile phone signal means that smartphone services are not an option for some customers.

"There are some difficulties around here because of phone signal, but a text message would work fine. A group text that would notify you when the power is meant to come back on" (Gortin)

"In an outage you would be reliant on the phone as there is no electricity." (Craigavon)

Further comments relating to customer service included the need for swift response in the use of all communication methods and the recommendation for a Freephone telephone service.

"A Freephone telephone number could be something to consider." (L'Derry)

"Need an immediate response regardless of platform." (Future customers)

Feedback from stakeholder workshops

Stakeholders recommended a multi-channel approach to enable contact with NIE. The domestic representatives stressed the need for supplementary contact channels alongside traditional contact methods. They reflected on the benefits of personal interaction in preventing isolation, particularly for the elderly or those living in remote areas.

"In extreme weather conditions, a human voice is paramount. In the ether of social media you don't know if somebody has heard your cry for help. I would want people to know I need help. It prevents isolation." (Domestic representatives)

"Ensure a multi channel communication approach. People can opt for whatever works for them. However, different systems need to be backed up with other means of contact. For example, an automated system should be backed up with personal telephone contact, if it is needed." (Domestic representatives)

Quite a few highlighted the requirement for different channels to suit the needs of various groups of people. For example, some noted that younger people are more inclined to engage in social media. The benefits of this type of communication included swift response and reducing the pressures on call handlers. However, some noted that other groups (e.g. elderly) are unlikely to have access to such services, and reiterated that landline telephone services will likely be their preferred method of contact.

"Having different communication methods for different types of people is very important." (Domestic representatives)

"The landline is likely to still work so you would use the telephone for contact. I imagine this is the most accessible medium for some people." (Environmental group)

"I want reassurance something is happening. It is quicker to gain via social media not a telephone call." (Environmental group)

"Twitter may marginalise some people. But it can work very well for updates." (Domestic representatives)

"Twitter may reduce the number of calls and lower the load for call handlers." (Domestic representatives)

Similar to the focus group attendees, some reflected on the benefits of a mobile phone app, particularly as a means of reporting faults and monitoring the status of power cuts in specific localities.

"Lots of smart phones have 'geo tags' which could be used to identify faults." (Domestic representatives)

"People want to keep track of faults. An app is a means of providing that service." (Electricity suppliers)

Further issues for consideration

Some stakeholders took this opportunity to stress the need for regular notifications. Those in the health sector were particularly likely to request the importance of continuous updates relating to restoration, particularly if there are delays in restoring supply.

"In the health sector we have experienced one or two incidents where there was quite a prolonged power outage, 12 – 14 hours…the concern is that, when the heating is affected, we have had to mount an effort with the Red Cross. It would be necessary to receive information on the length of the power outage and whether we need to mount that emergency response." (Public admin & emergency planners)

"In critical instances, if the power is off for 2 – 3 hours, that is ok. However, if something happens and it is going to be off longer, we need to know." (Public admin & emergency planners)

"Most people are appeased if they get continual updates. If the problem is not rectified in 3 hours people need to be informed that work is still underway." (Environmental group)

The emergency planners reiterated the benefits of enabling a multi-agency system response to support the elderly and those with critical care needs. Some stated that there needs to be greater 'joined up' communication between different agencies to prevent duplication of response.

"It may be useful to consider an alerting system for emergency response. Say the power is out for 1 – 2 hours, however something happens and it is going to be closer to 10 – 12 hours. Has anyone thought what happens an elderly person in that instance? Is there any way to update emergency response so they can provide the relevant support to customers?" (Public admin & emergency planners)

"Ensure no duplication of effort. There must be linkages between agencies." (Public admin & emergency planners)

A few took this chance to provide further comments relating to customer service. The domestic representatives commented on a need to highlight the implications of meter tampering.

"Some communication needs to go into meter tampering and the implications of it." (Domestic representatives)

Some noted that the extent to which improvements are made is dependent on the amount of investment placed in customer service. The environmental group suggested that this is an area where less expenditure should be made.

"Cost benefits will determine if NIE just want to 'keep the lights on' or if they want to provide all other aspects of customer service." (Electricity suppliers)

"It is about spreading communications without spending too much money." (Environmental group)

3.2.5 Future strategy

The fifth area presented to customers related to future strategy. Specifically, there were two areas under consideration:

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

As with the customer service section, this area did not include 'trade-offs'. Rather, participants were asked a series of questions relating to each area of service and the discussions recorded.

Initial views

Domestic groups provided mixed reactions to the concept of future strategy. It was evident that some groups struggled to identify with the concept and the connotations of this type of investment. Nonetheless, almost all believed that NIE should be undertaking measures to forward plan for the future.

"It should be a priority to invest in the future." (Critical care group)

"Future strategy should be a priority going forward. It needs to be." (Bangor)

Feedback from stakeholder workshops

Future strategy was spontaneously mentioned as a priority issue by some stakeholders prior to consideration of other service areas. Some were surprised that this is not a priority in RP5. Stakeholders were particularly interested in investing in smarter ways to operate the network to support innovation and sustainability.

"There needs to be accelerated investment in grid modernisation to bring smarter

technology to drive innovation in NI." (Business representatives)

"NIE are saying that they don't have the capacity the network needs to enable low carbon technologies. They need to start planning for that now." (Public admin & emergency planners)

Sustainability

Overall, 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'.

"To benefit from new sources of electricity, changes to the infrastructure need to be made. The Utility Regulator can't deny that NIE should spend money on it." (Bangor)

However, a few queried the cost/benefits of this type of investment, particularly if the predicted demand does not manifest. It was evident that this viewpoint was influenced to some extent by the perceived lack of demand for electric vehicles. Therefore, some noted the importance of evaluating trends to ascertain demand prior to extensive investment.

"The electric charging points are not being used at all. There are not enough electric cars in the area." (L'Derry)

"It's important to trial plans before major investments are made. Electric cars are an example because they are not used enough. They aren't promoted enough." (Gortin)

Feedback from stakeholder workshops

Discussions revealed a keen interest from most stakeholders in relation to sustainability and low carbon technologies. As noted, this was an area spontaneously identified as requiring investment in early stages of the discussions.

Some believe it is 'foolhardy' for NIE not to forward invest to enable a low carbon economy. Several commented on the policy debate relating to sustainability and reflected on a recent rise in renewable energies. They therefore deemed it essential that NIE forward invests to prepare for the long term growth of these technologies.

"There is a great deal of conversation going on in relation to smart grids, charging electric cars etc. There is too much discussion for it not to be included in the price control." (Domestic representatives)

"Low carbon technologies are happening. There has been a steady increase in wind generators and solar panels in the last few years. NIE need to be up there and involved now." (Public admin & emergency planners)

"By investing in a low carbon economy you are securing a long-term economy. It is 'short-sighted' not to." (Environmental group)

Across groups, stakeholders reflected on the renewable energies target. In this context they suggested that sustainability should be prioritised for investment. Others argued that NIE do not 'have a choice' in relation to forward investment, as policy will eventually drive this

activity.

"What is missing is the dimension on legality to ensure policy relating to low carbon technology meets EU legislation. The 2020 target drives what utilities have to do." (Business representatives)

"Northern Ireland needs an investment fund to enable new ideas to be tested. It currently has nil. RP5 had £9m removed by the competition commission; that was wrong. There needs to be an investment pot for a move towards micro generation." (Business representatives)

The environmental group were concerned that investment in 'power parks' would be prioritised over sustainability. They stressed that these are separate areas for investment.

"With advances in technologies surely we need more access to low carbon technology not power parks." (Environmental group)

"We need to ensure there is not a mindset that sustainability is a solution to infrastructure for power parks." (Environmental group)

The suppliers indicated that, if investment is made in relation to sustainability, there needs to be a clear strategy to ensure value for money.

"Trialling and innovation in terms of value for customers' money, there needs to be a clear output." (Electricity suppliers)

A few took this opportunity to recommend that NIE plays a role in promoting low carbon technologies.

