



# **Pylons, Pipes and People: Energy networks in Scotland and their changing role with consumers**



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# Pylons, Pipes and People: Energy networks in Scotland and their changing role with consumers

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# About us

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The Consumer Futures Unit (CFU), part of Citizens Advice Scotland, uses research and evidence to put consumers at the heart of policy and regulation in the energy, post and water sectors in Scotland. We work with government, regulators and business to put consumers first, designing policy and practice around their needs and aspirations. Our advocacy work is underpinned by a set of seven consumer principles which are shown below.

The Citizens Advice network plays a vital role as an advice provider for energy consumers, through the Extra Help Unit, Citizens Advice Consumer Service, and the 60 Citizens Advice Bureaux across Scotland. In 2016/17, our services helped clients with almost 30,000 energy issues and secured over £1.1 million in financial gain for these consumers.

## Consumer Principles





## Executive Summary

Citizens Advice Scotland, uses research and evidence to put consumers at the heart of policy and regulation. We work with government, regulators and business to put consumers first, designing policy and practice around their needs and aspirations. We advocate for Scottish consumers on energy network issues. Although we are separate organisations, we work closely with colleagues in Citizens Advice (England and Wales) in this area.

In late 2017 we commissioned the Centre for Sustainable Energy (CSE) and Changeworks to undertake a study into the energy distribution network companies operating in Scotland. This study's particular focus was to explore how these companies currently support consumers and how their role in Scotland can and should change to ensure that consumers, and particularly vulnerable consumers, are most effectively supported as our energy system transforms.

The transition towards a smarter, more flexible and greener energy system is arguably happening faster in Scotland with, for example, more renewable electricity generation and more electricity network constraint issues. Therefore the way in which Scottish network companies operate and invest is starting to differ compared to England and Wales.

Based on the research findings, we make a number of recommendations that aim to positively influence the current and future practice of the energy network companies. Recommendations are also made that aim to help shape the rapidly evolving policy and regulatory regimes affecting energy networks in Scotland and GB more widely.

### Key finding relating to current practice under RIIO<sup>1</sup>:

- > Scottish Distribution Network Operators (DNOs) are lagging behind other DNOs in their support for vulnerable consumers - outside business as usual activities. In 2016-17 both of the Scottish DNOs ranked lowest in Ofgem's Stakeholder Engagement and Customer Vulnerability (SECV) incentive.

<sup>1</sup> RIIO (Revenue=Incentives+Innovation+Outputs) is Ofgem's performance-based framework to set the price controls for regulated monopoly network companies

## Key recommendations relating to future policy and practice

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- > Scottish DNOs should invest further and increase the reach of programmes for vulnerable consumers across all of Scotland, supported by the appropriate organisations and Ofgem.
- > Confidence was found to be falling in the RIIO -ED1 Stakeholder Engagement and Customer Vulnerability (SECV) incentive scheme. Ofgem should take steps, such as improving the consistency in its approach to assessment and providing feedback, to re-establish confidence in the SECV assessment process.
- > A forward thinking approach with the appropriate support for consumers is needed to ensure that no one in Scotland gets left behind in the transition to a smarter electricity network.
- > Whole system planning is necessary to ensure that electricity networks are integrated within local heat and energy efficiency strategies in Scotland.
- > Scottish specific circumstances need to be reflected in GB wide policy development and regulatory programmes such as RIIO.
- > Consumer protections, such as appropriate redress and complaint handling, for vulnerable consumers within community energy projects and new flexibility services<sup>2</sup> must be prioritised.
- > An open consumer-orientated policy debate on the future of the Fuel Poverty Network Extension Programme in Scotland is needed –and fuel poor consumers who are off the gas grid must be given priority support while decisions are made. This could be targeted at fuel poor electric heating customers as a priority.
- > Vulnerable Scottish consumers, who in the north of Scotland pay some of the highest rates for electricity and are off the gas grid, must be prioritised in any alterations to the GB network charging regime.

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<sup>2</sup> Flexibility Services – such as energy user demand response, storage and distributed generation are used to balance electricity supply with demand on the electricity network and may be supplied by third party intermediaries.

# 1. Background and policy context

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1.1 The electricity and gas distribution networks take energy from the wires and pipes of the transmission networks and convert it into lower voltages and pressures so that it can be delivered safely into homes and businesses. Scottish and Southern Energy Networks (SSEN) and SP Energy Networks (SPEN) are the two electricity Distribution Network Operators (DNOs) serving Scotland. SGN is the sole Gas Distribution Network (GDN) serving Scotland.

1.2 These privatised networks operate as regulated monopolies, overseen by the energy regulator Ofgem, with standards set for performance and limits set on what the network operators can charge their customers. Network costs typically account for 26% of the average dual fuel energy bill<sup>3</sup>. In Scotland this equates to around £262 per household per year<sup>4</sup>.

