

IMPACT

FROM INSIGHT TO INFLUENCE

NIA Project: LIV Segmentation

How LIV customers are currently defined

Prepared for Electricity North West

Prepared by Impact & Energy Systems Catapult

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1. Background and Objectives

Impact Research were commissioned to undertake NIA-funded research for Electricity North West related to Low Income and Vulnerable (LIV) customers. The aim of this research is to provide Distribution Network Operators (DNOs) with a better understanding of the needs of LIV customers in order to develop more efficient, targeted services that will help to deliver lower cost to service, higher social return on investments and a readiness for future vulnerabilities and changing energy markets. With energy being an essential service that affects people's comfort and health, it is imperative to ensure that the needs of all customers are met and that the most vulnerable are adequately protected for the future market, especially in light of the cost-of-living crisis, post Covid-19 and the war in Ukraine.

Vulnerability is a complex issue. The term "vulnerable" itself is associated with stigma, causing some customers who are classified as vulnerable by companies to simply not perceive themselves this way¹. This can result in customers missing the support that is available from DNOs and Gas Distribution Networks (GDNs). Further complications come from the multidimensional nature of vulnerable circumstances as they are rarely experienced in isolation. This makes it difficult for vulnerabilities to fit into neatly separated categories. However, the term is still widely recognised and used by operators. Specifically, the definition used in the energy sector, given by Ofgem, is made intentionally wide to capture how vulnerabilities can be permanent or transitory as circumstances change:

"[Vulnerability is] when a consumer's personal circumstances and characteristics combine with aspects of the market to create situations where he or she is:

- Significantly less able than a typical consumer to protect or represent his or her interests in the energy market; and/ or
- Significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial."²

Currently, all energy companies, including both suppliers and distribution networks, are required to keep a Priority Services Register (PSR) as a log of all customers with potential vulnerability, with the aim of identifying these customers in order to provide them with any additional assistance they might require³. Registration for the PSR continues to increase each year, with a registration increase of 12% for electricity, and 19% for gas in 2018 when compared with the previous year². As of September 2022, 3.5 million out of 8.4 million UKPN consumers in the South-East, East, and London were identified as eligible to receive some support via the PSR. With 2.2 million currently being supported, including 25,000 registered with in-depth support.⁴

Previous studies exploring the needs and experiences of customers in vulnerable circumstances have found a mixed picture when it comes to determining how vulnerable customers can be best served. In a study of the development of new technical solutions in energy provision, Energy Systems Catapult assessed how smart energy can be made more accessible to low income and vulnerable customers through innovation and found there was a lack of real

¹ Final Report, The Commission for Customers in Vulnerable Circumstances, <https://www.cicm.com/wp-content/uploads/2019/05/CCVC-Vulnerability-Report-2019.pdf>

² Consumer Vulnerability Strategy 2025, Ofgem, <https://www.ofgem.gov.uk/publications/consumer-vulnerability-strategy-2025>

³ Vulnerable Consumers and the Priority Services Register, Ofgem, https://www.ofgem.gov.uk/sites/default/files/docs/2013/07/vulnerable-consumers-and-the-priority-services-register-june-2013-%28bt%29_0.pdf

⁴ Using smart data to identify those at risk during the cost of living crisis, UtilityWeek, [Using smart data to identify those at risk during the cost of living crisis - Utility Week](#)

