CLEAN ENERGY RETAIL

THE ROLE OF ENERGY RETAILERS IN THE NET ZERO TRANSITION

September 2022

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1. Executive summary

The next phases of the energy transition will bring far reaching changes in how people experience using energy in their homes and everyday lives. We will need a radical shift to deliver clean heat technologies and electric vehicles and utilise intermittent renewable electricity.

Energy retailers have a crucial role to play in helping people navigate the low carbon choices they will need to make over the next decade. An enhanced customer focus will be needed to meet diverse needs and ensure protection from new hazards while unlocking opportunities arising from a cleaner, digitalised and more efficient energy system.

The urgency of the energy transition coupled with the scale of the current energy crisis means that energy retailers must step up and play a bigger role – meeting needs that are unmet under current arrangements. Guiding principles of change are around building consumer *trust*, translating complexity into *simple* consumer friendly offers, and providing *holistic* low carbon products and services.

Energy retailers will need to work to mainstream innovative propositions and develop new ones to meet the needs of all consumers, including the vulnerable. Valuable propositions will include those which unlock consumer investment in low carbon assets (such as heat pumps), tariff innovation around time-of-use, type-of-use and green tariffs (matching a consumer's energy use with environmental benefits) and community focused offerings.

To thrive in the future, energy retail companies will need to consider new strategies, functions and approaches and shift from the status quo. Key themes to focus on will include new business models and partnerships, educating customers on their net zero journey, embracing digital developments and boosting skills and capabilities.

We will also need changes to policy and market arrangements to reward innovation in retail energy services to accelerate decarbonisation and reduce reliance on imported fossil fuels. These should focus on:

- Enabling energy retailers to develop offers which incentivise people to make low carbon choices and become more flexible. Faster rollout of smart meters will be crucial. Wider reform is also needed to sharpen wholesale price signals and strengthen green tariff frameworks. "Carbon standards" for householders (as part of a package of incentives and finance) and / or suppliers should be considered in order to drive positive low carbon behaviour;
- Making low carbon energy simple and easy whilst maintaining trust – including simplifying the customer experience; redefining the roles of energy retailers; moving beyond just switching rates to measure competition; improving data access;
- Ensuring the transition to clean energy is accessible for all. Consumer protection must be evolved in line with future opportunities and risks. Data and digitalisation should be used to improve the identification of fuel poor consumers and effective targeting of interventions.

In the immediate term, bold action will be required by the government to address the current energy crisis and reduce consumer harm. Details of such action is beyond the scope of this report but it must not undermine the longer term aims and recommendations set out.

2. Introduction

2.1 Where are we now?

The energy retail market is at a crossroads. Its shape was established in the early 1990s – private companies competing within a regulated framework to source and supply gas and electricity – and has remained largely unchanged ever since. Energy suppliers take responsibility for purchasing wholesale electricity and gas, managing the customer interface including billing, meter reading, revenue collection and, more recently, the rollout of smart meters. While some alternative propositions have emerged[1], the system remains focused on competition on price driven by a focus on switching and facilitated by price comparison websites.

Concerns about the functioning of energy retail markets have been growing over the past decade, driven initially by evidence of mis-selling and low levels of switching, as well as concerns around the limited nature of competition (despite the emergence of major new players such as Ovo and Octopus Energy).[2] Disengaged consumers remained underserved and were liable to be penalised for their "loyalty". Increasing political focus on energy bills led to greater intervention into the functioning of retail markets and an inquiry by the Competition and Markets Authority (CMA)[3] – ultimately resulting in the introduction of the energy price cap. Despite innovations emerging to engage consumers more with their energy use, the success of the retail market was measured primarily on switching, with domestic energy consumers regarded as passive users of energy at the periphery, rather than an integral part of an integrated system.

Over the past 12 months, unprecedented energy price increases and the collapse of many new entrant energy suppliers with unhedged positions have left the current model of retail energy competition effectively on life support. The costs of avoiding major disruptions to service for customers have been absorbed by all customers.[4] The crisis has also resulted in major new interventions to ease the cost burden for consumers – with more direct intervention likely (at time of writing). In these conditions of uncertainty, along with political change, a new paradigm of retail competition has yet to emerge.