"NIE are going to take over the running of car chargers. They have a chance to steer people's thinking and promote the uptake of electric vehicles." (Environmental group)

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 to provide additional capacity to meet business demand, was generally perceived to be an area which NIE should not consider in isolation. Customers suggested that, in order to assess the need for this type of investment, NIE must undertake extensive planning alongside other governmental bodies/policy makers.

"It doesn't specifically need to be NIE funding, there should be a joint approach. NIE has a part to play." (Knowledgeable consumers)

"NIE should not invest in power parks. They should not take on this decision on their own. Government has to have a role." (Bangor)

"Government and NIE need to work together so that NIE are sufficiently informed about where there is need." (Bangor)

Some noted the risk in forward investing if the demand does not arise and reiterated the importance of 'joined up' planning.

"It's a big gamble, you would need to guarantee that businesses are going to actually come to Northern Ireland." (L'Derry)

In terms of who should fund this type of investment, several were opposed to the idea that it should come from the 'customer purse'. Some thought that the government should fund the investment, while others recommended that businesses take some financial responsibility.

"If it is a big business, they should pay for it. They should receive an allowance towards the cost and if it is exceeded, pay the extra." (Craigavon)

"Businesses should have to pay half and NIE pay the other half for this investment." (Critical care group)

Some of the knowledgeable consumers suggested that the consumer would inevitably fund this investment regardless of which public agency takes responsibility.

"The consumer will have to pay at the end of the day." (Knowledgeable consumers)

Despite such concerns, several customers noted the benefits to the Northern Ireland economy arising from this type of forward investment. A few were of the opinion that the current lack of capacity is stifling businesses from coming to Northern Ireland. Some noted the lack of economic activity in rural areas in particular. Others reflected on employment benefits arising from this type of investment.

"A certain amount of investment needs to be made because that creates jobs." (L'Derry)

"We need to encourage local businesses to come to local areas. Investment is far more likely to be put into places like Belfast and L'Derry. If there was the power capacity for businesses here, maybe they would come." (Gortin)

Feedback from stakeholder workshops

Not surprisingly, business representatives were most in favour of this type of investment. Feedback stemmed from frustration relating to connections and a perceived lack of network capacity, which some deemed to be stifling business expansion.

"Can the infrastructure cope with extra demand, anytime, anywhere? There is a need for the infrastructure to be in place for that growth. It is an important consideration for the grid." (Business representatives)

"What is coming out is that the amount of money poured into the network is at the opposite spectrum to what is required." (Business representatives)

"Are NIE geared to make timely response in request for expansion?" (Business representatives)

However, as with the focus group attendees, stakeholders felt strongly that this is not a decision which can be made in isolation. It is deemed to require attention at a higher policy level and with input from a number of 'key players' (DETI, Invest NI, UR, SONI, NIE etc)

"Across SONI, NIE, DETI and UR, future proofing needs to be discussed as a whole. See where we need to meet and responsibilities of each." (Business representatives)

"I don't think NIE will have a say in much of this. It is a political decision." (Environmental group)

" It needs to come from a political background. NIE cannot make the decision." (Electricity suppliers)

However, a few of the business representatives suggested that NIE is in an advantageous position to lead discussions.

"NIE is perfectly placed to take responsibility – they are across jurisdictions." (Business representatives)

In terms of who should pay for this type of investment, most disagreed it should be funded by the customer. Some representatives suggested that DETI should take responsibility, whilst others recommended sourcing European funding for this type of investment. They suggested that NIE assess the opportunities available through this funding.

"DETI should fund this. They have a common planning element." (Public admin & emergency planners)

"Who should pay [for power parks]? *My concern is if everyone pays, not everyone gets the same benefits back. I recommend NIE looks into European funding." (Domestic representatives)*

Regardless of who takes responsibility, some business representatives reiterated the need for decisions to be taken expediently. They commented on perceived difficulties for commercial industry if investment is not made in this area.

"The key consideration is speed of resource and what it is going to cost. It is about understanding how quickly NIE can deliver those KPI's to world class standards." (Business representatives)

"NIE needs to have sufficient foresight that this is coming. They need to be putting things in motion to support this. They need to have options on the table and understand the implications of not having it in place." (Business representatives)

Across groups, stakeholders reiterated perceptions about the current lack of grid capacity and reflected on the difficulty this imposes for businesses coming to Northern Ireland. Some suppliers suggested that there may be merit in 'taking the investment risk' to increase capacity.

"There has been a romantic idea about creating jobs. However to power new jobs and new economic systems we need to take into consideration the infrastructure capacity." (Business representatives)

"If there are barriers to businesses coming into Northern Ireland, these needs to be addressed. The economic benefits of investment, including employment, need to be noted. Especially with an ageing working population." (Domestic representatives)

"NIE can clearly see there is an increased demand for connections. Should there be some risk taken to establish infrastructure?" (Electricity suppliers)

Comments were made in relation to planning and ensuring clear strategy relating to the locality of power parks.

"Sufficient planning is required to ensure that power parks are in the 'right place'. There is one West of the border and not one business on it." (Public admin & emergency planners)

"Can you optimise the location? Place power parks close to wind farms where renewable energy is easily accessible?" (Environmental group)

A few queried whether this type of investment should be considered in the context of RP6, as some were of the perception that the customer should not fund this activity. A few suppliers expressed opposition to the customer funding this activity as they deem the current cost of electricity to be much higher in Northern Ireland than elsewhere.

"Business people are saying they aren't getting value for money where they could be elsewhere on island. A system that costs twice as much than it does in ROI. To enable power parks customers will not want to pay double the network cost." (Electricity suppliers)

"I agree for the need for sustainable network. Those installing the kit will benefit a bit more, should they therefore take some of the cost? I don't think customers should take the burden of the cost." (Electricity suppliers)

Several reiterated the suggestion that NIE seeks European funding to support this type of investment.

"Does NIE have any involvement with ROI and seeking funding from the European Scheme?" (Business representatives)

"Why are NIE not going for some of the European grants for research and development into low carbon technologies?" (Domestic representatives)

"There is a lot of money available from EU funding. BT got fibre network support through EU funding. We already have Wifi hubs all over the place, the plans are very big and they cannot do it without the network in place." (Public admin & emergency planners)

3.3 Overall priorities

Participants were asked which service aspects, (dealing with power cuts, network resilience to extreme weather, environmental impact of the network, future strategy, customer service), they would prioritise overall for investment.

Across most groups, there was willingness to invest more in network resilience to extreme weather. Several readily prioritised this as the area most in need of investment and suggested it is where most benefits will arise in terms of network performance. A relatively similar proportion considered the importance of investing in future strategy.

The table below outlines the final prioritisations made by groups, while the paragraphs that follow further explore the rationale behind these investments.

Table 3.3.1: Overall prioritisation of service aspects

	Group	Dealing with power cuts	Network resilience to extreme weather	Environmental impact of the network	Customer service	Future strategy
1	Gortin	4	8	2	4	2
2	L/Derry	8	7		3	2
3	Enniskillen	4	4	2	4	6
4	Rathfriland	2	6	6	1	5
5	Future customers	3	5	3	1	8
6	Ballymena	4	5	3	2	6
7	Ballycastle	3	3	3	2	8
8	Bangor	3	8	5	1	3
9	Craigavon	6	6	2	2	4
10	Living near pylons	5	7	4	2	2
11	Critical care	4	4	5	2	5
12	Knowledgeable	2	5	2	4	7
	Total	**48**	**68**	**37**	**28**	**58**
	Average	**4**	**6**	**3**	**2**	**5**

Consistent with previous trade-offs, feedback relating to overall priorities focused on the areas which would have 'multi faceted' benefits. Many suggested that investment in resilience to severe weather would ensure better network performance and fewer power cuts.