1.3 However the charges that consumers face for network costs are not the same across the country. Ofgem's *Regional differences in network charges* report<sup>5</sup> shows that consumers in the north of Scotland, pay some of the highest costs to access electricity. Given that 60%<sup>6</sup> of properties in the north of Scotland are off the gas grid, have a high energy demand due to the colder climate and energy inefficient building stock and rely on electric heating this can lead to significantly high energy bills.

1.4 In contrast to the current arrangement for network charging, where customers in the north of Scotland pay some of the highest electricity network costs (Figure 1), our 2018 consumer tracker survey<sup>7</sup> showed that 73% of people in Scotland believed that all households should pay the same proportion of their energy bill on network costs, no matter how difficult it is to supply them.

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<sup>3</sup> Ofgem, *Understanding your gas and electricity bills*. Information correct as of: August 2017

<sup>4</sup> For an household with average UK single rate consumption. Based on Ofgem's Regional Differences in network charges report 2015.

<sup>5</sup> *Regional differences in network charges*. Ofgem 2015 [https://www.ofgem.gov.uk/sites/default/files/docs/2015/10/reg\\_charges\\_final\\_master\\_version\\_23\\_october\\_2015.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2015/10/reg_charges_final_master_version_23_october_2015.pdf)

<sup>6</sup> Off-gas consumers: Updated information on households without mains gas heating - to be published by CAS summer 2018

<sup>7</sup> To be published summer 2018



Figure 1 – DNO regions with combined distribution and transmission electricity network charge based on an average UK single rate consumption of 3100 kWh/y electricity. Charges for those with electric heating (dual rate meters) or higher consumption than the UK average will have higher network charges than the referenced figure. Figures derived from Ofgem’s Regional differences in network charges (2015)

1.5 GDNs and DNOs have operated under RIIO (Revenue=Incentives + Innovation + Outputs) 1 price control framework since 2013 and 2015 respectively. The framework governs their investment programmes and budgets to 2021 (for gas) and 2023 (for electricity). At the time of writing, Ofgem is currently consulting on the new RIIO 2 price control framework<sup>8</sup> which is due to run for 5 years from the dates noted above.

1.6 Through the RIIO programme network companies have also been incentivised to support the customers they serve. The Stakeholder Engagement and Consumer Vulnerability (SECV) incentive falls into the social obligations category of RIIO ED1 and is set to continue into RIIO 2. The SECV provides a discretionary, non-prescriptive incentive for networks to take innovative action, above business as usual activity, to help mitigate fuel poverty and consumer vulnerability<sup>9</sup>.

<sup>8</sup> <https://www.ofgem.gov.uk/publications-and-updates/riio-2-framework-consultation>

<sup>9</sup> Vulnerability is defined by Ofgem as: ‘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; significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial.’

As highlighted in the report by Citizens Advice *Networks Good Intentions*<sup>10</sup>, this incentive has encouraged companies to undertake stakeholder engagement activities to identify and engage with customers in vulnerable situations and to deliver benefits for these consumers, and in particular for those customers who are on the Priority Services Register (PSR)<sup>11</sup>. In Scotland network companies provide support services as part of their social obligation under RIIO. This is often delivered through partners and includes services such as: energy efficiency advice; debt advice; tariff switching support; community resilience support; income maximisation; fire safety visits; befriending services; dementia support and carbon monoxide awareness training.

1.7 The UK government, through the Department for Business, Energy and Industrial Strategy (BEIS), and Ofgem is working together to plan the transition of the energy system towards achieving carbon emissions reductions, as set out in the UK government's *Clean Growth Strategy* (October 2017)<sup>12</sup>. This strategy sets out the UK government's current plan to meet legally binding long-term targets to reduce carbon emissions. BEIS and Ofgem published *Upgrading our energy system: smart systems and flexibility plan* (July 2017)<sup>13</sup>, outlining specific developments in the energy system. In particular this report considers changes to the electricity system to enable higher volumes of variable renewable generation through smarter operation and more demand side flexibility and management.

1.8 In December 2017 the Scottish Government also published its Energy Strategy<sup>14</sup> which sets out a vision for the future of the energy system in Scotland. This document recognises that electricity networks in Scotland will need to be increasingly flexible, efficient and resilient. The Energy Strategy also promotes a smarter model of local energy provision which would see more localised electricity generation with a greater number of households generating renewable electricity which could be exported back into the network.

1.9 While some of the network changes involved will have a negligible direct effect on consumers (apart from the potential effect on bills), some may affect consumers directly. For example, if the increase in distributed generation (DG)<sup>15</sup> places more of a strain on the electricity network, the network may need to be used in a more dynamic way by consumers. There may, therefore, be a growing role for network companies to directly engage with consumers to manage when electricity is used – what is known as 'Demand Side Response' (DSR)<sup>16</sup>. One study<sup>17</sup> models that the UK could save £17- 40bn across the electricity system by 2050 by deploying flexibility technologies such as DSR, that mitigate the need for expensive network capacity upgrades.