2.2 Looking ahead – the potential for innovation

It is against this backdrop that we must face the carbon challenge. The transition to a net zero economy has already had profound implications for our energy system. But focus to date has predominantly been at the wholesale energy level, and coming phases will bring it closer to home, requiring deep decarbonisation of where we live and work and how we get around.

The net zero transition will demand a fundamental reshaping of the retail energy environment. The traditional focus on segregated provision of electricity and gas, with transport needs largely

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[1] Including fixed price deals, pre-payment options, clean energy tariffs aimed at environmentally conscious consumers basic time-of-use tariffs, tariffs focused specifically on certain assets, and some service bundles (e.g. dual fuel offers and integration with gas boiler service bundles or insurance cover).

[2] Ofgem's Strategic Narrative for 2019-23, published prior to the 2021-22 energy price crisis, acknowledges shortcomings in the energy retail market, noting a "concentrated, uncompetitive retail market", "benefits of competition have not been evenly shared", and that "basics around quality of service (for example billing accuracy, complaints handling, reliability of switching) are – in parts of the market at least – well short of what consumers should expect for an essential service." https://www.ofgem.gov.uk/sites/default/files/docs/2019/07/our-strategic-narrative-2019-23.pdf

[3] https://www.gov.uk/cma-cases/energy-market-investigation

[4] https://www.gov.uk/government/news/how-bulb-customers-are-being-protected-after-its-insolvency

outside of the energy retailer's focus, must give way to a more comprehensive approach covering power, heating and transport, all predominantly powered by the flexible use of clean electricity and the elimination of gas usage.[5] Crucially, this will require:

- the mass-market rollout of innovative service offers and propositions – such as dynamic tariffs – building on current progress[6] and facilitated by the implementation of market wide half hourly settlement and the continued expansion of smart metering;
- major change in the functioning and role of energy retailers, supported by new business models, partnerships and functions (such as retailers becoming educators);
- radical new policies to drive this innovation and behaviour change, drawing from best practice in other sectors (such as the 2030 ban on ICE cars driving uptake in EVs).

Ofgem's recent '*Net Zero Britain: developing an energy system fit for the future*' report[7] recognises the significant opportunities for consumers – in terms of how they can directly benefit and also participate in the energy system – through energy retail market reform.

Extract from Ofgem's 'Net Zero Britain' report (July 2022)

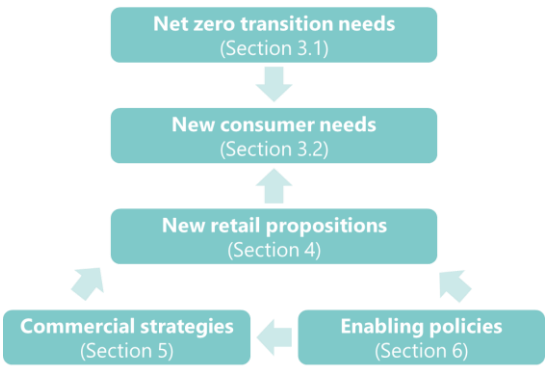
Decarbonisation, digitalisation and decentralisation provide a unique opportunity for consumers to not only benefit from better service, lower costs and a greener future, but also play a more active role. Ofgem will work to unlock wider opportunities for consumers to be active participants in the energy system, delivering a 'win-win-win' – that is, through optimising their own energy use (and potentially providing energy back to the system at certain times), consumers can lower their own bills, reduce system costs paid for by all consumers, and bring down carbon emissions. We will also ensure that all consumers who are unable to participate, including disengaged consumers and vulnerable consumers, benefit from these changes.

As the main interface between consumers and the energy system, the role of energy retailers will be central in enabling consumers to act and guiding progress towards net zero. Short run concerns around the energy crisis and the functioning of the price cap currently dominate but action is also needed now to address longer term challenges.

2.3 Structure of this report

This report assesses the challenges and opportunities for future energy retail companies in supporting consumers to navigate the net zero energy transition, focusing on 2025 to 2035.

Section 3 examines the major changes predicted in the UK energy sector over the coming period and the implication they could have for energy consumers. Section 4 then explores propositions that future energy retailers might develop to meet their customers' needs over this period and Section 5 identifies key strategies necessary to deliver them. Section 6 sets out wider enabling changes that could ensure these propositions and strategies can be put in place.



[5] The move away from gas will need significant wider policy intervention – not all of which is within the scope of this report – and could be affected by the length and severity of the energy crisis.