"Invest to prepare for severe weather." (Ballymena)

"Extra support is needed for when severe weather hits. We have to be prepared. We weren't last time." (Rathfriland)

"Preparing for extreme weather will reduce power cuts." (Future customers)

"The priorities need to be looking for problems and fixing them. Target areas known for bad weather." (Gortin)

"Invest a modest amount in future development but stronger infrastructure needs to be a priority. The network needs to be made sustainable first." (Knowledgeable consumers)

Some noted that continuity of electricity supply is central to NIE's performance and the extent to which it is perceived favourably by its customer base. Therefore, they were of the perception that investment in reducing power cuts would ensure improved customer service overall.

"By investing in power cuts and network resilience, this will inevitably improve customer service." (Craigavon)

Others noted the need to invest in future strategy. Comments were made in the context of ensuring a robust network which can meet the evolving demands of a low carbon technology. There was lesser focus on NIE's role in investing in stronger infrastructure to support the growth of the NI economy as participants deemed this to be an area which is not for NIE to tackle in isolation.

"In reality NIE would have to invest in the future." (Knowledgeable consumers)

The prevention and expedient resolution of power cuts was mentioned by many. Some reiterated the need to improve service for those at greater risk. Others re-emphasised that they are generally satisfied with the current situation as they have experienced few power cuts, and thus deem this area to require less investment.

Customer service was deemed integral to NIE's business operation. A few commended NIE's current level of customer service and therefore queried why investment is required. However, some placed investment in customer service to ensure continued performance and to enable alternative communication methods.

"You shouldn't have to ring up to report an issue. NIE should take responsibility." (Gortin)

"The customer needs to be kept happy. If changes are being made there needs to be understanding from the customers." (Gortin)

"Customer service is not an issue for NIE." (Future customers)

There was a lesser focus on environmental impacts overall. Those who placed investment in this area did so in order to ensure investment in undergrounding overhead lines.

"Putting lines underground should be a priority." (Ballycastle)

"If the network was more resistant to weather then there would be less cuts. Underground lines seem to avoid the problem." (Gortin)

While opinions were shaped in some way by consumers' own experiences, they often took an objective viewpoint, particularly in relation to the consideration of improving service for those most at risk. Decisions were often influenced by considering the impact on the

consumer, in addition to the repercussions and potential benefits any investment could ensure for NIE. Overall, it appeared that participants took a considered approach to the investment exercises.

Feedback from stakeholder workshops

Across workshops, stakeholders tended to prioritise future strategy and network resilience as the areas requiring higher levels of investment. Some deemed these attributes as having the biggest long term impacts overall, and the areas which will have a greater 'knock on' effect on other attributes.

"Resilience and future strategy." (Public admin & emergency planners)

"I am leaning towards customer service and future strategy. A lot of the other areas have been well dealt with. The future proofing is important." (Domestic representatives)

"Network resilience and future strategy have the biggest long term impacts on other areas of investment." (Domestic representatives)

When trading off priorities overall, it was evident that customer service and environmental impacts were deemed lesser priorities. Some were of the perception that prior investment in maintaining the infrastructure has meant lesser investment in other areas of service, such as future strategy. They therefore considered that future strategy should be prioritised for investment in RP6. A few noted the importance of continuing to deal with power cuts and ensure continuity of supply.

"On a general level I thought we were focusing more to resilience. I don't think our priority was in relation to the environment or customer service." (Electricity suppliers)

"I would contend that customer service and future strategy hasn't changed for a while and there has been limited capacity as money has been spent on power cuts." (Electricity suppliers)

"Dealing with power cuts is still a priority. People still need security of supply." (Domestic representatives)

A few stakeholder groups expressed strong agreement that NIE should focus on future strategy, with forward investment in planning for the long term growth of renewable energies.

"Aspiring to a renewable future. NIE is a visionary company with a commitment to low carbon energy." (Environmental group)

"Campaign for future strategy. You need to be allowed the freedom in renewable energies; solar and big wind farms are your priority." (Environmental group)

"I think the issue of sustainable technology and feeding power back needs more focus. I think there is a need for NIE to support sustainability in grid investment. That goes beyond what has been mentioned." (Domestic representatives)

Other areas for consideration

Concluding remarks revealed other areas for consideration. Across workshops,

stakeholders commented on the importance of a multi-agency approach, with specific focus on a 'joined up' approach when planning for future strategy.

"If we are to add to the economy…everybody working in silo…that has to change." (Business representatives)

"This is an issue of fragmentation, it is not one body. The market involved in electricity…it can't work in isolation." (Electricity suppliers)

"The Minister and DETI have to prioritise the renewable energies target. The big issue is that customers always pay, if it doesn't come from any other funds. Any way of releasing funding and reducing costs is where the priority should lie." (Business representatives)

A few domestic representatives took this opportunity to recommend that NIE takes a role in promoting energy efficiency. Whilst they noted that this is outside of NIE's typical area of work, they noted benefits for the organisation in encouraging energy efficiency.

"There has been no talk about encouraging people to use less electricity. There should be a focus on energy efficiency to drive down the demand." (Domestic representatives)

"NIE has the most to benefit in terms of energy efficiency as it takes the load of the system. However, we recognise that NIE has limited customer interaction to promote that message, it will be a shift in NIE's role." (Domestic representatives)

Business and domestic representatives noted that connections was not included amongst the areas for investment. Some suggested that this needs to be included in the next stage of the research.

"In addition to the five key areas, I think that connections needs to come out. 28,000 farms...that is a huge community. Connections need to come out as a clearly defined subset." (Business representatives)

"Connections and increased capacity need to be mentioned. Wires are put in place based on anticipated load. There needs to be engagement with NIE in relation to managing that process." (Business representatives)

One or two recommended that NIE pushes for more investment in adding new technology to improve network management.

"If you are benchmarking against other DNO's it seems you should be requesting automated technologies to support the network." (Public admin & emergency planners)

In terms of the costs associated with investment, some reiterated that the cost of electricity is higher in Northern Ireland than the rest of UK and Ireland, and consequently, it will be difficult for business customers to accept any further costs.

"It is difficult to get NI industrialists to say they will accept more costs. In reality, every industry customer knows they are paying twice in NI compared to their ROI counterparts." (Electricity suppliers)

One group noted the importance of investing to ensure the current level of service remains constant. They indicated that customers will not be accepting of a deterioration in service.

“It is good to know the current KPI’s and note the importance of not making it any worse.”
(Business representatives)

4. Key findings from non-domestic customers

In this section we present the findings from the in-depth interviews with non-domestic customers. Consistent with the previous chapter, findings are summarised under the following headings:

- Setting the context;
  - Importance of the availability of electricity services;
  - Awareness of the role of NIE;
  - Experience of electricity related issues;
- Investment priorities;
  - Dealing with power cuts;
  - Network resilience to extreme weather;
  - Environmental impact of the network;
  - Customer services;
  - Future strategy;
- Overall priorities.

4.1 Setting the context

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. Irrespective of sector, size and level of usage, respondents indicated that electricity services are 'vital' or 'crucial' to their respective organisations. Large organisations have back-up generation but the extent to which they can sustain their operations without normal electricity supply varies, and as such, they still describe security of supply as critical.

"We don't have to call on our generators very much, we have a resilient electricity supply." (Large healthcare)

"Security of supply is critical, if we have brown-outs or black-outs it effects our entire supply chain…we rely on a large amount of refrigeration and have limited back-up generation. Without power we will lose product and lose customers." (Rural, large manufacturing)

"If we don't have electricity…we don't meet our own compliance standards and standards that we meet on behalf of the government which means we can get potentially fined." (Large utility)

"We couldn't do without it [electricity], *we need it for the changing rooms, car park and football pitches." (Rural, sports club)*

"Crucial – We are helpless without it. The whole business is based on three aspects that require electricity; software, manufacturing and communications." (Urban, small manufacturing)

Other non-domestic customers highlighted the importance of a consistent voltage, as sudden changes can cause damage to machinery or equipment.

