

Consumer Insights on the Future of the Gas and Electricity Distribution Networks in Scotland: Key Findings

September 2020



Introduction

Scotland's Citizens Advice network empowers people in every corner of Scotland through our local bureaux and national services by providing free, confidential, and independent advice. We use people's real-life experiences to influence policy and drive positive change. We are on the side of people in Scotland who need help, and we change lives for the better.

The Fair Markets policy team at Citizens Advice Scotland (CAS) works with the gas and electricity networks sector in Scotland to ensure that consumers' interests are represented in the planning and delivery of network investment, and in discussions about network access and charging. Our advocacy in this area is particularly important in the context of the climate change commitments adopted by the Scottish Government in 2019¹, which may mean that decarbonisation needs to proceed more quickly in Scotland than elsewhere in GB. Scotland's gas and electricity networks must therefore be allowed to invest to support the changes to the energy system that will be necessary to achieve these targets and will be central to the proposed

development and delivery of Local Heat and Energy Efficiency Strategies (LHEES)². However, with an ageing population³ and 25% of Scottish households living in fuel poverty⁴ it will also be vital to ensure that no consumer is unfairly disadvantaged by moves towards a smarter, more flexible and more sustainable energy future.

This document summarises the key findings of research undertaken for CAS in 2019 which aimed to provide consumer insights of the changing energy landscape in Scotland. It is published alongside our main report, which places these findings in a policy context, and the final report compiled by our research partner, Accent. Together, we hope that these documents will be of interest to those involved in the planning and delivery of Scotland's transition to net zero, including Scotland's gas and electricity networks; policy makers and decision makers in both central and local government; and Ofgem.

¹ http://www.legislation.gov.uk/asp/2019/15/pdfs/asp_20190015_en.pdf

² <https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2019/09/local-heat-energy-efficiency-strategies-phase-1-pilots-technical-evaluation-report/documents/local-heat-energy-efficiency-strategies-phase-1-pilots-technical-evaluation-report/local-heat-energy-efficiency-strategies-phase-1-pilots-technical-evaluation-report/govscot%3Adocument/local-heat-energy-efficiency-strategies-phase-1-pilots-technical-evaluation-report.pdf>

³ <https://www.nrscotland.gov.uk/files//statistics/rgar/2018/rgar18.pdf>

⁴ Scottish House Condition Survey: 2018 Key Findings

A summary of our research

In 2019, we commissioned research to investigate consumers' views on and experiences of the gas and electricity distribution networks in Scotland, and their priorities for future distribution network investment. We also explored consumers' views on potential changes to the way in which energy is used that may be required by the transition to net zero, and considered how Scotland's gas and electricity distribution networks might be able to help redefine consumers' relationship with the energy system in support of Scottish and UK Government climate change policies.

The research involved a nationally representative survey of 1,507 energy bill-payers from across Scotland. A series of discussion groups and 1-to-1 in-depth interviews was also conducted to explore consumers' opinions in greater detail. Collectively, this provided a robust set of results together with an understanding of why certain views were held among the survey participants. This document summarises the key findings of this research.