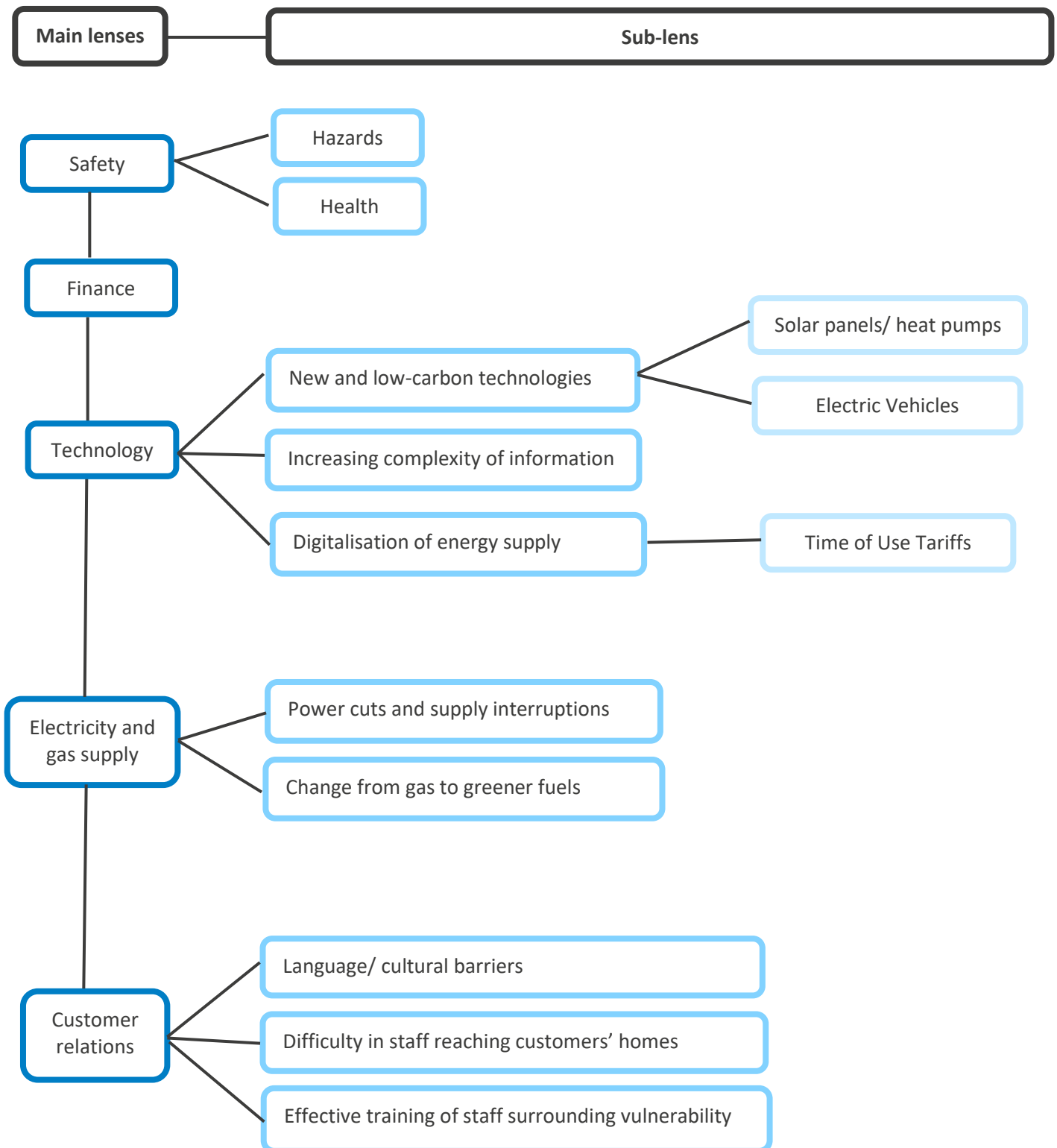
usability of the technology, despite researching and speaking to customers in vulnerable circumstances⁵. This was due to methodological flaws in the implementation of these schemes, driven by assumptions and lack of clarity in the fundamental goals of the projects. For example, innovation projects with LIV customers mainly focused on access and use, rather than on purchasing and the affordability of technology. Similarly, innovation would often revolve around existing technology rather than technology designed or adapted in a way that LIV customers would find appealing and consider useful. Only a few projects reviewed by that study showed an ambition to create and offer innovative technology around people's existing wants and needs from energy. In response to these findings, three 'lenses' of innovation were proposed (technical feasibility, commercial viability and consumer appeal), to ensure future projects would better capture the needs of customers in vulnerable circumstances and to ensure their full involvement in the energy market.

Following a similar concept, but with a wider remit to analyse all vulnerabilities rather than only those associated with innovative technology, the first stage of this research is to develop and establish a range of different 'lenses' through which to view LIV customers, their diverse needs and the existing and planned initiatives designed to meet them. This is achieved through a literature review of reports by the electricity and gas sector as well as other third parties covering issues surrounding LIV customers relevant to the utilities sector. This document summarises the lenses identified as a result of this review.

⁵ How can innovation deliver a smart energy system that works for low income and vulnerable consumers, BEIS, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/994845/project-involve-smart-energy-system-low-income-vulnerable-consumers.pdf

The lenses

During our research, five overarching lenses were developed, some with sub-lenses. These were developed by the Impact team, using research previously conducted by DNOs and GDNs, along with organisations such as Ofgem and Citizens Advice, and were then discussed and approved during a workshop held with Impact and ESC.