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<sup>10</sup> <https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Networks%20Good%20Intentions%20-Final%20Paper.pdf>

<sup>11</sup> Priority Services Registers (PSR) are databases maintained by energy suppliers and network companies, recording details of consumers who may require additional support due to their vulnerable circumstances such as a disability or health issue. Those on a PSR can be prioritised e.g. in the event of a power cut or in making direct contact about a payment issue or planned maintenance work.

<sup>12</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/700496/clean-growth-strategy-correction-april-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf)

<sup>13</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/633442/upgrading-our-energy-system-july-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633442/upgrading-our-energy-system-july-2017.pdf)

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<sup>14</sup> <http://www.gov.scot/Publications/2017/12/5661>

<sup>15</sup> Distributed Generation (DG) – electricity generation that is often renewable and connected to the distribution network.

<sup>16</sup> Demand Side Response (DSR) – financially incentivises energy users to turn down or turn off non-essential energy use at times of peak demand to ensure that electricity supply balances with demand. [https://www.citizensadvice.org.uk/Global/Migrated\\_Documents/corporate/take-a-walk-on-the-demand-side-final-2.pdf](https://www.citizensadvice.org.uk/Global/Migrated_Documents/corporate/take-a-walk-on-the-demand-side-final-2.pdf)

<sup>17</sup> An analysis of electricity system flexibility for Great Britain. Imperial College London and The Carbon Trust, 2016. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/568982/An\\_analysis\\_of\\_electricity\\_flexibility\\_for\\_Great\\_Britain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/568982/An_analysis_of_electricity_flexibility_for_Great_Britain.pdf)

1.10 In rural Scotland the voltage capacity of 'end of the line' network cables is often limited because the remote geography makes it costly and difficult to install. However with the rising level of variable renewable electricity generation in rural areas, there is an increasing need to connect this distributed electricity to the grid and for DNOs to upgrade the voltage capacity to do so. However to minimise the capacity upgrades and high associated costs, there is an opportunity to balance renewable electricity generation and demand on the local grid. This raises the potential for domestic consumers to benefit from cheaper periods of locally generated electricity if they use electricity more flexibly. This could be through mechanisms such as time of use tariffs or smart appliances which use variable off-peak electricity. It must be noted though that consumers in Scotland who use 'Time of Use' tariffs with restricted meters currently pay some of the highest prices to heat their homes – something that must be addressed in a transitioning energy system.

1.11 There may also be a changing role for the gas network. Whilst current policy promotes the extension of the gas grid – though the Fuel Poverty Network Extension Scheme (FPNES), energy system modelling indicates that electric and renewable heating such as heat pumps may need to be used more widely to reduce emissions thus displacing gas. However, the use of hydrogen in the current gas network may provide an option for decarbonising the grid and would likely see the continued use of the current gas infrastructure with some modifications.



## 2. Our research

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2.1 In late 2017 we commissioned the Centre for Sustainable Energy (CSE) and Changeworks to undertake a study into the energy distribution network companies operating in Scotland.

2.2 This study's particular focus was to explore how the energy networks currently support consumers and how their role in Scotland can and should change to ensure consumers, and particularly vulnerable consumers, are most effectively supported. This is an area where we believed there was a need for evidence in order to better advocate for consumers.

2.3 The study's main focus was a series of ten in-depth interviews with key stakeholders<sup>18</sup>. These were designed to elicit their understanding, perspective and insights into current policy and practice in relation to consumers (and particularly vulnerable consumers) by the Scottish energy network companies and the potential implications of anticipated future developments for consumers, particularly the transition to a smarter, more actively managed electricity system.

These interviews were undertaken between late January through to March 2018.

Informed by the policy review and these interviews, the study team identified a set of recommended areas for future advocacy work to represent the interests of existing and future Scottish consumers. These included:

(a) to influence positively the current and future practice of the energy networks and

(b) to help shape the rapidly evolving policy and regulatory regimes affecting energy networks in Scotland and GB more widely.

These findings along with recommendations from Citizens Advice Scotland are presented overleaf.

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<sup>18</sup> The stakeholders interviewed included: senior leaders in both customer service and future strategy and innovation at both electricity distribution network operators (DNOs); the head of stakeholder engagement at the gas distribution company; a senior Scottish Government official with policy responsibility for energy markets and networks; Ofgem's Head of RIIO for electricity networks and Head of RIIO for gas networks; the Head of Regulation and the Head of Innovation and Development at the Energy Networks Association; the Energy Systems Manager at Local Energy Scotland; Citizens Advice England's Principal Policy Manager, Energy Regulation; a leading consumer expert on energy networks and regulatory practices.