"There are sometimes problems with phase fluctuations, so you are getting power but maybe not as much power and the system looks at it and goes 'I'm not getting a proper supply here from the grid' so it shuts the plant down and moves to a standby generator and uses that instead until there is proper voltage on the grid." (Large utility)

"The only problem I have had is with the current. The wind turbine is sensitive and will turn off if there is an imbalance in the current of more than 20 or 30 amps. This damages the turbine. We mill and mix our own feed for the pigs, there are quite a lot of rotors and electrical motors which require three phases. If there is a current imbalance I'm worried that damage would be done to my machinery." (Rural generation)

Awareness of the role of NIE

Respondents were asked about their knowledge of the role of NIE. Large organisations are more aware of the specifics of NIE's 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 on a more regular basis. Therefore, they were all aware that NIE is responsible for the transmission and distribution network and new connections.

"NIE's role is to maintain the network, not supply electricity." (Rural, large agriculture)

"Generator connections and looking after the network for a resilient supply to the population." (Large healthcare)

"NIE? Good question! Well, they run the network and fix issues to do with power cuts." (Urban, large retail)

"Transmission and distribution, they take electricity from power stations to houses and businesses. We have a lot of sites requiring high voltage." (Large utility)

However, while awareness and understating of NIE's role is greater among larger organisations, one large manufacturer did not think it is particularly engaging with customers.

"[It is] *A closed group, not very outwardly engaging to their stakeholders." (Large manufacturing)*

NIE and its role was somewhat more ambiguous to small and medium sized organisations, with many still unsure of the relationship between NIE and Power NI. A few also queried whether NIE supplies electricity itself.

"They generate electricity and are the main supplier in Northern Ireland." (Urban, small personal service)

"Provider and supplier of electricity. Not really sure of the relationship between it and Power NI." (Urban, medium construction)

"They are the only electricity operator in Northern Ireland, not like England. They seem to have a monopoly." (Voluntary/charity)

Regarding bill enquires, most small and medium organisations would call the customer helpline detailed on their bill, however some still believed they were contacting NIE.

Respondents were asked who they would contact regarding a range of electricity related issues. Responses are included in table 4.1.

Table 4.1.1: Electricity related issues: respondents' likely contact point

	Depth	Bill enquiry	Electrical fault	Power outage	Meter reading	Electricity connect.	Fallen power lines
1	Large manufacturing	Supplier	Electrician /NIE	NIE	Self-report/NIE	NIE	NIE
2	Medium manufacturing	NIE	NIE	NIE	NIE	NIE	NIE
3	Small manufacturing	Supplier	Supplier	Supplier	DK	DK	DK
4	Large agriculture	Supplier	NIE	NIE	Self-report	NIE	NIE
5	Small agriculture/ generation	-	-	-	-	-	-
6	Large utility	Supplier	Check internally/ NIE	NIE	NIE	NIE	NIE
7	Large healthcare	Supplier	NIE	NIE	NIE	NIE	NIE
8	Semi-rural educational establishment	NIE	NIE	NIE	NIE	NIE	NIE
9	Large retail	Supplier	NIE	NIE	NIE	DK	NIE
10	Large hospitality	Supplier	NIE	NIE	Supplier	Electrician	Supplier
11	Medium construction	Supplier	Supplier/ NIE	NIE	NIE	NIE	NIE
12	Small personal service	Supplier	Supplier	Supplier/ NIE	Supplier	DK	DK
13	Medium business service	Supplier	NIE	NIE	Supplier	DK	DK
14	Voluntary/Charity	Supplier	Supplier/ NIE	Supplier/ NIE	DK	DK	Supplier/ NIE
15	Sports club	Supplier	Supplier	Electrician /NIE	NIE	NIE	NIE

Experience of electricity related issues

Very few respondents reported any 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. There was also some experience of planned interruptions. In each instance, the organisation was notified in advance by NIE. A large organisation was able to make use of its generator during the outage of 10 hours. A small organisation did not experience any power outage

following notification by NIE and assumed the work was carried out successfully without any interruption.

"There are areas where we would have more frequent problems, South Armagh etc…sites would have power issues where the electric would be off and on because of a power blip. We get call-outs in the night and have to go and reset the plant." (Large utility)

However, respondents with experience of connections all reported issues with NIE and the process. 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 (this issue is explored further in section 4.2.4 – 'customer service').

"We invested £450k in a CHP to save ourselves money and to reduce our carbon footprint…because NIE stalled and stalled that cost us money and effects our payback on the investment." (Large healthcare)

"Getting people to do disconnections in a quicker time if possible, six weeks seems to be the key word with them…it should take a week to ten days. Things just seem to go round peoples' desks." (Urban, medium construction)

"Connections to units, we can't get connections for units, it's been 5 weeks and I still don't understand the process. This is an industry wide problem." (Urban, large retail)

Some feel that although the performance of the electricity network has been very good, electricity costs for businesses are more than in other regions of the UK or the Republic of Ireland.

"Security of supply has been extremely successful but that comes at a price and the price is uncompetitive in this region." (Rural, large manufacturing)

4.2 Investment preferences

4.2.1 Dealing with power cuts

Perceptions of an acceptable level of occurrence

There is general agreement that a small number of power cuts a year is acceptable, even to be expected as NIE cannot completely eradicate all reasons for power cuts, such as third party damage. Instead, non-domestic customers were more concerned about the length of time without power as infrequent power cuts are easier to deal with than sustained outages lasting over one or two hours.

Overall, non-domestic customers do not feel that power cuts are a problem.

"A power cut is something you are never going to completely eliminate and it is not always to do with NIE…I just don't think investing a lot of money in it would be the right thing." (Rural, sports club)

"Two 30 minute power cuts a year is probably better than one power cut lasting two hours. We can find things for staff to do for a half an hour but two hours would impact on the business and clients." (Urban, medium business services)

"Power cuts are generally fixed quickly. I don't experience them very often and when they do happen they are fixed quickly. Response times are good." (Large healthcare)

"If you only have five or six times a year when your electric is off and it's only off for half an hour or an hour, at most…it wouldn't be as bad as if three of four power cuts a year but the electric was off for three hours or four." (Rural generation)

"[Power cuts are] *Not a major problem, happen every now and then. When it is over an hour or two, that has a bigger impact." (Urban, large retail)*

"I would deem 1 in 6 customers experiencing a power cut to be quite high, however, I appreciate the myriad of reasons why faults occur is outside the control of NIE." (Semi-rural, educational establishment)

However, one organisation is running at close to full capacity and, regardless of its own back-up generation abilities, would be unable to sustain an outage lasting more than a matter of minutes.

"From now [May] *until September we can't sustain a loss of even 30 minutes at one of our sites because our customer demand is so high, utilisation is almost 100%." (Rural, large manufacturing)*

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.

"In my opinion they need to spend a bit of money on very rural areas. Over a period of time, maybe five years, money needs to be invested there to try to prevent power cuts. I wouldn't say spend your all your money there, that wouldn't make sense." (Rural generation)

"It depends where you live…it's more of a rural issue. My issue would be the effect on core front line services. Certain people need to be put first." (Voluntary/charity)

Prioritisation of service areas

Respondents were asked which area relating to 'dealing with power cuts' was important for future investment. They were asked to score each area high (10), medium (5) and low (0) in terms of the investment in improving service provision.

Table 4.2.1 shows that slightly more non-domestic customers think it is worthwhile to invest in reducing the number of power cuts overall. This was particularly the case amongst those from the manufacturing sector and business services. However, average 'importance rating' was fairly consistent across the different attributes. Overall, non-domestic customers found it difficult to highlight one particular area for investment in terms of dealing with power cuts due to the perceived performance of NIE presently and the limited impact investment in any of these areas would have on their organisation.