[6] BEIS states that green electricity tariffs have now become the most common type of tariff offered to domestic consumers in GB.

[7] https://www.ofgem.gov.uk/sites/default/files/2022-07/Net Zero Britain Publication 2022 FINAL.pdf

3. The energy transition and consumer needs

3.1 The next phase of the transition

The UK has set clear targets of Net Zero by 2050 and decarbonisation of the power sector by 2035. While significant uncertainties about the precise shape of the technology mix remain, four major shifts are clear across all potential transition pathways. These shifts will create new consumer needs.

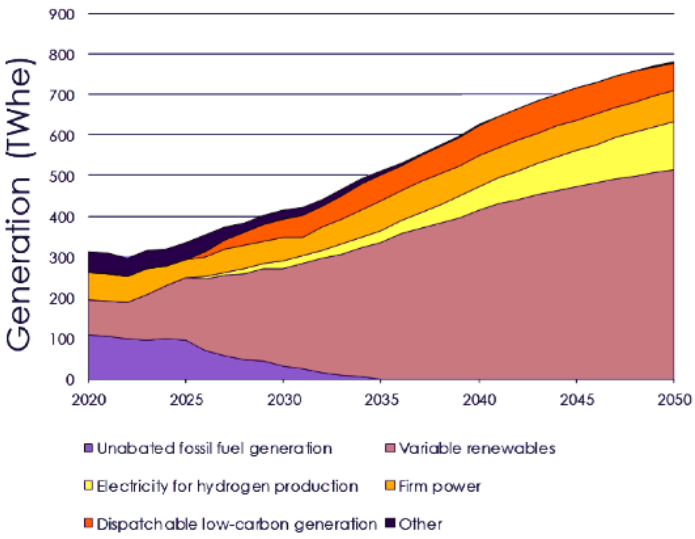
1. **Rapid growth in clean electricity generation**, of which a large proportion will be intermittent, to meet the rising demand from electrification of heat and transport.
2. **Widespread installation of low carbon technologies** (heat pumps, EV chargers, solar PV, storage, etc.) to enable households to decarbonise.
3. **Enabling greater flexibility from consumer demand**, both behavioural and technological, to ensure a more cost-effective net zero transition.
4. **Enabling digital and data transformation**, to ensure that the right organisations have access to granular data about the system, demand and generation.

It is also clear that delivering net zero will require a significant acceleration in all of these changes during the remainder of the 2020s. This in turn will require substantial change and innovation in the products and services offered by energy retailers.

3.1.1 Rapid growth in clean electricity generation

The Climate Change Committee's (CCC) Sixth Carbon Budget (Balanced Pathway scenario) suggests that electricity generation will need to increase by circa 72% reaching 512 TWh by 2035, alongside rapid decarbonisation of the generation mix, falling from 200gCO_2/kWh in 2021 to 10gCO_2/kWh in 2035.[8]

This relies on a substantial increase in reliance on intermittent generation.



Source: Climate Change Committee, The Sixth Carbon Budget, Figure 3.4c-e (Illustrative generation mix for the Balanced Pathway (2020-50)).

Key implications for energy retail

- The value of energy is likely to vary more throughout the day, increasing the importance of demand side flexibility. BEIS estimate that increased flexibility could reduce system costs by between £30-70bn across 2020 to 2050.[9]
- Retail services will need to help facilitate progressive electrification of heat and mobility energy demands, supporting the shift away from gas and oil.

[8] https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf; https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

[9] BEIS and Ofgem, Smart Systems and Flexibility Plan 2021.

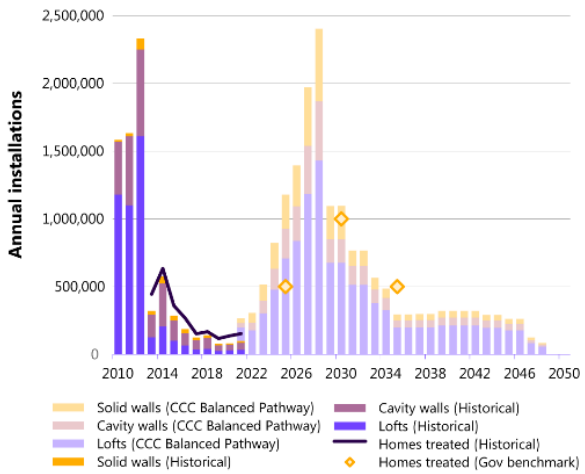
3.1.2 Widespread installation of low carbon technologies