## 3. Key findings and recommendations relating to current practice

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### Finding: Scottish DNOs are lagging behind other DNOs on support for vulnerable customers

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3.1 SSEN has been positioned at the bottom of Ofgem's league table for stakeholder engagement and customer vulnerability (SECV) for three successive years (since 2014-2015 to 2016-17)<sup>19</sup>. As Table 1 shows, in 2016-17, both of the Scottish DNOs ranked lowest in the SECV league table, SPEN ranking 5th and SSEN ranking 6th.

3.2 Our research highlights that vulnerable Scottish electricity consumers are likely to be getting less support than those in some other parts of GB. Our research showed that the number of customers supported in programmes outwith business as usual activity, by SSEN and SPEN was smaller than WPD (the best performing DNO in GB on customer vulnerability). As an example, in 2016-17 WPD spent £834K helping 11,766 vulnerable consumers with a strategic programme of energy advice that was delivered through 4 partner organisations<sup>20</sup>. In 2016-17 SPEN invested £37k and helped 304 vulnerable consumers through a support programme delivered in partnership with 130 local organisations<sup>21</sup>. In a programme delivered in Scotland, SSEN provided £10,750 of gap funding which enabled 34 vulnerable customers to access energy efficiency measures<sup>22</sup>. It must be noted though that the financial figures reported by the

companies and detailed here are not directly comparable as some represent the total cost of a programme to the company while other figures represent the financial support that goes towards individual households. The overall customer base of the company must also be considered.

3.3 In 2016-17 support programmes delivered by SSEN appeared to be more focussed on community resilience with £164,784 of funding provided to communities in Scotland. We do however welcome that in SSENs Customer Vulnerability report<sup>23</sup> for 2017-18, the company appears to be doing more to increase fuel poverty and energy efficiency support which will be targeted at set regions in Scotland. While SPEN have been credited with the number of delivery partners they work with, they are intentionally minimising the funding they provide for support programmes to be reduce costs, in align with the needs and wants of their customers<sup>24</sup>.

3.4 On a different aspect of SECV performance, related to embedding an understanding of vulnerability across DNO staff practices, in 2016-17 WPD trained 4,700 of its customer service and field staff in vulnerability whilst SPEN trained 1584, and SSEN 'over 1300'. This difference cannot be explained by differences in the size of the company and therefore staff numbers between the DNOs. SSEN has trained one third of its staff, SPEN just over half and WPD nearly three quarters. However SSEN have since set targets to train all of their staff in vulnerability.

3.5 In spite of the Scottish DNOs coming at or towards the bottom of the SECV league table (see Table 1), our research reported that both of them seem to find it difficult to understand how their work is less strategic when compared with the top performing

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19 In 2014-15 scoring was only based on stakeholder engagement. Customer vulnerability was added as an element in 2015-16 and accounts for 25% of the overall score. [https://www.ofgem.gov.uk/system/files/docs/2018/06/ofgem\\_vulnerability\\_report\\_2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/06/ofgem_vulnerability_report_2018.pdf)

20 In 2017-18 this increased to 15,229 fuel poor customers supported <https://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Stakeholder-reports/2018/WPD-SECV-Submission-2017-18-Part-Three.aspx>

21 In 2017-18 this increased to 1,202 services delivered. [https://www.spenergynetworks.co.uk/userfiles/file/2018\\_SPEN\\_Distribution\\_SECV\\_Part3.pdf](https://www.spenergynetworks.co.uk/userfiles/file/2018_SPEN_Distribution_SECV_Part3.pdf)

22 This number increased to support for 211 households across both their regions in 2017-18 <https://www.ssepd.co.uk/Library/StakeholderEngagementPublications/>

23 <https://www.ssepd.co.uk/Library/StakeholderEngagementPublications/>

24 Based on customer research carried out by SPEN over a number of years.

**Table1: Ofgem scoring and ranking for DNOs on SECV over three most recent years**

DNO	Ofgem SECV Scoring			3 year average	Ranking	2014-15	2015-16	2016-17
	2014-15	2015-16	2016-17					
Western Power Distribution	8.8	8.8	8.5	8.7	1st	WPD	WPD	WPD
UK Power Networks	5.9	7.5	7.5	7.0	2nd	NPG	UKPN	UKPN
Northern Power Grid	7.7	6.5	6.5	6.9	3rd	SPEN	ENW	NPG
Electricity North West	6.1	6.9	6.4	6.5	4th	ENW	SPEN	ENW
SP Energy Networks	6.5	6.8	6.3	6.5	5th	UKPN	NPG	SPEN
SSEN	5.0	5.7	5.2	5.3	6th	SSEN	SSEN	SSEN

DNOs (Western Power Distribution and UK Power Networks).