2. Safety

The safety lens covers circumstances that customers could face which would make them vulnerable to safety risks. This could be either due to hazards or to pre-existing health conditions increasing the vulnerability of customers. Hence, safety is divided into two categories: Hazards and health.

For this lens, the following types of individuals were identified as those that could be classified as vulnerable:

- Young and uninformed customers
- Those with anosmia (loss of or the lack of ability to smell)
- Those with cognitive impairments such as dementia
- Those with mental health difficulties
- The elderly
- Pregnant individuals
- Those with long-term chronic health issues
- Those that required a stairlift, electric bed or hoist

Hazards

Safety hazards, such as carbon monoxide poisoning and faulty electric and gas appliances, were identified as especially risky for certain types of individuals. Carbon monoxide poisoning was noted as particularly dangerous, as the smaller a person is, the faster they will be affected by carbon monoxide, therefore increasing their risk to carbon monoxide poisoning⁶. This suggests that children are particularly vulnerable. Consequently, steps have been taken to raise awareness of this 'silent killer' through the Vulnerability and Carbon Monoxide Allowance (VCMA), which is a fund allocated to specifically support customers in vulnerable situations and to raise awareness of the dangers of carbon monoxide⁷. For example, Cadent, in partnership with Marches Energy Agency, provided advice around carbon monoxide awareness, supporting a total of 326 households between 2021 and 2022 and had also issued 162 CO alarms⁸. Although the numbers are small in this particular project, this was just one example of a range of different projects ongoing that cover off other customers, including younger children. In addition, multiple projects have focused on educating children through assemblies and workshops in schools or through social groups such as the scouts, and through multiple mediums, including radio and social media⁹.

Another potential hazard is faulty electric and gas appliances, an issue identified as a risk to those with mental health disabilities such as dementia and those with anosmia (loss of smell). In addition, the elderly were seen as a key at-risk group, as they are typically less likely to be living in energy-efficient property or to have their appliances routinely serviced. This not only results in an increased risk of fire or electrical fault, but also exposure to carbon monoxide. Acknowledging this, Cadent, along with other GDNs, have committed to providing servicing of gas appliances for customers that would need it. For example, One Number is a project by Cadent that has supported 644 customers so far with home energy efficiency advice and has serviced 88 gas appliances in the homes of customers living in vulnerable circumstances. It is also a concern that having faulty appliances could influence an

⁶ Supporting vulnerable customers to use energy safely, efficiently and affordably, SGN, <https://www.sgn.co.uk/sites/default/files/media-entities/documents/2022-07/SGN-VCMA-Annual-Report-2022.pdf>

⁷ Vulnerability and Carbon Monoxide Allowance (VCMA) Governance Document, Ofgem, <https://www.ofgem.gov.uk/publications/vulnerability-and-carbon-monoxide-allowance-vcma-governance-document-0>

⁸ Going further for customers in vulnerable situations, Cadent, <https://documents.cadentgas.com/view/991027861/>

⁹ Going further for customers in vulnerable situations, Cadent, <https://documents.cadentgas.com/view/991027861/>

individual's ability to heat their home, which is a similar outcome to an interruption to electric or gas supply, covered in a following section, and highlights how there is overlap between different lenses.

Health

Certain health conditions were also identified that could make an individual vulnerable to a safety risk. Specifically, any condition that may restrict mobility, be it a long-term condition such as severe respiratory conditions, the reliance on a stairlift, electric bed or hoist or something more temporary like pregnancy, could become a barrier for accessing services that are provided for maintaining safety. Simple tasks such as answering the phone or opening the door in a timely manner can be challenging for those with restricted movements, which could be critical if customers are needing to leave the house urgently due to a safety incident. These individuals could also be missing engineers visiting to service certain appliances, or other supporting services visiting. Recognising this, GDNs and DNOs give customers who are registered for the PSR the ability to request a 'Knock and wait service' where extra time is given for a customer to answer the door as well as a preference for method of contact that would work best for the customer¹⁰. This can help customers in vulnerable circumstances to feel more supported and provided for by their GDNs and DNOs.

3. Finance

With 1 in 3 people finding bills unaffordable¹¹, the Finance lens gives insight to the needs that vulnerable customers have due to economic challenges.