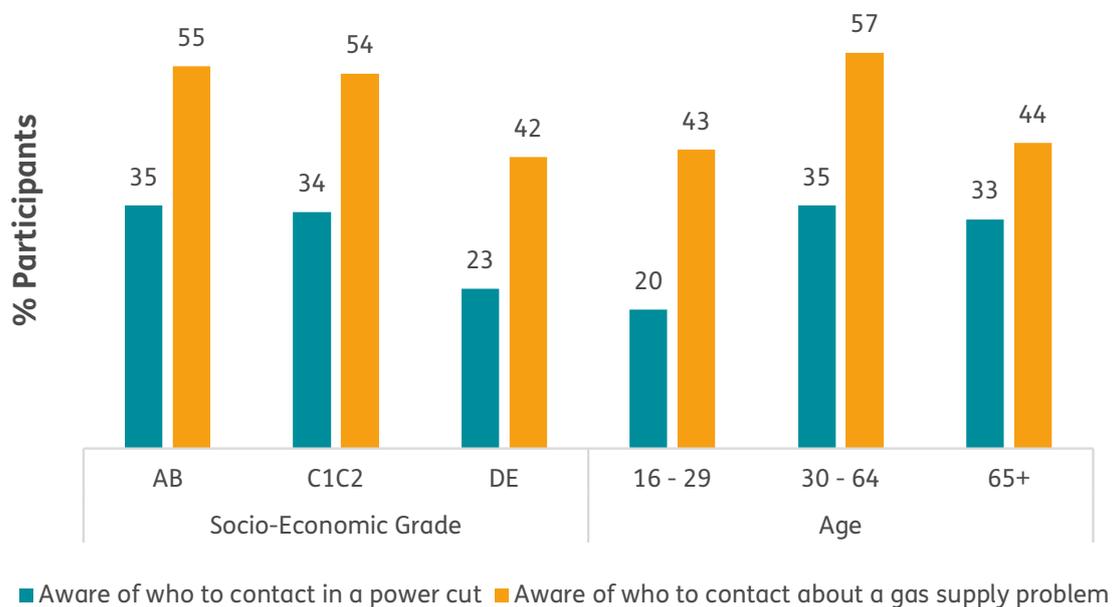


Energy literacy among consumers in Scotland is low

Overall consumer awareness of the gas and electricity distribution networks in Scotland is shallow, and energy literacy among consumers in Scotland is low. More than 93% of consumers in Scotland cannot identify their electricity distribution network operator (DNO) or (where applicable) gas distribution network (GDN) by name, while less than a third of consumers understand the roles of the gas and electricity distribution networks as part of the wider energy system.

A significant majority of consumers were found to conflate the roles of the gas and electricity distribution networks with those of electricity generators, gas producers and shippers, gas and electricity transmission networks, and / or regulated energy suppliers. As a result, the majority of consumers in Scotland indicated that they would not know to contact their DNO or GDN in the event of disruption to their gas or electricity supplies. In addition, only 9% of digitally excluded consumers were aware of the role of the gas and electricity distribution networks in the event of supply disruption.

Figure 1: Awareness of gas and electricity distribution networks' role in the event of supply disruption



Sample: all participants (n=1,507)

Consumer satisfaction with the gas and electricity distribution networks in Scotland is high

78% of consumers in Scotland are satisfied with the overall level of service they receive from their DNO and (where applicable) GDN. This is largely attributed to the perceived reliability of the regulated energy networks, with consumers noting a decrease in the frequency and duration of supply interruptions since privatisation – particularly for electricity. Furthermore, where interruptions to supplies do still occur, the consensus view among consumers in Scotland is that the duration of outages has decreased, and that communication relating to such interruptions has improved.

Of the 14% of consumers in Scotland who have contacted their DNO and the 8% of mains-gas connected consumers who have contacted the GDN, around 80% are satisfied with the level of customer service received. Levels of dissatisfaction with DNO / GDN customer service are also generally low, especially among consumers in vulnerable situations. However, as overall awareness of the Scottish gas and electricity distribution networks is no higher among consumers in vulnerable situations than it is among other consumer profiles, up to 68% of Scotland's vulnerable consumers may be unaware of the additional support which could be made available to them by their DNO, while up to 51% of vulnerable consumers may be missing out on support from the GDN.



Consumers are concerned about gas and electricity distribution network affordability and struggle to envisage the smart, flexible energy system of the future

Consumers' priorities for future energy network investment in Scotland are similar for both gas and electricity distribution, with the immediate considerations of network affordability, reliability, and safety taking precedence over all other potential areas of investment tested (protection for vulnerable consumers, environmental impact mitigation, innovation, and customer satisfaction). While nearly all consumer profiles consider networks' affordability to be paramount, concerns as to gas and electricity distribution network costs are particularly prevalent among older consumers and consumers in lower socio-economic grades (SEGs).

The majority of consumers in Scotland welcome gas and electricity distribution networks' investment in support for consumers in vulnerable situations. Older consumers, consumers in vulnerable situations, and consumers in lower SEGs view these additional services as being particularly important and express particularly strong support for continued investment in this area.

Environmental concerns also resonate with the majority of energy consumers in Scotland. Though no consumer profile prioritises investment in environmental impact mitigation above that designed to ensure the affordability, reliability, or safety of Scotland's

gas and electricity distribution networks, it is recognised that this is an area in which energy networks should be allowed to invest. Support for such investment is found across all consumer profiles but is particularly strong among younger consumers and consumers in higher SEGs.