3.6 Our research reported that this shortfall in service provision in Scotland seems not to be widely known amongst stakeholders. With the exception of Ofgem and one other interviewee, stakeholders interviewed for this study tended to be unaware of this difference. Instead of comparing with practice elsewhere in GB and reviewing Ofgem’s assessment results, stakeholders interviewed seemed to rely on individual examples of Scottish DNO practice (e.g. a specific project) to justify what appears to be their own relatively positive assessment of the DNOs’ performance.

3.7 That said, our research reports that both Scottish DNOs have taken some steps, such as commissioning ‘vulnerability mapping’, which has the potential to provide them with the foundations to each develop a more strategic approach in future. As noted in Ofgem’s *Vulnerable Consumers in the Energy Market* report<sup>25</sup>, SSENs new app for mapping vulnerability is noted as an example of good practice. CAS would strongly welcome the opportunity to work closely with the Scottish DNOs to support them in the development their approaches.

3.8 SGN, the gas distribution company in Scotland, has been performing consistently well on an equivalent reward structure for gas distribution companies. They have received particular recognition for how

their work to extend the gas network to fuel poor households engages with Scottish Government grant schemes to install heating systems and insulation at no cost to the household.

### Recommendation

**Scottish DNOs** should invest further and increase the reach of programmes for vulnerable consumers across all of Scotland, supported by the appropriate organisations and Ofgem.

- > Support delivered by DNOs needs to be strategically designed to ensure that it is effective and measured against consumer outcomes rather than in procedural terms. The current approach is set out in Ofgem’s assessment criteria (see page 14). Although it sets out best practice, it does not refer specifically to consumer outcomes.
- > The scale and extent of funding should also be driven by the needs of vulnerable consumers in Scotland. Scottish DNOs should increase the level of funding for support programmes to match the scale of investment of the best performing DNOs across GB in the SECV incentive, so that it is proportionate to their customer base.
- > There are a myriad of types of vulnerable situations in which consumers can be in such as - a long term illness, disability, dementia, visual impairment - with each group requiring slightly different forms of support. It is

<sup>25</sup> <https://www.ofgem.gov.uk/publications-and-updates/vulnerable-consumers-energy-market-2018>

therefore critical that investment and support reflects these different needs as far as possible, and that it is targeted at the most vulnerable consumers. For equity this support should be applied with consistent coverage both within Scottish DNO regions and across Scotland. This may require communication and collaboration between Scottish network companies.

- > Scottish DNOs should look to better performing DNOs for best practice on support for vulnerable consumers.

**Ofgem and other regulators** should consider how registration for vulnerability support services – such as the PSR- can be more widely advertised to increase awareness. Our evidence<sup>26</sup> suggests that consumer awareness of PSRs is very low as the quote below illustrates. This could also include exploring a simpler cross utility sign up process with the possibility of a single point of registration<sup>27</sup>.

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26 65% of Scottish consumers we polled in 2017 were not aware that utility companies offered a register for vulnerable consumers

27 Based on findings of research commissioned by CAS on simpler registration for consumers in vulnerable situations.

*“My electricity meter is away at the back of a cupboard, very low down, difficult to get at. So, now they come and read the meter...but that only came out because there was a power cut and I then found out that all these service were available.”*

Female with a physical disability who took part in a workshop on vulnerability led by Ipsos Mori for CAS in April 2018

## Ofgem's current SECV assessment criteria

**1**

### **Strategic understanding and commitment**

to the role that network companies can play in tackling social issues relevant to vulnerable consumers

**2**

### **Engagement with stakeholders to improve the data and information**

that they hold on vulnerable consumers and what they do with it

**3**

### **Approach taken to management and use of Priority Services Registers**

that they hold on vulnerable consumers and what they do with it

**4**

### **Approach taken to develop and utilise partnerships**

e.g. referral networks) to identify and deliver solutions (both energy and non-energy) for vulnerable consumers

**5**

### **Embedding their strategy for addressing consumer vulnerability**

in their systems, processes and how they manage consumer interactions

## **Finding: Confidence is dropping in the RIIO-ED1 Stakeholder Engagement and Customer Vulnerability incentive scheme (SECV)**

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3.9 Our research reports that, based on in-depth interviews with senior DNO staff, that Scottish DNOs seem to be losing confidence in the SECV incentive scheme due to:

(a) what they feel is an inconsistent approach to the assessment process (with a high turnover of relevant Ofgem staff and panel members creating a lack of continuity) and

(b) the inability of anyone involved in the assessment to provide a clear articulation of the reasons why the scoring of different companies is as it is (or what improvements would make what difference).

3.10 Our research found that the SECV incentive has driven significant improvements in recent years in DNO activities in relation to vulnerable customers, at very low cost to consumers. The study team believed that it can continue to do so if it is administered consistently and well and the scheme moves towards dropping rewards for DNOs simply ‘turning up’.