Table 4.2.1: Investment on 'dealing with power cuts'

	Depth	Number of people experiencing power cuts	Average duration of power cuts due to faults on the network	Customers at higher risk of power cuts
1	Large manufacturing	0	5	10
2	Medium manufacturing	10	10	5
3	Small manufacturing	10	10	10
4	Large agriculture	10	10	5
5	Small agriculture/ generation	5	10	5
6	Large utility	5	0	10
7	Large healthcare	5	0	0
8	Semi-rural educational establishment	DK	DK	DK
9	Large retail	5	5	10
10	Large hospitality	5	0	10
11	Medium construction	0	0	0
12	Small personal service	10	10	0
13	Medium business service	10	10	5
14	Voluntary/Charity	10	10	10
15	Sports club	5	5	5
	Total	**90**	**85**	**85**
	Average	**6**	**6**	**6**

In the following paragraphs we detail the rationale behind these scores.

Number of people experiencing power cuts due to faults on the *network*

As mentioned previously, most perceive that they are not experiencing power cuts that often. When they have, power has been restored relatively quickly so there have been limited impacts on operations. Overall, non-domestic customers (particularly industry) would like to see investment in any attribute that reduces the possibility of power cuts overall.

[In terms of importance] *"I would say ten* [out of ten], *our businesses would be inconvenienced and we would lose out on money and couldn't function without power." (Urban, small personal service)*

"Electricity is fundamental to living, families, businesses and the elderly, you can't do without." (Urban, small manufacturing)

"Investment here will help more people." (Urban, medium manufacturing)

Average duration of power cuts due to faults on the network

Duration is very important to non-domestic customers, particularly commercial businesses as the knock-on effects can mean loss of customers, productivity and revenue. However, when presented with NIE's current performance, this was viewed positively and as such

higher investment was not always deemed necessary. Non-domestic customers indicated that they would be satisfied as long as current performance is maintained, or improved slightly with medium investment.

[Reducing the average duration of power cuts*] "I would probably rank that a two* [out of ten], *60 minutes without power is nothing really." (Urban, large hospitality)*

"If there was any trade-off I wouldn't necessarily prioritise reducing power cuts. The ability to get the power on after a cut would take priority over the other two." (Urban, small manufacturing)

"The duration of the power cuts seems like it would be easier to fix than the actual amount of power cuts. There could be an awful lot of lines that would need upgraded and substations which may require a very high level of investment." (Rural generation)

"I suppose you always want to be improving, but the current situation is ok, I would go for medium investment." (Rural, sports club)

Customers at higher risk of power cuts

While non-domestic customers recognise that customers at a higher risk of experiencing power cuts are likely to face more frequent issues, they found it difficult to justify high investment in this area due to the small number of people it would impact.

[Customers at higher risk of power cuts] *"Maintain existing investment because NIE shouldn't be spending money on a lower percentage of people…the investment should be proportional to the overall need." (Large healthcare)*

"Again, there doesn't seem to be much difference between the [impacts] *of the medium and high investments. Medium investment would reduce it to 4,000 but high would only reduce it by another 1,000. I think medium investment is what I would be calling for." (Rural, sports club)*

"The difference between high and medium investment isn't that great." (Urban, medium manufacturing)

However, some thought that high investment in this area is necessary as they perceive that it indicates specific and ultimately fixable issues with the network.

"I think you would focus on reducing that down to 3,000, in terms of people who are having multiple power cuts all the time and seeing what's wrong with that network…the reason why they are having power cuts is probably due to the network overall being stretched in those areas" (Large utility)

"High investment – 10. If NIE know where there are high risk businesses, this should be supported as a priority compared to the other two investment areas." (Rural, large manufacturing)

4.2.2 Network resilience to extreme weather

Perceived impact and frequency of severe weather

Non-domestic customers agreed that there had been more extreme weather events over the last number of years but some questioned whether this indicates a longer term trend or just a 'phase' of particularly bad weather. The recent snow and ice events of 2013 and 2010 were mentioned along with localised flooding issues. High winds are not generally 'top of mind' but recognised as an issue affecting the electricity network.

"We are situated in the city centre and our electricity was affected by the snow. I just don't think that we can cope with severe weather in general in Northern Ireland. It rarely happens but when it does it's like it has never happened before." (Voluntary/charity)

"Being within our type of industry with sites all over the place, on a wet and windy night I'm expecting to be talking to NIE at some point." (Large utility)

"Northern Ireland isn't that big so when it happens it affects a large area. It's been maybe 10 or 12 years since there was a major problem where electric was off for three days." (Rural generation)

Very few non-domestic customers have experienced issues relating to extreme weather and its impact on the electricity network.

"No real impact on our business recently. NIE has done well in dealing with this, I'm not aware of any power loss due to extreme weather." (Rural, large manufacturing)

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

Consistent with stakeholders and domestic customers, there was a degree of acceptance that NIE faces a number of difficulties when trying to repair network faults during extreme weather. However, most still think that power should be restored within two to three hours or within 24 hours at most. Businesses highlighted that regardless of weather, they still have a job to do and as such they expect NIE to take cognisance of this fact. Some argued that the weather forecasting should also allow NIE time to make plans and put contingencies in place.

"An acceptable length of time? It is still 2-3 hours in this area, they have no excuse for anything longer. We have our work to do regardless of the weather so NIE should do theirs too." (Rural, large agriculture)

"If it was really extreme weather I think two to three hours is acceptable without power but again that depends on where you live. If you are close to shops or neighbours that can help you out that's ok. Over three hours you would start to worry." (Rural, sports club)

"Probably half a day without power is acceptable during extreme weather." (Large hospitality)

"Again, I would be quite tight on that [Acceptable length of time for a power outage during extreme weather]. *You should be back on again within 24 hours because of lot of these things are predictable and you can have people on standby." (Large utility)*

Prioritisation of service areas

Again, 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.

Table 4.2.2 shows that non-domestic customers were more inclined to prioritise investment in flood prevention, followed by high winds. Ice accretion is viewed as less of a priority, however on average it received the same investment score as high winds.

Table 4.2.2: Investment on 'network resilience to extreme weather'

	Depth	Ice accretion	Flooding	High winds
1	Large manufacturing	0	0	0
2	Medium manufacturing	5	10	10
3	Small manufacturing	10	10	0
4	Large agriculture	5	10	5
5	Small agriculture/ generation	5	10	10
6	Large utility	0	0	0
7	Large healthcare	0	5	5
8	Semi-rural educational establishment	10	0	5
9	Large retail	5	10	0
10	Large hospitality	10	10	10
11	Medium construction	0	10	10
12	Small personal service	10	10	10
13	Medium business service	5	5	5
14	Voluntary/Charity	5	5	5
15	Sports club	5	5	5
	Total	**75**	**100**	**80**
	Average	**5**	**7**	**5**

Overall, network resilience is viewed as an important area of investment given that it would impact on power outages and therefore business continuity.

Ice accretion

Familiarity with the specifics of ice accretion is low, as is knowledge of its impact on the electricity network. Non-domestic customers were aware that the winters of 2010 and 2013 had resulted in power outages but there was very limited awareness of how snow and ice affects the network.

"There tends to be an over-reaction to these things, there is no need to panic. Extreme winters will happen." (Large healthcare)

"It doesn't effect this business, there would just be issues with water." (Urban, small personal service."

"I just don't think commercially it makes sense" [investing in preventing ice accretion] (*Rural, large manufacturing)*

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.

"Medium investment, it's a low percentage of customers and you don't know or can't predict the weather." (Urban, medium business services)

"The ice is maybe a yearly event but investment should be made so when it does happen everything doesn't grind to a halt over a bit of ice." (Voluntary/charity)

Flooding

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.

"I would say ten. Flooding is a big problem and causes problems in this area. We are near a river and a substation here." (Small, urban personal service)"

"Ten. The danger of mixing electric and water…also a lot of people would be affected." (Rural, large agriculture)

"It depends on the substation, if it will affect a large number of people, it should be protected. The investment should be proportional." (Large healthcare)

"It's high risk and needs immediate attention." (Urban, small manufacturing)

"High investment. NIE know where it is and should spend to prevent the problem." (Rural, generation)

However, similar to ice accretion, there was some scepticism regarding the potential risk versus the actual level of occurrence.