Younger consumers are also more inclined to allocate priority to innovation relative to the other consumer profiles surveyed (and significantly so for electricity distribution). Conversely, older consumers and consumers in lower SEGs are more likely to prioritise investment in DNO / GDN customer satisfaction. However, while neither of these areas was generally considered to be unimportant by any consumer profile, the affordability of Scotland's gas and electricity distribution networks was seen as being roughly twice as important as investment in innovation or investment in DNO / GDN customer satisfaction among the survey as a whole. Qualitative discussions revealed that despite having been provided with an overview of the energy industry's vision of a smart, flexible, and responsive future, consumers still struggled to envisage how this will be realised at scale without significant disruption to daily life.

Electric heating has an image problem which may present a barrier to the acceptance of any future increase in the electrification of heat

Consumers in Scotland consider traditional forms of electric heating to be expensive, outdated, and inefficient by modern standards. Satisfaction among traditional electric heating users in Scotland is also particularly low when compared with that of consumers who make use of other space heating solutions.

Heating system	Satisfaction
Electric storage heaters ⁵ (n=197)	42%
Plug-in electric fire or heater (n=152)	56%
Electric panel heating (n=57)	63%
Portable LPG (e.g. Calor gas) or paraffin heater (n=24)	67%
Fixed gas fire / gas convector heater (n=41)	71%
Other (n=14)	71%
Heat pump systems (n=19)	79%
Solid fuel (open grate / enclosed grate / stove) (n=63)	79%
Oil-fired central heating with radiators (n=83)	81%
Warm air central heating (n=37)	81%
Gas central heating with radiators (n=1081)	85%

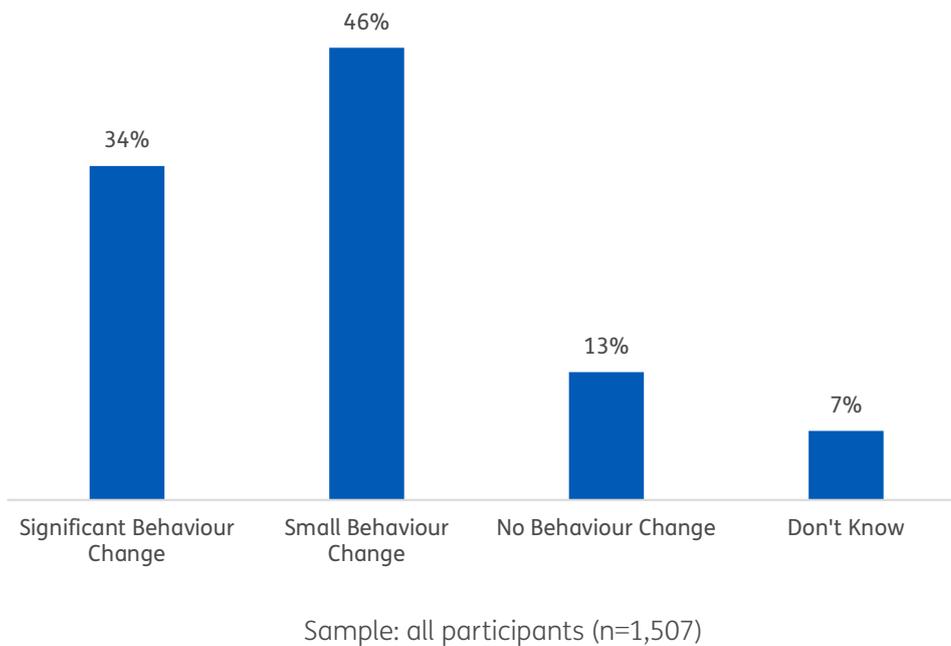
⁵ This data does not differentiate between traditional and 'smart' storage heaters

Consumer attitudes to the flexible use of energy are decidedly mixed – but the uptake of new technology can help

A significant majority of consumers in Scotland (80%) are willing to change their energy behaviours to reduce their energy costs. However, almost half would only change their behaviour by a small amount, with many consumers stating that their ability or willingness to achieve more significant change would be limited by their lifestyle and / or

real or perceived concerns regarding loss of convenience or control over their energy use. Older consumers and consumers in higher SEGs are considerably less likely to consider significant behaviour change a practical or desirable route to reducing household energy costs.