For this lens, the following types of individuals were identified as those that could be classified as vulnerable:

- Those living in fuel poverty
- Those living in more deprived areas
- Those with low or unstable household income, or in debt
- Those facing potential homelessness or in temporary housing
- Those facing sudden loss of job/ temporary unemployment
- Those with long-term mental health issues
- Those with physical disabilities
- Lone parent households

Fuel poverty is broadly defined as when customers cannot afford to adequately heat their homes. It is driven partly by low household income reducing the ability to pay for heat and high energy needs driving up the cost to heat, as those in fuel poverty are more likely to be living in homes that are poorly insulated or have health conditions that require high energy like electricity reliance for medical equipment. This is significant as living in cold homes has been found to have significant health consequences such as respiratory conditions due to worse ventilation in the home, cardiovascular disease and dementia¹². This risk has further been exacerbated by the war in Ukraine and the COVID-19 pandemic, which have resulted in increased energy bills and the cost-of-living crisis increasing expenses outside of

¹⁰ Priority services membership Information Booklet, Northern Powergrid

¹¹ Through the lens: Age, money and mental health, Money and Mental Health Institute, https://www.moneyandmentalhealth.org/wp-content/uploads/2022/12/Through-the-lens_Age.-money-and-mental-health.pdf

¹² Fuel Poverty, Cold Homes and Health Inequalities in the UK, Institute of Health Equity, <https://www.instituteofhealthequity.org/resources-reports/fuel-poverty-cold-homes-and-health-inequalities-in-the-uk/read-the-report.pdf>

the energy market. The elderly, children and anyone with a low-income occupying these cold homes are particularly vulnerable to these risks.

Those living with physical disabilities are also at an increased risk of experiencing fuel poverty as their cost of living can be higher, due in part to having additional needs such as medical equipment that requires electricity or from spending longer periods at home. This is coupled with more limited opportunities for employment and a reliance on state benefits. SGN collaborated with the charity SCOPE, to support over 500 customers in their region with a physical disability, aiming to help them access support services. They have also estimated they have saved customers with a disability a total of nearly £800,000 through their energy help desk, since April 2021¹³.

Despite this, their work has also highlighted that 57% of customers living with a disability have not heard of the PSR, suggesting there is work to be done in raising awareness of the help available to customers, and making it easier to access. Further support comes from another study which found consumers lacked knowledge about the support available, such as being signposted to charities or adding themselves to the priority service register, if eligible¹⁴. They only considered asking for help when they reach crisis point.

Additionally, a report by Ofgem¹⁵ ranked DNOs and GDNs based on their stakeholder engagement and consumer vulnerability. UKPN was ranked the highest, with Ofgem giving them a score of 8.05/10, quoting “a large number of initiatives from across the business, showing a commitment to progress in both established and emerging areas”. This score compared to 7.2 for NGN, the next highest, all the way down to 4.85 for WWU.

The report also showed a large discrepancy in the number of eligible customers being registered on the PSR across DNOs and GDNs, with SSEN’s registration levels at 68.5% of eligible households, compared to only 20% for NGN. These findings illustrate the variability within the utilities sector, highlighting the need for better consistency across the DNOs and GDNs.

Furthermore, having a low income can also push customers who are already in some form of financial vulnerability towards borrowing money, putting themselves into debt. Since the start of the pandemic, Citizens Advice has estimated 2.8 million adults in the UK had fallen behind on their energy bills in August 2020¹⁶, undoubtedly pushing some towards greater borrowing.

Financial debt can be a cycle that is difficult to break from, especially given the increased cost of borrowing through higher interest rates. Such customers are further disadvantaged as they are not able to switch suppliers to attempt to find a cheaper rate, if in debt to their current supplier. Additionally, for customers with a pre-payment meter, even if they clear their current debt, a credit check or a deposit of around £150-£300 is required depending on typical energy use to move to a regular credit meter¹⁷. This pushes them away from actively engaging with the energy market.