"Is it because of the phase of bad weather we are going through? Take flooding, it says 50,000 people are at risk but how many will actually be affected?" (Large utility)

High winds

Most non-domestic customers mentioned that high winds are the most likely extreme weather event to be experienced in Northern Ireland. This may explain why it was not necessarily mentioned 'top of mind' due to its regular occurrence.

[High winds] *"I think a medium investment that gives an improvement of 20% is good value." (Rural, Sports Club)*

"High winds will happen every year, therefore investment is necessary." (Rural generation)

"You can get high winds in all seasons, while with ice accretion that's just the winter." (Urban, medium manufacturing)

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

"High winds are not bringing down 33kv lines which supply large businesses. 11kv lines are easier to fix, it is probably a quick fix." (Rural, large manufacturing)

4.2.3 Environmental impact of the network

Environmental impacts arising from the electricity network

Awareness of the environmental impact of the electricity network is limited among non-domestic customers. However, most mentioned issues regarding the generation of electricity and the move towards renewables. Interestingly, the most commonly mentioned environmental impact of the network related to the perceived health risks caused by overhead lines.

"Pylons, environmentally they don't look particularly attractive. They are also generally placed in residential and rural places which is bound to have an environmental impact on the landscape and people living nearby." (Urban, small manufacturing)

"Not much knowledge. Health issues, you do hear these things in the media, TV and papers. Unless you were living nearby it's hard to know." (Rural, sports club)

"Renewable power is becoming more common." (Rural, large agriculture)

"I have concerns about the health effects of living near pylons, I wouldn't personally buy a house close to a pylon." (Semi-rural, educational establishment)

Prioritisation of service areas

Again, respondents were asked to score each service area in terms of high (10), medium (5) and low (0) investment in improving the environmental impact of the network.

Overall, table 4.2.3 illustrates that non-domestic customers are less likely to think that investment in the environmental impact of the network is as important as reducing power cuts or resilience to extreme weather. With a score of 80, reducing NIE's energy consumption is the area non-domestic customers would most like to see investment. This is followed by the undergrounding of overhead lines in AONB/tourism sites (65). Undergrounding lines in urban areas and resolving bird fouling issues have similar total scores and are generally seen as a lower priority (45 and 40 respectively).

A few expressed apathy towards the environmental impacts. One or two noted that it is something that they have rarely considered, and as such, struggle to assess the need for improvement.

"Overall, I have to say I don't give it [environmental impact of the network] *a lot of thought. I suppose conscientiously it should be taken into consideration." (Urban, small manufacturing)*

"I don't really have a view, I've never given it any real thought." (Urban, large retail)

Table 4.2.3: Investment on 'environmental impact of network'

	Depth	Reducing NIE's energy consumption	Undergrounding overhead lines in AONB/ tourism sites	Undergrounding overhead lines in urban areas	Resolving bird fouling issues
1	Large manufacturing	0	0	0	0
2	Medium manufacturing	10	10	0	0
3	Small manufacturing	5	5	0	0
4	Large agriculture	5	0	0	0
5	Small agriculture/ generation	5	0	0	0
6	Large utility	5	0	0	5
7	Large healthcare	5	0	5	0
8	Semi-rural educational establishment	10	5	5	5
9	Large retail	0	10	10	10
10	Large hospitality	5	10	10	10
11	Medium construction	0	0	0	0
12	Small personal service	10	0	0	0
13	Medium business service	5	10	0	5
14	Voluntary/Charity	10	10	10	5
15	Sports club	5	5	5	0
	Total	**80**	**65**	**45**	**40**
	Average	**5**	**4**	**3**	**3**

Overall, non-domestic customers think that if NIE can reduce its own consumption, this may result in savings that would enable investment elsewhere. Bird fouling is not an issue affecting any organisation spoken to, however, respondents with personal experience of it would like to see high investment due to the impact on day-to-day life.

Reduce NIE's energy consumption footprint

Large organisations have their own corporate responsibility and sustainability initiatives and so think NIE should be doing the same. The term 'zero-carbon' was used as large businesses are facing increased customer demand for products produced in efficient, sustainable and low carbon ways.

"They do need to reduce their overall carbon footprint. We are all doing it and are being forced to do it. By doing that themselves they would ensure there is more capacity on the grid." (Large utility)

Other non-domestic customers believe that savings made will result in reduced costs or free-up money to be invested elsewhere.

"Invest to save? Absolutely – costs will come down." (Large healthcare)

"1% [of £615 million] *would save a good bit of money." (Urban, medium construction)*

However, one large manufacturer thought NIE's targets of 0.5% reduction in consumption for a medium investment and a 1% reduction for a high investment were quite low, hinting that NIE is already operating efficiently.

"Half a percent on 4GWh in five years is an extremely low target, they must have a very high efficiency performance ratio already…that's a low priority." (Rural, large manufacturing)

Undergrounding overhead lines

Very few non-domestic customers took a strong view regarding undergrounding lines. While some stated that it may be more aesthetically pleasing, the costs versus potential benefits to the organisations, which most felt were nil, were perceived not to be worth it.

"It's just aesthetics. Undergrounding should be done to prevent power cuts, not improve beautiful areas." (Large healthcare)

"I'm not fussed. There are more important things than tourism." (Large utility)

"It's not a high priority. They [overhead lines] *are necessary for electricity, you are never going to get away from them." (Rural generation)*

Similar to domestic customers, some noted benefits additional to the visual impact of undergrounding overhead lines. They suggested that this would reduce network faults and bird fouling incidents.

"Undergrounding is important. Lnes spoil the visuals of these areas. It would resolve the bird fouling problem too" (Urban, large retail)

Resolving bird fouling issues

Non-domestic customers had very little to say regarding bird fouling issues. While two respondents had experienced bird fouling at their own personal properties, no interviewee believed it was an issue impacting their organisations. As such, investment in resolving this was not viewed as a high priority, or indeed a priority at all.

[Bird fouling] *"I think 100 complaints in the last 3 years is low, 33 complaints on average per year? Over the whole network and the number of customers they have, that would be a very small percentage. I would be happy to run with things as is." (Rural, sports club)*

"100 complaints in the last 3 years? It's not really very many complaints…if people want to do it they can pay for it themselves." (Urban, medium manufacturing)

4.2.4 Customer service

This section summaries non-domestic customers' views on customer service.

What does good customer service mean to you?

Consistent with the stakeholder and focus group attendees, respondents were asked to summarise what good customer service means to them. Good customer contact procedures and communication were mentioned by all, as was the timely resolution of complaints. Non-domestic customers want to know who to contact when they have a query and want straightforward communication, preferably with a knowledgeable customer service representative.

"I think there should be a direct line for core services. We have the same thing for BT where we can get directly through to a number. This is for services that are providing emergency and crisis support. If we lose power it really impacts on people's lives." (Voluntary/charity)

"You have to give the best service possible so that customers will keep returning to you. If there are any problems get them rectified quickly. Do everything you can to make the customer feel important to you. Service is actually more important than price." (Urban, medium manufacturing)

While the benefits of personal service were mentioned by all, businesses consistently highlighted the need for key customer account managers as this is something they are used to when interacting with major suppliers. Large companies indicated that they sometimes have complex needs or queries and do not wish to chase answers through various departments. When reflecting upon organisations deemed to be providing good customer service, several commented on those that provide an account manager who understands the business and can offer expedient solutions.

"I know a utility supplier is different to NIE, but every utility supplier we have has a key account manager. A face we know and a name that we can go to with any issues, whether it be slow response times or any problems, we talk to them and get it sorted out." (Large healthcare)

"Somebody that can help me and tell what is happening, with some description of when my issue will be resolved. So in other words talking to someone who knows what they are talking about." (Large utility)

"Barclays manage our mobile phone account; they are excellent. We have an assigned account manager and that one person is who you deal with. You don't have to go round the houses because you have a relationship there. You are not left hanging and they always get back to you." (Urban, medium business services)

Timely communication is also deemed important. Some organisations mentioned that if there is an issue with service they need to know as quickly as possible so they can make contingencies.