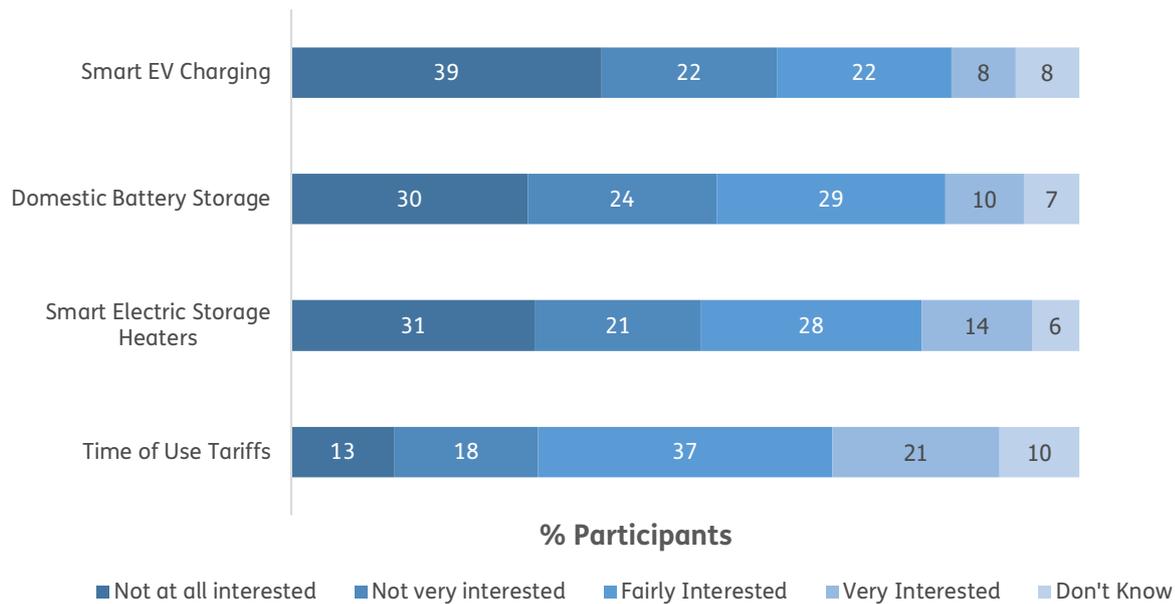
Figure 2: Consumers' willingness to change behaviour to reduce energy costs



Interest in new ways of engaging with the electricity system as a means of reducing energy costs is also mixed. While 59% of consumers in Scotland are interested in the development of smart Time of Use

(TOU) tariffs, only between 30% and 40% are interested in smart electric vehicle (EV) charging, domestic battery storage, or smart electric storage heaters.

Figure 3: Interest in new ways of using energy by technology⁶



Sample: all participants (n=1,507)

However, despite such relatively high levels of interest in smart TOU tariffs, many consumers are concerned about the impact of such tariffs on those who are unable to modify their energy consumption profile to avoid periods of peak or super-peak energy pricing. Where access to and use of new technologies such as domestic battery storage or smart EV charging may be required to benefit from domestic flexibility, concerns as to the affordability of these technologies and the implications of a lack of flexibility market access for low income consumers are also prevalent.

Nevertheless, our research revealed that there is a tendency among consumers to view potential solutions to the challenges presented by the energy transition more positively as new technologies become more widely adopted. For example, although only modest interest was expressed in the majority of flexibility enablers tested, we found that interest was significantly higher among consumers who were already engaged with similar or facilitative technologies.

⁶ Totals may not add to 100 due to rounding.