## **Recommendation**

**Ofgem** should take steps to re-establish confidence in the SECV incentive scheme assessment process by:

1. establishing more continuity in staff/ panel involvement,
2. having greater consistency in its approach to assessment and by improving its feedback to network companies

**Ofgem** should explore how other models, beyond financially rewarding poorer performing companies less than others, can truly incentivise companies to improve their performance such as going as far as to financially penalise poor performance. Without a different approach, vulnerable consumers in Scotland will continue to be under supported by their DNO. Ofgem should also ensure that the assessment process is focussed on positive outcomes for vulnerable consumers.

Our analysis also shows that more consistency in company reporting would allow for easier scrutiny and comparison across the sector.

## 4. Key findings and recommendations relating to future policy and practice

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### Finding: Ensuring that no one gets left behind in the transition to a smarter electricity network should be prioritised

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4.1 The concept that ‘no-one gets left behind’ in the shift to a smarter electricity network is recognised as a key consideration by most interested parties. As our research highlights, the ‘social licence’ for network companies to operate is seen to be reliant on them delivering services that do not further isolate those in fuel poverty or in vulnerable situations. Our research reported that Scottish DNOs were particularly strong advocates of what they each described as a ‘principle’ that ‘no one gets left behind’ and demonstrated good insight on this subject.

4.2 However, given that DNOs and DSOs<sup>28</sup> are hereafter due to function as ‘neutral market makers’, they may not be fully in control of what smart services are offered, through third parties, to whom at what prices. There are some considerable risks associated with any approach which does not embed the ‘no-one gets left behind’ principle from the beginning.

4.3 Our research reports that there is little clarity at present on what this principle means in practice anywhere or in the particular Scottish context (e.g. islands; remote rural communities that potentially could have smart meters that don’t work due to a lack of communication network coverage; and high levels of distributed generation).

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<sup>28</sup> Distribution System Operator (DSO) - Under the DSO model, the operator will take a more active role in managing local electricity generation and use. Specifically, under the ENAs new definition the DSOs will securely operate and develop an active distribution system comprising networks, demand, generation and other flexible distributed energy resources.

### Recommendation

Specific efforts need to be made to enable vulnerable households to participate in flexibility services and other ‘value-earning’ smart energy activities<sup>29</sup>.

- > **DNO strategies and business plans** which detail their transition to a DSO, should focus on consumers and address challenges of helping vulnerable consumers to participate in the smart energy transition. This could include financially supporting fuel poor households with electric heating – the most expensive heat source<sup>30</sup> – to install alternatives with lower running costs such as heat pumps or high retention storage heaters which have a high upfront cost. Fuel poor households could also be financially supported to install measures which will reduce their bills such as solar pv and in home battery storage. Alongside financial support, households will also need the appropriate post-installation advice and support to maximise fuel bill savings.
- > Innovation funding should be directed towards enabling vulnerable consumers to participate in smart energy activities as described above. This innovation could aim to reduce the costs and accessibility of new technologies and energy services.

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<sup>29</sup> Such as selling electricity back to the grid at times of need

<sup>30</sup> Electric central heating on a standard tariff has consistently remained the most expensive way to heat a home.

## Finding: There is a need for whole system planning with integration of local heat and energy efficiency strategies

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4.4 The Scottish Government is requiring and funding every local authority in Scotland to develop a local heat and energy efficiency strategy (LHEES), with a view to shaping future heat demand reduction and heat decarbonisation programmes. While the strategies are required to consider electric heating, the status of the local electricity network is explicitly excluded from consideration.

4.5 Our research found that the interviewees from Scottish DNOs think that it is important that DNOs are involved to avoid decisions being made without considering network impacts or network opportunities – such as using new smart storage heating as a system balancing facility. Interviewees stated that a whole energy system approach to LHEES would reduce the risks of such planning without sight of local energy network capacity, constraints and opportunities. It would also significantly improve local and national understanding of the interaction at a local level between heat demand, electricity and gas networks and building energy performance.

## Recommendation

The **Scottish Government**, which is developing its LHEES strategy, should ensure that electricity networks are included in the LHEES process.

## Finding: Scotland may change quicker than other parts of GB so it needs to think and act sooner

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4.6 Compared to the rest of GB, Scotland has more ambitious targets and programmes to: increase renewable energy generation; accelerate the take up of EVs; tackle fuel poverty; expand the role of community and local authority-led energy action and asset ownership; encourage district/communal heating; improve the efficiency of the Scottish housing stock and decarbonise remaining heat supply. This creates what might be considered an accelerated context in Scotland for the anticipated energy system changes, affecting the network companies' Scottish license areas sooner than the rest of GB.