¹³ Supporting vulnerable customers to use energy safely, efficiently and affordably, SGN,

<https://www.sgn.co.uk/sites/default/files/media-entities/documents/2022-07/SGN-VCMA-Annual-Report-2022.pdf>

¹⁴ Ofgem Consumer First Panel Affordability and supplier support 2022, [Consumer First Panel - Affordability and Supplier Support | Ofgem](#)

¹⁵ Stakeholder Engagement (and Consumer Vulnerability) Incentives Panel Report, Ofgem 2020-21,

<https://www.ofgem.gov.uk/publications/panel-report-stakeholder-engagement-and-consumer-vulnerability-incentive-2020-21>

¹⁶ Moving from prepayment to a credit meter, Citizens Advice, <https://www.citizensadvice.org.uk/consumer/energy/energy-supply/your-energy-meter/get-your-prepayment-meter-replaced-with-a-normal-meter/>

¹⁷ Moving from prepayment to a credit meter, Citizens Advice, <https://www.citizensadvice.org.uk/consumer/energy/energy-supply/your-energy-meter/get-your-prepayment-meter-replaced-with-a-normal-meter/>

Finance also has a complex relationship with mental health. Previous research has found that of all those with a mental health condition, only 16% of those aged 18–34 and 5% of those aged 55-65 have told essential service providers about their condition¹⁸. This is important, as those who have mental health difficulties are less likely to earn higher salaries, progress or stay in work for as long as those without mental health difficulties, which impacts their income and financial stability significantly. Additionally, it can also impact how they manage their finances. Those with mental health difficulties are more likely to feel anxious as a result of their financial situation and are also more likely to be in debt. A report looking at the impact of the cost-of-living crisis found 17% had experienced suicidal thoughts or feelings due to the effects of the crisis. This was even higher (49%) for customers who were behind on more than one bill payment, such as their energy bills¹⁹.

To address the issue of debt and the impact of finance on mental health, GDNs and DNOs have partnered up with several support services to provide debt management support. For example, SGN have collaborated with Mental Health UK to provide staff training to better provide for those suffering from mental health, including assistance with debt management and income maximisation support. In addition, they have also carried out projects aimed at helping young people with financial education. One example was a course for vulnerable young adults aged 16-25 aimed at building financial resilience, ultimately trying to prevent families from becoming fuel poor in the future²⁰.

4. Technology

The Technology lens covers circumstances customers could face which would make them more vulnerable to being excluded or left behind in the energy market. With the government declaring a target of net zero by 2050, considerable changes are expected within the energy market to make this possible through innovation and new low carbon technology. In doing so, it is important this movement towards greener energy does not leave customers in a more vulnerable circumstance or left behind. This lens has been divided into the following sub-lenses:

- New & low carbon technology
 - Solar panels/ heat pumps and
 - Electric vehicles
- Increasing complexity of information and
- Digitalisation of energy supply

For the technology lens, the following types of individuals were identified as those that could be classified as vulnerable:

- Renters
- Those on low-income, or time poor
- Those living in old homes
- Those living in small properties with a lack of space
- Those that do not own technologies like smart meters
- Those with physical disabilities
- Those with mental disabilities

¹⁸ Through the lens: Age, money and mental health, Money and Mental Health Institute, https://www.moneyandmentalhealth.org/wp-content/uploads/2022/12/Through-the-lens_Age.-money-and-mental-health.pdf

¹⁹ Bombarded: reducing the psychological harm caused by the cost of living crisis, Money and Mental Health Institute, https://www.moneyandmentalhealth.org/wp-content/uploads/2022/12/Bombarded_policy-note.pdf

²⁰ Supporting vulnerable customers to use energy safely, efficiently and affordably, SGN, <https://www.sgn.co.uk/sites/default/files/media-entities/documents/2022-07/SGN-VCMA-Annual-Report-2022.pdf>

- The elderly
- Those with poor literacy skills
- Those who are fully or partially deaf or blind
- Young customers without knowledge of heating systems
- Those without access to the internet
- Those with medical needs reliant on energy (medical equipment or heating)
- Lack of digital skills or interest in learning these skills

Low Carbon Technology

Within the ‘low carbon technology’ sub-lens, the circumstances that put customers at a higher risk of being left behind are the condition of the homes they live in and whether they are a low-income household. UK residents live in some of the oldest houses in Europe with 15% of buildings in England and 23% of buildings in Wales being built before 1900 and most houses being commonly built between 1930 and 1982²¹. This poses a significant issue for de-carbonising the UK, as it makes installing low carbon technology more expensive or less likely to work as effectively as it would in a newer house. Home owners would need to undertake a detailed EPC review of the existing building to identify problem areas and change this prior to upgrade. For example, to install solar panels, a minimum EPC of D is required²². This adds an additional barrier to the already high initial cost needed for solar panel installation, which some customers find challenging, especially those with low incomes.