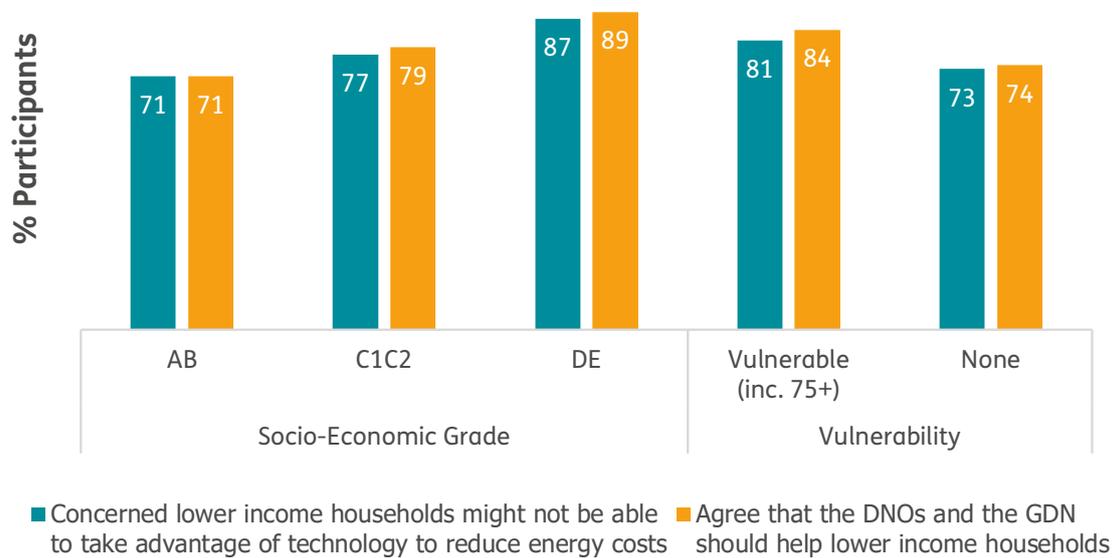
Consumers in Scotland want to see a Just Transition

There is a high level of concern among consumers in Scotland that lower income households might be left behind by the energy transition, and for the impact that this could have on the future household energy costs of some of the most vulnerable consumers in Scotland. 79% of consumers are worried that lower income households will be unable to afford new technologies designed to minimise energy costs. These households are perceived to be among those most in need of a reduction in energy costs, yet are felt likely to be least able to benefit from technologies that enable them to do so.

80% of consumers in Scotland would therefore support the DNOs and the GDN if they were to provide assistance for lower income households

to engage with the energy transition. 50% would also be supportive were distribution networks to provide targeted investment to aid with the provision of smart, low carbon heating systems for low income households, or funding to reduce the cost of other smart technologies that would make it easier for consumers to passively engage in the energy transition by providing flexibility to their DNO without having to engage in significant behaviour change. Such initiatives are perceived to offer mutual benefits to consumers and the energy distribution networks by increasing levels of energy efficiency, comfort, and demand flexibility, while decreasing network stress and consumers' energy costs.

Figure 4: Attitudes towards financial support for low income consumers



Sample: all participants (n=1,507)

Conclusions and Recommendations

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 commits Scotland to achieving net zero status by 2045⁷. 75% net reductions on the relevant baseline greenhouse gas emissions levels are also due in Scotland by 2030, with 90% net reductions required by 2040.

The scale of the challenge in meeting these statutory targets is significant. The transformation of the energy system into one that is decentralised, decarbonised, and digitalised will require substantial investment in new infrastructure and the rollout at scale of a wide variety of new technologies and services. It will also demand that solutions are found for the sustainable transport of both people and goods, that the nation's homes and businesses meet stringent energy efficiency standards far beyond those typical of properties today, and that significant changes are made to the way in which space heating and hot water are provided.

Consumer engagement with the energy transition will therefore be vital to its success. However, the public's energy literacy is currently low and engagement with the energy industry is limited⁸. Our research has also found that consumers struggle to envisage the kind of smart, flexible, and responsive energy system that will be central to delivering net zero at lowest possible cost, but there is an appetite among consumers for information when the energy transition is explained to them.

Improving consumers' energy literacy and their awareness of the demands that the energy transition will place on the gas and electricity networks will be key to securing support for the changes that will be required to deliver on the Scottish Government's climate change commitments. With uncertainty as to the

extent to which low carbon gases such as hydrogen may be deployed for space heating, this is particularly important in respect of the decarbonisation of heat as the rollout of heat networks and increasing levels of electrification may require many consumers to fundamentally alter how their homes and businesses are heated. Strong community engagement in the development and delivery of the Scottish Government's proposed LHEES will therefore be vital, and it will be essential that consumers and landlords are provided with clear, consistent and unambiguous information on the local future of heat if their exposure to asset stranding risk is to be limited. A national conversation about the future of the energy system in Scotland is therefore urgently required, alongside a consumer education campaign designed to inform and engage communities in decisions concerning the local future of heat.