"I think there should be an account manager; a system that is more localised. Phone contact with an actual person. Even if they had a system of information updates because without it you are left wondering what is going on. For example, 'if you live in BT7 press 1' and it tells

you that they are working on the line and it should come back on in four hours." (Voluntary/charity)

"As soon as they are aware of an issue, we should know within 30 minutes." (Rural, large manufacturing)

Experience of contacting NIE

Apart from connections (as detailed below), very few non-domestic customers have had experience of contacting NIE and therefore had limited knowledge of the customer service it provides. While there was some confusion regarding how to contact NIE in different scenarios, customer service was generally perceived as of a satisfactory standard. A number of non-domestic customers had received notice that NIE was carrying out work in the area and that there may be power interruptions. However, respondents did not notice any issues and believed this is a credit to NIE.

"They are good when it comes to conducting work. Good communication and they get the work done without too much interruption." (Urban, large retail)

"Kept updated on interruptions. It's good that they already inform businesses of their works in the local area." (Urban, small personal service)

"Normally they put a wee card out. If you're given enough notice you just have to work around it." (Rural generation)

Overall, non-domestic customers found it difficult to comment on NIE's customer service given limited experience. However, several mentioned that this illustrates that they have had few issues with NIE. They inferred this as meaning they receive good customer service regarding supply.

Connections

Non-domestic customers with experience of connections, typically commercial businesses, had a particularly negative view of NIE and the service it provides to customers regarding connections. While some mentioned that they could not fault the quality of work carried out by NIE, the professionalism of its engineers and its customer service in other areas, the experience of getting a connection, or disconnection, from the network was deemed an altogether difficult and unpleasant experience.

The first issue mentioned related to difficulties getting in contact with the right person or department within NIE to arrange a connection or find out how things are progressing.

"It's just not a good system. It is too difficult to get from A to Z, from making a complaint to getting someone out on the ground. The amount of people a new connection has to go through is unreal…it is too long timescale-wise." (Urban, medium construction)

"I suppose their structure works; you get a response, but it is vague on the detail. Connecting with the right person is difficult. Client management could be improved." (Rural, large manufacturing)

Costs and payment structures were also mentioned as causing difficulties for non-domestic customers. For a few businesses this has led to the abandonment of investment in new or expanded facilities.

"NIE are very demanding when it comes to payment; they didn't work with us much. Basically we were told we had to pay by a certain date and if not they wouldn't begin the work. What they don't realise is we are large public sector body, payment is no issue for us…it just might take three weeks because of how procurement works." (Rural, large healthcare)

"We look at renewables because in my role I have to look at all methods of becoming more efficient and de-carbonising. We have project proposals in place that often get stopped because of the cost of connections. At one of our facilities, the supplier chose not to go ahead with the full proposal because of the risk around not getting a connection agreement in place which would have cost £6,500 and £7,000 for planning permission. Everybody in my industry knows that NIE are stalling on connections." (Rural, large manufacturing)

"The costs are horrendous now for new connections and disconnections. The Regulator has now set these prices; they weren't that expensive before. They charge you £500 for ten minutes work." (Urban, medium construction)

"Investment is essential in industrial areas. For example, [main town] *needs invested in to cope with expanding industry. A shortage of power reduced our own expansion plans. We were fully prepared to invest in a new site and still have planning permission. However, NIE told us it would be £2million to upgrade the substation or gain capacity in the area so we didn't proceed." (Rural, Large Agriculture)*

"NIE have quoted upwards of £450,000 for one 250kw wind turbine because they say you would have to update the actual line back to Ballykinler." (Rural generation)

In addition to costs, the process is deemed too slow for businesses. They feel that NIE should be able to complete the work in a shorter timescale and work more efficiently. Some non-domestic customers believe this could be improved with better communication or a more straightforward process as applications appear to be bogged down in paperwork within NIE.

"We upgraded a site of ours in Ballymena a few years ago and in terms of our perception of efficiency and our experience of them, they dictated everything. A small army turned up to do the job and they had no sooner arrived when they broke for a break…they seemed to have nothing but supervisors." (Rural, large manufacturing)

"Protracted…I find that getting them tied down to do the work can be very 'hit and miss'. We could be planning a project six months in advance and even with six months it isn't good enough for NIE to guarantee supply in that time." (Large utility)

"Six months from request to completion. Unsatisfactory process in terms of timescale, cost and payment structure. Six months is too long, two months is more realistic and would be much better. Overall, its two weeks physical work, the rest is just paper work." (Rural, large agriculture)

"Dreadful, regardless of whether it's the supplier or NIE it is terrible customer service, I still can't get an answer. The whole thing is disconnected." (Urban, large retail)

The same issues also appear to arise with generation connections; again customers stated that the process is too slow.

"I had an issue which I believe other people may have had due to the high demand on the grid which can't take the extra capacity of wind turbines. There was a period of time when you wrote your letter in and NIE said it would be three months in getting a quote back; it was very slow. And you're waiting nine months after you do that. So really it takes over a year from when you install the wind turbine to when you get your actual connection." (Rural generation)

Overall, none of the non-domestic customers who had experience of connections had a positive view on the process. While they indicated that improved communication and customer service would be welcomed, they stated that project timescales and costs would also have to be addressed in order to improve the connection process.

Preferred methods for contacting NIE

Across all non-domestic customer groups, respondents consistently cited personal contact as the preferred communication channel. Speaking to someone directly is the preferred manner in which to conduct business and as such, respondents feel that is how they should be able to contact NIE.

Key account managers were again mentioned as a good approach to personal communication, however, non-domestic customers were generally unconcerned with the method of communication provided that they knew they were speaking with a knowledgeable representative who could sort out issues for them.

"Again, and I keep harping on about it, if you had a key account manager they would build a relationship with you overtime and they would give you a call and say 'your site here is going to be off for a time'. Talking is the best form of communication. It doesn't have to be face-to-face, just picking up the phone will suffice." (Large healthcare)

"I think you should have an account manager like BT. With NIE, you are sort of left hanging at present. That's what happened to us last time, we didn't have a clue what was going on." (Voluntary/charity)

"I spoke to seven different people over a disconnection and I also had to go to NIE to fill a form in and pay a cheque…when you ask them if they can speed it up you are just told no, that's the system." (Urban, medium construction)

Respondents working for larger businesses were accustomed to communicating through smartphones as they have to work across various large sites and were also open to the idea of communicating by text or smartphone apps. However, this was consistently caveated with the statement that they would expect to be communicating with an account manager.

"Email or text would be adequate with as much information as is available…3 points are essential – what's happened, where they are at in the repair phase and what is the expected risk in the next four to six hours." (Rural, large manufacturing)

Automated telephone services are not viewed positively by smaller non-domestic customers, however, some mentioned that it is acceptable in the event of an outage provided it gives the right level of detail required (i.e. are NIE 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 personally thought that it was satisfactory, however stated that automated telephone systems would be undesirable for issues such as connections or queries regarding planned interruptions.

"I think if I was older, a pensioner and ringing up NIE and getting a recorded message I would be far from happy. I wouldn't think it was good customer service at all." (Rural, sports club)

"If you rang up and said there was a fault or the electricity was off my opinion would be that they [NIE] *would contact you rather than you talking to a machine." (Rural generation)*

Social media was mentioned by a couple of respondents but overall it is not viewed as a preferred contact method of non-domestic customers.

"I don't really do Facebook but everyone is on it and everyone knows everything really quickly via Facebook. Even if you don't have it someone will tell you." (Urban, medium manufacturing)

When probing respondents' contact preferences in different circumstances, non-domestic customers did not feel that the contact method should be any different across the range of scenarios tested (planned interruptions, unplanned interruptions, unplanned interruptions due to extreme weather, or new connections). As, in most cases, non-domestic customers are commercial businesses, they feel that they should have the option to speak to someone at NIE directly, regardless of the situation.