Additionally, the pre-requisites of other smart technologies like smart meters can further exclude customers from taking part in the energy market’s movement towards greener energy. Although there have been grants and schemes to help cover this initial cost, and with the cost of solar installation declining by 60% since 2010²³, other barriers still remain. The adoption of a heat pumps is also subject to similar challenges, such as significant up-front costs and the additional building checks and preparations needed prior to installation²⁴. Renters, who do not have control over the building they live in and are, therefore, unable to implement such changes themselves, are also vulnerable to being left behind and unable to reap the benefits of low carbon technology.

Outside of de-carbonising heating in the home, there is also a drive towards adoption of electric vehicles, with the UK government moving forward the ban on new petrol and diesel cars. People with physical disabilities are particularly vulnerable to being left behind for multiple reasons, but the most pertinent that DNOs can address would be accessibility of charging points. The scarcity of charge points due to location and space can make it difficult for those with physical disabilities to access, especially when attention is not given to the different accessibility need for a range of disabilities. For example, there may be no dropped kerbs, crash bollards or other street furniture could be in the way, or the connectors could be too high, obstructing access to the charging points.

Having a disability can lead to facing higher living costs than those without a disability, which can make electric vehicles less accessible for disabled customers financially. This is especially the case if additional modification is needed, as most electric vehicles do not at present appear to provide the range needed for disabled customers. With mobility disabilities being one of the most common disabilities faced by 14.6 million people who reported having a

²¹ 2022 Low Carbon Heating Strategy, WPD, <https://www.nationalgrid.co.uk/downloads-view-reciteme/614534>

²² Energy Performance Certificates and the Feed-in Tariff, Energy Saving Trust, <https://www.energysavingtrust.org.uk/sites/default/files/reports/EPC%20and%20FIT.pdf>

²³ UK Rooftop Solar Behavioural Research, BEIS, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1001896/uk-rooftop-solar-panel-behavioural-research.pdf

²⁴ Elementenergy Heat Street June 2021, UKPN, [UKPN Heat Street DRAFT 250121 \(ukpowernetworks.co.uk\)](https://www.ukpowernetworks.co.uk/ukpn-heat-street-draft-250121)

disability in 2020-2021²⁵, it is important that the needs of these customers are addressed, so as not to miss out on the benefits of electric vehicles.

Complexity

The second sub lens within Technology is ‘increasing complexity of information’. As innovation in greener technology continues, the range of options becomes increasingly complex, making it more challenging for customers to engage with the market, especially if insufficient care is given to the content and availability of information provided. For example, with the case of accessing electric vehicles, some care traders have found customers often misjudge how complex getting an electric vehicle can be, as they also need to consider charging and how it impacts their daily routine. Researching takes time, and this can be a massive barrier for those with low incomes as they are more likely to be working long hours and not have spare time and energy to dedicate time to finding the information they need. Furthermore, those with mental health disabilities can find it harder to understand and engage with new information and technology due to anxieties around unfamiliarity and changes to their usual routine. In collaboration with gas network Wales & West Utilities and technology partner PassiveSystems, UKPN trialled hybrid heating systems. They found that despite there being strong interest in hybrid heating technologies, a lot of concerns were expressed by participants, many of which could have been mitigated through clear and concise communication on aspects such as size and appearance, unit location and installation process etc²⁶.

Digitalisation

The third sub lens within Technology is ‘digitalisation of energy supply’. New services are now likely to be dependent on internet access in the home; for example, use of smart phones to control heating/ lighting and more. Furthermore, information made available about new services and technologies and the transition to net zero is largely online, and so is not accessible for the digitally excluded. According to ONS, in 2020 6.3% of UK adults had never used the internet²⁷. Additionally, the most recent study through the Media Literacy tracker CATI survey, based on 3,143 responses, indicated that the groups more likely not to have internet access at home were those aged 75 and over and those in households in which the chief income earners are semi-skilled and unskilled manual workers, casual and lowest grade workers, unemployed with state benefits only and state pensioners²⁸. These are groups that are most risk of digital exclusion and being left behind.

Time of use tariffs (TOU) were developed to encourage customers to use electricity at times when more is available cheaply. This automation of pricing means customers could benefit from lower prices. However, not everyone is able to shift their electricity use. For example, those who are medically reliant on energy for their medical equipment or heating do not have the option to pick and choose when to use electricity. Additionally, vulnerable customers are less likely to have storage technologies, such as battery storage, installed in their home. This means their ability to make the most of cheaper electricity on TOU tariffs is limited, as it can’t be used to charge up storage devices and in turn power higher usage technologies, such as heat pumps or electric vehicles. The only benefit they will see is through shifting usage patterns inside their home.