By coordinating the rollout of low carbon heating in every community in Scotland, LHEES will give Scotland's local authorities a central role in the planning and delivery of viable local pathways to meet the Scottish Government's climate change commitments. However, with every decision taken within LHEES having implications for the future of energy networks it is essential that local authorities are cognisant of the whole system costs of their proposals if decarbonisation in Scotland is to be achieved efficiently. With the cost of the country's energy networks ultimately paid for by consumers and 25% of Scottish households in fuel poverty⁹, it is vitally important that the investment required to support the energy transition is targeted appropriately to avoid consumers bearing unnecessary expense. The Scottish Government must therefore ensure that Scotland's energy networks are consistently able to play a full and active

⁷ http://www.legislation.gov.uk/asp/2019/15/pdfs/asp_20190015_en.pdf

⁸ <https://www.cas.org.uk/news/new-data-shows-huge-differences-across-scotland-energy-switching-rates>

⁹ Scottish House Condition Survey: 2018 Key Findings

role in the design and delivery of LHEES, and regulators must ensure that appropriate frameworks are in place to ensure that networks consistently take a collaborative, whole energy system view of future investment needs.

Our research has shown that affordability concerns already dominate consumers' priorities for gas and electricity distribution network investment, and that these concerns are amplified by the demands of the energy transition. Consumers are worried that vulnerable and low income households are at risk of being left behind in the race to net zero, but they also believe that Scotland's gas and electricity distribution networks have a duty to help ensure this does not happen. Scotland's gas and electricity distribution networks may therefore need to provide targeted funding to help increase the participation of low income and vulnerable households in both LHEES and the wider energy transition. This could be provided via a price control deliverable in the RIIO framework, with funding delivered through existing bodies such as Scottish local authorities and / or Home Energy Scotland.

The decarbonisation of road transport will also place significant new demands on the GB electricity system and raises particular issues of fairness in the context of the support shown by consumers in Scotland for a just transition. 88.6% of income poor households in Scotland are in fuel poverty¹⁰, and low income households are among those consistently less likely than the national average to have access to a private vehicle¹¹. If a national EV charging infrastructure and any associated electricity network reinforcement were to be funded via a universal or consumption-linked charge on all consumers' electricity bills, this

would place further financial stress on many households who are already struggling to meet their essential fuel costs. The vast majority of these households are also among those least likely to directly benefit from such investment. Socialising the costs of the EV rollout among all consumers would therefore run counter to the Scottish Government's Economic Strategy¹² and efforts to reduce the incidence of fuel poverty to no more than 5% by 2040¹³.

As a result, DNOs will need to work closely with Ofgem, central and local government, licensed electricity suppliers, and the private sector to ensure that EV-related network costs are minimised and distributed more fairly. This might involve shifting some or all of the burden of electricity network investment to support the proposed EV rollout away from all GB electricity billpayers to a combination of local and / or national taxation, and electricity bill levies payable only by those who use EVs.

Delivering an equitable and inclusive transition to net zero isn't just the right thing to do; our survey has revealed that there is a tendency among consumers to view potential solutions to the challenges presented by the energy transition more positively as new technologies become more widely adopted. For example, despite consumers expressing only modest support for a variety of flexibility services, interest was found to be significantly higher among consumers who were already engaged with similar or facilitative technologies. The availability and uptake of automation and technology are therefore likely to be crucial for the network benefits of domestic flexibility to be fully realised. Interventions to encourage as many consumers as possible to offer flexibility to their energy networks will therefore also help to limit the extent to