4.7 In addition to this policy context, other characteristics of Scotland are relevant to this potentially accelerated context for the future of energy networks:

- > the numbers of island and remote rural communities (which may need smarter energy system solutions which involve domestic consumers sooner than other places where there may be more large electricity users to provide the required demand side flexibility).
- > the high number of community renewable energy initiatives<sup>31</sup>.
- > the high penetration of on-shore wind power which tends to create localised network challenges - for example where electricity supply exceeds demand.
- > The relatively high proportion of homes not connected to the gas network, relying on electricity for heat (mainly in storage heaters) - which increases local electricity demand.

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<sup>31</sup> There are 294 Community Energy Projects in Scotland <http://www.communityenergyscotland.org.uk/projects.asp>

4.8 Although not a uniquely Scottish issue, it must also be noted that predicted shifts in population in Scotland<sup>32</sup> may also affect how energy demand changes in coming years. This is something being considered in future business planning by Scottish Water<sup>33</sup>.

## Recommendation

**Ofgem** should ensure that Scottish specific characteristics and the accelerated policy context, which may cause Scottish network companies to operate differently, are reflected in GB wide policy development with regulatory procedures that are flexible and accommodate the regional differences noted. An example is how Scottish company business plans, strategies and operations are assessed under RIIO.

This will enable Scottish ambitions to be realised and ensure that the best interests of Scottish consumers are fully represented.

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<sup>32</sup> <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2016-based/list-of-tables>

<sup>33</sup> [https://scottishwater.citizenspace.com/future/yourwater/user\\_uploads/shaping-the-future-consultation-document-1.pdf](https://scottishwater.citizenspace.com/future/yourwater/user_uploads/shaping-the-future-consultation-document-1.pdf)

## **Finding: The future of the gas network is uncertain so whole system thinking is required and the future of the Fuel Poverty Network Extensions Scheme (FPNES) needs careful thought**

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4.9 The Scottish and UK government's targets to cut carbon emissions drive the need to decarbonise the heat we use in homes and businesses within the next 30 years. This brings into question the future use of the gas network (currently the principal and most affordable source of fuel for heat for households) since the use of fossil fuel gas will not be feasible within legally binding carbon budgets.

4.10 The need to decarbonise heat also raises questions about the future of the current FPNES scheme to continue connecting fuel poor households to the gas network. As electricity shifts to renewable energy, gas will become a higher carbon heating option. Moreover, if, as part of the shift away from fossil fuel gas, fewer homes use gas for heating, those homes remaining on the gas network risk paying a far higher proportion of the costs of the network. This could make gas heating more expensive than alternatives within the lifetime of new gas heating systems currently being installed and connected under the FPNES.

4.11 While these questions do not need to be resolved immediately, our research highlights that they do need to start being explored and with a particular focus on the Scottish context. While the future of the gas grid is debated, households who are off the gas grid and rely on expensive alternative heating systems will continue to be disadvantaged. The research also highlights that options for hydrogen, green gas and electric heating will all depend on locational factors.

## **Recommendation**

**BEIS, Ofgem, Scottish Government and network companies** should collaboratively open a consumer-orientated policy debate on the future of the FPNES in Scotland and the decarbonisation of heat more generally.

- > Provision for affordable heat for vulnerable consumers should be a central component of future heat strategy.
- > Exploration should take a whole system approach including electricity, gas, the heating system, the building fabric and the household and look at how different policy drivers in Scotland interact.
- > The consumer impacts of different heating methods, such as cost and ease of use, must be considered for Scottish consumers and must take regional differences such as fuel costs and energy demand into consideration.
- > Overall strategy for the future of the gas grid, should build on the local heat and energy efficiency strategy (LHEES) work currently being done by each local authority in Scotland.
- > Fuel poor consumers who are off the gas grid and rely on expensive heating systems, such as electric heating, should be supported while decisions around the future of the gas network are deliberated. This could be achieved by providing financial support for the installation of lower cost heating systems or through energy efficiency measures.

## Finding: There is a need for consumer protection within community energy projects and for new flexibility services

4.12 Given the strong political interest in community energy and local energy planning in Scotland<sup>34</sup>, our research suggests that consideration of how vulnerable consumers are protected within local energy projects needs to be brought forward, particularly where they involve supply relationships such as local energy markets and peer-to-peer trading. Some interviewees suggested that community energy groups need to develop their understanding of the need for, and nature of, consumer protection and what is required to achieve it, particularly for more vulnerable consumers<sup>35</sup>.

4.13 Our research reported that the same consumer protection issues need considering in relation to providers of flexibility services<sup>36</sup> (such as third party aggregators) where regulatory arrangements remain opaque. This is a GB-wide issue but may emerge earlier in Scotland as a result of the need for, or value of, flexibility within island and remote communities. Here network constraints issues are more prominent and future flexibility solutions are more likely to involve domestic consumers. This is something that has already occurred in a number of small scale projects such as the ACCESS project on Mull,<sup>37</sup> the NINES

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<sup>34</sup> As evidenced by the ambition in the Scottish Government Energy Strategy and by the proliferation of community energy groups in Scotland.