²⁵ Family Resources Survey: financial year 2020 to 2021, DWP, <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2020-to-2021/family-resources-survey-financial-year-2020-to-2021#disability-1>

²⁶ HyCompact Final Report Exploring the benefits of compact hybrid boilers, WWU, UKPN, Passiv, [HyCompact-Final-Report_COMP_29072022.pdf](https://www.ukpowernetworks.co.uk/~/media/UKPN/2022/02/HyCompact-Final-Report_COMP_29072022.pdf) ([ukpowernetworks.co.uk](https://www.ukpowernetworks.co.uk))

²⁷ Internet users, UK: 2020, ONS, <https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/internetusers/2020>

²⁸ Digital exclusion A review of Ofcom’s research on digital exclusion among adults in the UK, Ofcom, https://www.ofcom.org.uk/data/assets/pdf_file/0022/234364/digital-exclusion-review-2022.pdf

5. Electricity and Gas Supply

Outages

The first sub-lens of power cuts and supply interruptions covers any circumstance that could make an individual vulnerable, due to an interruption in their electricity or gas supply. While these issues in themselves provide most customers with a level of vulnerability, those particularly affected by this were identified as:

- Those of a pensionable age
- Those medically dependent on electricity
- Those with children under 5 years of age
- Those who are medically dependent on heating
- Those with hearing or visual impairments
- Those with a disability or long-term health condition
- Any customers affected during or after a storm, especially those in rural communities

Both power cuts and gas supply interruption were considered to be heavily interlinked, with a direct correlation between vulnerability to power cuts and fuel poverty²⁹, and the effects of power cuts being made significantly worse by cold homes. While in the past power cuts have had a limited impact on the lives of most of the people affected, the move towards a more digitalised world means that the impact of these power cuts is likely to grow over time.

Storm Arwen is an important example, highlighting the effects of a loss of essential services across the UK, with around 1 million homes losing power during November 2021, and around 4,000 homes being without power for over a week³⁰. Those hardest hit were those living in rural areas, who are naturally less resilient due to less overlap in mobile phone provision and fewer LV connections. This situation highlighted a level of discrepancy in how coordinated various DNOs were in helping customers with vulnerabilities during these emergency situations. Northern Powergrid were criticised for doing little to distinguish between vulnerable and non-vulnerable customers when providing hotel accommodation, compared with SSEN who focused on reimbursing vulnerable customers from 26th November (the day after the storm first hit the UK), before expanding this to all customers on the 29th.

Support for customers with vulnerabilities during planned and unplanned losses of power tend to follow that of WPD's vulnerability commitments. These obligations aim to provide additional support and services to those with vulnerabilities affected by power cuts, specifically those aged over 60 or under 5, those relying on electricity for mobility reasons, those with hearing or visual impairments and those with a disability or long-term health condition³¹. Those on WPD's PSR are given advanced notice of any planned interruptions and access to a dedicated 24/7 phone line, WhatsApp number, a WPD Power Cut Reporter App, alongside assistance on other social media platforms. Customers who need assistance during power cuts and cold weather crises are given a preparation plan, and those who are medically dependant on electricity are provided with tailored advice with backup plans for their

²⁹ Customer Vulnerability Strategy RII0-ED2, WPD, <https://yourpowerfuture.nationalgrid.co.uk/downloads-view/41886>

³⁰ Storm Arwen Report, Ofgem, <https://www.ofgem.gov.uk/publications/storm-arwen-report>

³¹ Extra support for vulnerable householders during a power cut, Centre for Sustainable Energy, <https://www.cse.org.uk/news/view/2380>

dependencies. Further welfare support is also given through collaboration with the British Red Cross and National Caterers Association³².

Greener Fuels

The second lens under electricity and gas supply covers the upcoming need to change to greener fuels. The government's commitment to transition from fossil fuelled heating systems to low carbon heating by 2050 will greatly affect those with vulnerabilities, as they are the customers who are potentially the least likely to be able to easily adapt to these new systems. Many elderly customers dislike the idea of changing their boiler, and needing a new system could potentially cause a high level of stress concerning the cost and whether this new technology would work³³. Other limitations to greener heating systems, as highlighted in the same National Grid report, are specific to the heating system in question. An example of this is biomass boilers, which traditionally require a high amount of maintenance with cleaning and pellet loading, and are highly impractical for the elderly and those with mobility issues. Additionally, storage of these pellets is increasingly difficult in an urban environment due to spacing and a potential impact on air quality in a condensed space.