¹⁰ Scottish House Condition Survey: 2018 Key Findings

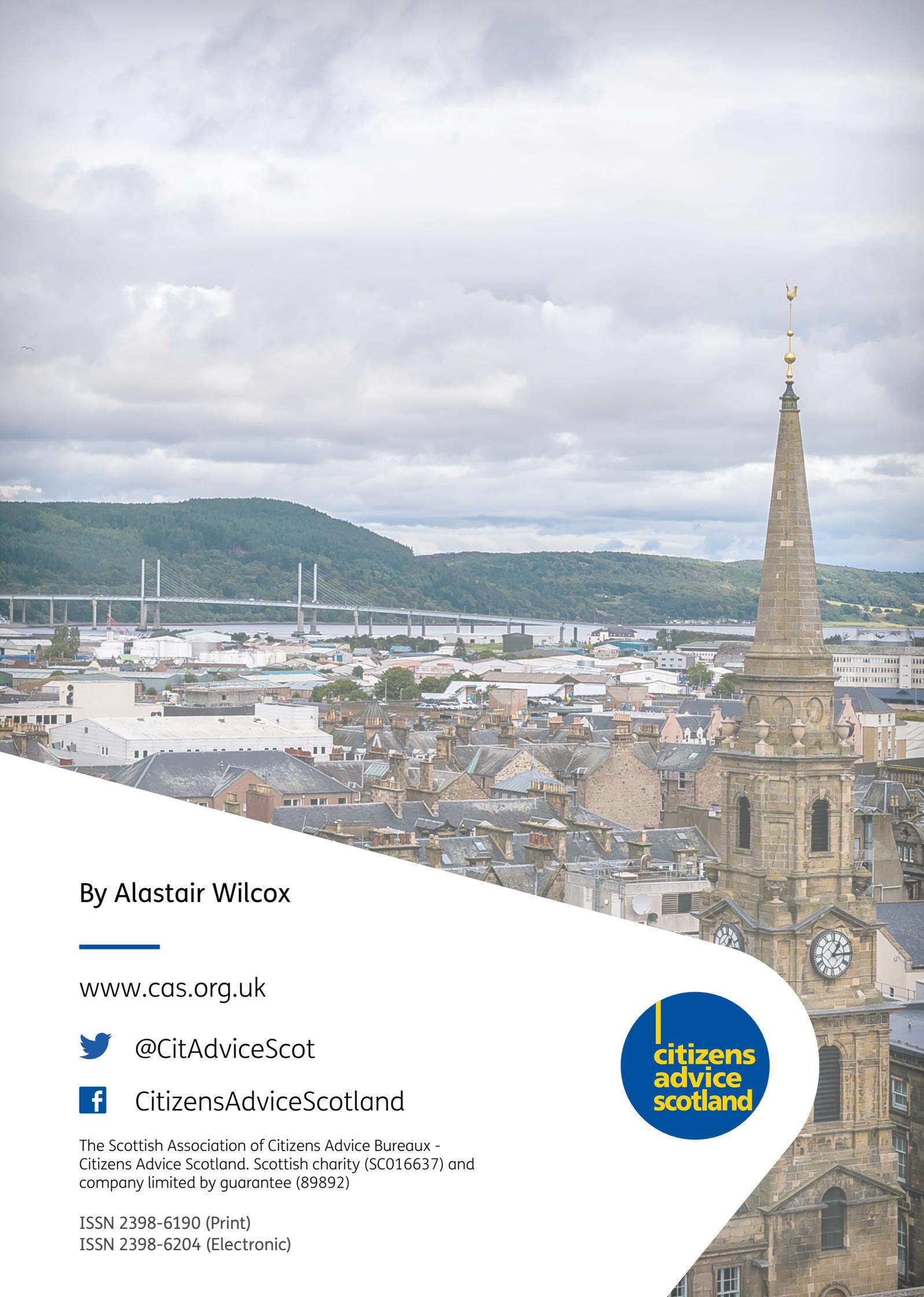
¹¹ <https://www.transport.gov.scot/media/47196/scottish-transport-statistics-2019.pdf>

¹² Scotland's Economic Strategy

¹³ http://www.legislation.gov.uk/asp/2019/10/pdfs/asp_20190010_en.pdf

which network reinforcement or additional generation capacity is required, and so will help to deliver decarbonisation at lowest possible cost. However, with the majority of consumers currently lacking experience in modern flexibility markets, DNOs may need to help consumers to understand the risks and opportunities such markets will present if public trust in the energy transition is to be maintained and the benefits to DNOs of domestic flexibility are to be realised. Ofgem and the Scottish and UK Governments must also be alive to any potential for consumer detriment that may arise as these markets mature to ensure that the benefits of the energy transition are shared fairly with consumers.





By Alastair Wilcox

www.cas.org.uk



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