<sup>35</sup> For a more detailed exploration of this issue, see Hodges, N et al (2017) *Consumer protection in community energy schemes*. Report to Citizens Advice by the Centre for Sustainable Energy

<sup>36</sup> Flexible services / markets use techniques such as demand side response (where energy users change their consumption based on price signals) to balance electricity demand with supply.

<sup>37</sup> <http://www.accessproject.org.uk/>

project in Shetland<sup>38</sup> and the Active Network Management project in Orkney<sup>39</sup> - the latter two of which SSEN have played an important role in.

4.14 In 2018 CAS published *Leading by Example: a principled journey through regulation*<sup>40</sup> in which 7 overarching Consumer Principles are set out (see page 3). If used to shape the development of a consumer protection framework by service providers, it will ensure that markets are shaped around consumers.

4.15 The Association of Decentralised Energy is also developing an industry backed code of conduct<sup>41</sup> for DSR aggregators which will ensure that business consumers are protected from mal-practice.

## Recommendation

**Ofgem**, which is responsible for shaping how the electricity market progresses, should ensure that consumer protection is prioritised as flexibility services and community energy projects develop in the domestic and SME sector.

- > Services delivered through community energy projects or through third parties delivering flexibility services should adhere to a code of practice that is constructed around 'Consumer Principles.' This will ensure that consumers are not exposed to unacceptable levels of risk in a market where third parties are a central component.
- > As flexibility services develop, it will be important that Ofgem monitors the level of consumer protection that these service providers offer to catch and address poor practice early.

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<sup>38</sup> <http://www.ninessmartgrid.co.uk/our-trials/>

<sup>39</sup> <https://www.ofgem.gov.uk/ofgem-publications/88169/dglearning.pdf>

<sup>40</sup> <https://www.cas.org.uk/publications/leading-example-principled-journey-through-regulation>

<sup>41</sup> [https://www.theade.co.uk/assets/docs/nws/DSR\\_CoC\\_Consultation\\_Document\\_-\\_Final\\_-\\_18\\_July\\_2017.pdf](https://www.theade.co.uk/assets/docs/nws/DSR_CoC_Consultation_Document_-_Final_-_18_July_2017.pdf)

## **Finding: Network charging regimes must not increase inequality**

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4.16 As electricity networks transition into smart systems, the way in which the costs and benefits of the transition are to be distributed is creating complex challenges. In a process known as the Targeted Charging Review (TCR) Ofgem is currently reviewing how charging arrangements that relate to fixed costs, such as previous network investments, are recovered from consumers. When interviewed both interviewees from SSEN and SPEN raised concerns about proposals in Ofgem's TCR consultation that could adversely affect vulnerable consumers and non-participating consumers more widely.

4.17 The DNOs representatives interviewed both advocated the need to move from volumetric charging (based on kWh consumed) to capacity charging (based on peak demand 'bandwidth') as a significant part of future charging arrangements. As one interviewee put it, a TESLA EV owner's additional impact on the network is currently being subsidised by fuel poor households. The same would currently be true of a household installing an air source heat pump or a hot tub or a solar PV system.

4.18 The shift from largely socialised network costs across whole network licence areas, to more localised and cost-reflective charging methodologies will inevitably create winners and losers compared with current arrangements.

4.19 Our research noted that these distributional effects will potentially be localised and need to be considered specifically for Scotland. The distributional impact will also depend on who is able to participate in the smart markets and therefore benefit from the value on offer. It will therefore be important to understand what participation depends on (e.g. investment in technology, minimum usage levels, a flexible-enough lifestyle etc) so that it is clearer who can participate and who can't.

## **Recommendation**

**Ofgem** must ensure that:

- > Scottish households with a high energy demand and a reliance on electricity as a primary heating fuel are not further penalised under renewed charging regimes.
- > New charging regimes are designed to make sure that those who are unable to participate in smart energy markets do not end up paying disproportionately for their energy needs – with only those who can participate being rewarded. As noted previously in this report, as a priority, fuel poor and vulnerable households should be given the appropriate financial and non-financial support to ensure that if desired, they can participate in the smart energy transition.

## 5. Conclusion

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5.1 Our report highlights that many opportunities and risks exist for consumers as the energy system in Scotland transitions to one that is smarter, greener and more flexible. Citizens Advice Scotland is keen to continue to work with network companies, Ofgem and other stakeholders to improve the outcomes for Scottish consumers and ensure that vulnerable consumers are given the appropriate support in this transition.

5.2 We will continue to advocate for consumers as RIIO 1 is delivered and RIIO 2 is designed, to ensure that the energy system meets their needs with costs that are proportionate and fair.







For more information about the Consumer Futures Unit, visit:  
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