Furthermore, those who are fuel poor or of low income are a lot less likely to be able to afford the predicted higher price of hydrogen gas³⁴, compared to regular customers, putting further strain on the rising, and often unaffordable, cost of living for these households. Certain tenants without access to the mains gas supply, or those who will otherwise not be able to convert to a greener fuel, will also be reliant on an increasingly dwindling fuel supply, dramatically raising the cost as well.

6. Customer Relations

The final lens identified was Customer Relations, and specifically factors that could affect customers getting the support they need. Three sub-lenses were developed: firstly, around ensuring DNO or GDN staff have effective training on the subject of vulnerability; secondly, language and cultural barriers that might exist; and finally, difficulty in staff reaching customers' homes.

For this lens, the following types of individuals were identified as those that could be classified as vulnerable:

- Those with hidden vulnerabilities, such as mental health issues
- Those with speech difficulties
- Non-native speakers, or asylum seekers
- Those in minority ethnic groups
- Those who are fully or partially deaf or blind
- Those living in rural areas, specifically those in very rural areas of Scotland

Language and Culture

A theme running through the Customer Relations lens revolves around the potential language and cultural barriers of interacting with customers. This is especially true for more urban areas, such as Central London, due to a high

³² Customer Vulnerability Strategy RII0-ED2, WPD, <https://yourpowerfuture.nationalgrid.co.uk/downloads-view/41886>

³³ Heating our homes in a Net Zero Future: Understanding what matters to consumers, National Grid, <https://www.nationalgrid.com/document/134296/download>

³⁴ Hydrogen Costs, Cornwall Insight, https://www.cornwall-insight.com/wp-content/uploads/2022/09/MCS-Insight-Paper-Hydrogen-Sept-2022.pdf?utm_source=website&utm_medium=website

level of cultural diversity. These barriers heavily limit access to and understanding of the UK energy market, thus leaving customers in these situations at a disadvantage compared to the rest of the UK. In this lens, we have identified the potential issues that could affect people, such as a lack of awareness of the UK electricity and gas networks, and potential issues in access and willingness to seek support. Those most affected by this are those that have trouble communicating, or speaking in English.

Help for these groups is provided by Ofgem, with a baseline standard for consumer vulnerability requiring translations of all information relevant to PSR customers into the top 10 languages spoken in a DNO's area, with additional formats available for those with hearing and sight loss³⁵. Another example of work done to help customers in this area comes from UKPN, which has worked with the Royal Association of Deaf People and Deafblind UK to train advisers to help with fuel debt in British Sign Language (BSL) users³⁶.

Reaching Customers

Linking in with above, this sub-lens covers the difficulties of DNO and GDN staff in reaching customers. This can be due to poor mobile reception in the area, less active local services in rural areas, geographic barriers to help or installation teams reaching the individual, and customers who are digitally disengaged and thus more difficult to reach. Many of these customers are especially prone to factors of vulnerability and often appreciate the extra effort of DNOs and GDNs in reaching out to them, with customers who are digitally disengaged or socially isolated eager to not lose the human aspect of communication with DNOs.

Vulnerability Training

Finally, the effective training of DNO and GDN staff surrounding vulnerability involves any member of staff either directly or indirectly handling customers being able to identify potentially vulnerable conditions. This is particularly important to help make customers aware of any support available to them, or direct them to someone who can provide them with such information. This can particularly affect those with hidden vulnerabilities, such as any mental health conditions that are more difficult for customer services to detect. Over 7.5 million people within the UK live with a diagnosed mental health condition, with 1 in 4 UK citizens being expected to experience some form of mental health condition each year³⁷. Many of these customers may be unaware of the support available, struggle to communicate their issues with their energy provider, or be unwilling to speak about their potential vulnerabilities to customer services, especially older customers.

³⁵ Annex 4B.1: Consumer Vulnerability, SP Energy Networks,

<https://www.spenergynetworks.co.uk/userfiles/file/Annex%204B.1%20-%20Consumer%20Vulnerability.pdf>

³⁶ Business Plan for 2015-2023, UKPN, <https://www.ukpowernetworks.co.uk/about-us/business-plan-2015-2023>

³⁷ Annual Report 2022, SGN, <https://www.sgn.co.uk/sites/default/files/media-entities/documents/2022-07/SGN-Annual-Report-2022.pdf>