"It doesn't matter what the circumstances are, at the end of the day we are the customer, we should be able to contact them by telephone and that's it." (Rural, sports club)

"Well that's the issue, no one contacts you to say when your power will go back on or how long you can expect to it to be off for. It would be nice to know, especially from a business point of view. Most businesses use electric, whether it be manufacturing or in farming where you have light and heat which require electricity. " (Rural generation)

4.2.5 Future strategy

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

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

Initial views

Future strategy is important to non-domestic customers as they feel that it could mitigate some of the issues they are currently experiencing, such as difficulties with connections. Forward planning, for businesses, is essential and as such they believe that NIE should be preparing the network for the future.

"It's a form of forward investing. NIE should be moving forward with new technological advances. They should be embracing them and part of them in order to provide businesses with a cleaner and more cost effective network." (Urban, small manufacturing)

"They need to be supplying more network connections at better cost. The current system is unfair." (Rural, large agriculture)

"I have two CHPs on this site and I would like to spill-out onto the grid, who do I phone? I don't know but given my role I should know…NIE should be talking to their big energy users." (Large healthcare)

"The way I see it is that there isn't the capacity for any more connections apart from a few small areas where there is capacity for more lines for renewable energy. I was in a meeting with NIE in February for Project 40. They are only looking to sell electric; they aren't really looking to buy it. They aren't willing to spend money to facilitate everyone." (Rural generation)

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

"When you have government targets at 40% renewables, NIE need to be prepared for this." (Large utility)

"They need to limit PV and windmill schemes to areas that can handle it. Policy has been a failure to this point. Some areas can't cope…they need to invest in storage." (Rural, large manufacturing)

Sustainability

Sustainability is viewed as important, due to the current drive to encourage low carbon technologies and sustainability. Respondents suggested that forward investing in the network to support this and to make it more sustainable would ensure NIE is keeping up with changes in business that are already happening.

"NIE need to look at ways to reduce their impact and cut costs." (Urban, large retail)

"Smart technologies have to be invested in or they will lag behind other industries." (Rural, large agriculture)

"They need to come up with better ways to manage the network." (Large healthcare)

"They need to get their IT systems up to speed, assess the demand so they can deliver on time and have sensible lead-in times for new technologies." (Urban, medium construction)

As generation increases through wind turbines and PV panels, some non-domestic customers also believe that this should factor into NIE's future planning. However, there is a degree of scepticism amongst some respondents as to how much NIE wants to receive electricity onto the network.

"NIE aren't fussed on the idea of renewable energy because if we produce renewable electricity they can't sell everyone's electricity. They can't produce more energy that way. They aren't too excited about having people put up wind turbines. The situation around here is that a lot of farmers have planning permission to put up wind turbines but we can't do anything about it because the electricity line won't support any industry at all." (Rural generation)

Investing in stronger infrastructure to support the NI economy

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

"Invest NI, they do a lot for business and this is the main way electricity is supplied, it is important." (Urban, small personal service)

"I would expect that this kind of assistance would come from regional government, Westminster or Europe because the EU strategy is to have the smartest possible grid in the shortest possible time to move energy around Europe." (Rural, large manufacturing)

"You want people to come here and invest and set-up companies and if you can't provide them with electricity they are not going to come." (Urban, medium manufacturing)

"If the government is throwing out incentives to develop, NIE needs to have the network to facilitate that or it's pointless. In the future, when we move to CFDs [Contracts for Difference] *after 2015, if they continue to be available in NI you will be bidding against the UK in general for those CFDs. If we don't have the grid then people here won't be able to invest in that type of technology." (Large utility)*

"I think the government could be providing the funding initially up-front and then NIE have to pay it back to them over a period of time. Even if it was for big business, again they pay for it up-front and NIE pay them back." (Rural, sports club)

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 least favoured avenue to fund this investment.

[Who should fund future strategy] "I suppose the obvious answer would be everyone through bills and therefore we are all investing in this. I think there should probably be more of a push on government support for public funding, but we are not going to get that." (Urban, small manufacturing)

"NI Plc is at a disadvantage anyway. If you go across the border you will be paying less for power. Bill increases are now driven by pass through charges and environmental taxes so I think adding on a charge to pay for a smart grid is not the way to go" (Urban, large manufacturing)

"I mean you can only put so much on the people's bills depending on the reason. You could put £100 on everyone's bills for power parks but is it worth doing it? I don't think it's anything that has been done a lot so far. There's a lot of things with the grid that need sorting out first." (Rural generation)

"I know in the South they have taken the decision to put more on domestic customer's bills than we have. You know, domestic customers pay more while big companies that are bringing jobs in pay less to ease the burden on them." (Large utility)

4.3 Overall priorities

To conclude the interview, respondents were asked to consider all service attributes and provide a final ranking for each, in terms of the extent to which they believe each requires additional action/attention from NIE. The final rankings are illustrated in table 4.3 overleaf. If the same ranking score was provided by the interviewee across different attributes, this has been highlighted in the table, and denoted with an '=' sign.

Table 4.3: Overall prioritisation of service aspects

	Depth	Dealing with power cuts	Network resilience to extreme weather	Environ-mental impact of the network	Customer service	Future strategy
1	Large manufacturing	2	3=	5	3=	1
2	Medium manufacturing	2=	2=	5	1	4
3	Small manufacturing	1	4	3	2	5
4	Large agriculture	1	4	3	5	2
5	Small agriculture/ generation	1	2	4=	4=	3
6	Large utility	3	4	5	2	1
7	Large healthcare	3=	3=	3=	1	2
8	Semi-rural educational establishment	5	3=	1=	1=	3=
9	Large retail	3	2	5	1	4
10	Large hospitality	3	2	4	1	5
11	Medium construction	2	3	4	1	5
12	Small personal service	2	3	5	1	4
13	Medium business service	1	2	3	4	5
14	Voluntary/Charity	5	4	2	3	1
15	Sports club	1	4	5	3	2
	Total	**35**	**45**	**57**	**33**	**47**
	Average	**2**	**3**	**4**	**2**	**3**

Non-domestic customers recognised that dealing with power cuts would likely impact on other service areas and so it was consistently ranked highly, despite performance in this area already being viewed as good.

"Number one – power cuts; without electricity I don't have a business" (Urban, small manufacturing)

Customer service received equally high rankings on average. Comments made in relation to this area reflect the two key points arising from the discussions around NIE's customer service.

- A lack of 'key customer' or 'account' managers for businesses at NIE; and
- The experience of customers requiring a network connection.

"I would put it [customer service] *first, it feeds into the rest and positively effects the rest." (Urban, medium manufacturing)*

"Based on our own experience of NIE's customer service, it needs an overhaul. They have lost the personal touch." (Urban, large retail)

Future strategy is on average ranked third. This illustrates that while investment in this area is deemed important, non-domestic customers are either unsure that it is entirely NIE's responsibility or that it is less important than issues that directly affect them, such as customer service and power cuts.

There is also an interesting difference between large and small/medium sized organisations. Large companies are much more likely to rank future strategy highly compared to other areas, possibly reflecting their more detailed knowledge of the issues currently facing the network.

"Future strategy has to be the key aspect, the key deliverable from a cost mitigation and improved efficiency perspective. We have so much more potential from wind than is presently used. Curtailment is a big issue. We need to be able to use and store it." (Rural, large manufacturing)

Environmental impacts were the aspect of the network that respondents were generally unaware of. Moreover, they did not feel that this is something which directly impacts their organisation and therefore it tended to be ranked as a lower priority overall.

"Thinking about the wider picture, we're down in the West here and there was the new road to be built and it has been stalled by environmental issues, whereas I'm thinking why don't we get the road done? I would be the same regarding electric; you were talking about the environmental impact of the network on tourist areas but ultimately we still need electric, that's what people expect." (Rural, sports club)