Energy efficiency and low carbon heat installations

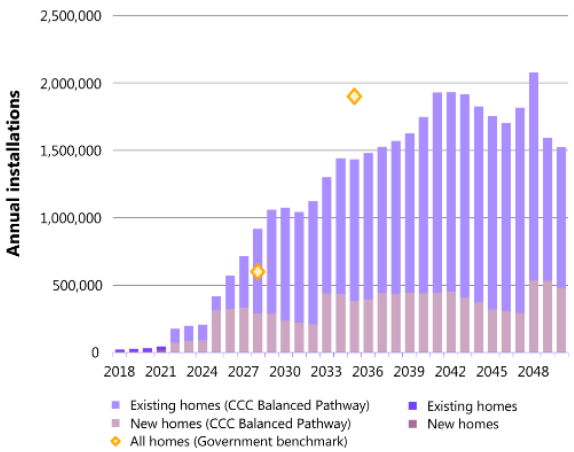
Residential final energy demands are expected to reduce over the coming decades due to heating technology shifts and efficiency measures, with residential final energy demand potentially falling by around 30% by 2035 (down from 448TWh to 314TWh).[10]

The decarbonisation of domestic heating is likely to require a widespread switch to electricity, to reduce and, ultimately, eliminate the use of unabated gas. Government has already set targets of deploying 600,000 heat pumps per year by 2028 and up to 1.9 million per year by 2035.[11] This decarbonisation of heating will require substantial investment in home energy efficiency installations in the 2020s, potentially reaching just under 2.5 million annual installations by 2028.[12] Whilst electrification of heat will likely be the dominant source, there remains scope for other heating solutions including district heating and potentially hydrogen.[13]

Home energy efficiency installations[14]



Residential heat pump installations[15]



Homeowner readiness (and willingness) to install a different heating technology such as a heat pump is likely to depend on a variety of factors, including the lifetime of their current heating technology. Expectations are also important, and National Grid ESO found that up to 63% of consumers *perceive* that they will be probably not install smart appliances, solar PV, heat pumps or hydrogen boilers over next 5 years.[16]

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[10] Climate Change Committee, The Sixth Carbon Budget.

[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/103390/net-zero-strategy-beis.pdf

[12] https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf

[13] See National Grid ESO, FES 2022 for assumptions on 'Home heating technology mix today, in 2035 and in 2050'. https://www.nationalgrideso.com/document/263876/download

[14] Source: https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf

[15] Source: https://www.theccc.org.uk/wp-content/uploads/2022/06/Progress-in-reducing-emissions-2022-Report-to-Parliament.pdf

[16] National Grid ESO's Empowering Climate Action report (survey carried out August 2021): https://www.nationalgrideso.com/future-energy/our-net-zero-work/empowering-climate-action

Key implications for energy retail

- In the long-term, electrification of heat can provide more comfort and more price resilience (as we move to a decarbonised electricity system) but bill savings are partially dependent on bill reform to ensures costs are reflected fairly between vectors.
- Energy retailers will need to offer services to help consumers understand and navigate complex choices in how they adapt their homes and install new low carbon technologies that will reduce the consumption of gas and other fossil fuels.
- New opportunities to harness smart control of home energy technologies will emerge as well as opportunities for longer term added value service bundles.

Transport – Electric Vehicle (EV) rollout

In addition to the increased uptake of new heating solutions, the energy transition will also result in a vast electrification of the transport sector. The EV Energy Taskforce estimates that 2.5 million battery electric vehicle (BEV) cars will need to be sold per year in the UK by 2030, with the number of home-charge points forecast to reach around 15.7 million by 2035 and home charging accounting for almost three-quarters of total charging demand in the UK. [17]

Key implications for energy retail

- Massive new opportunities will arise to offer service bundles to make the transition to electrified transport more attractive and efficient.
- This includes smart charging services, time of use tariffs and EV financing service bundles. Energy retailers can play a crucial role in unlocking and harnessing flexibility from the growing EV fleet to support grid flexibility and wider decarbonisation.
- The pace of change will be high driven by the 2030 internal combustion engine (ICE) ban,[18] with EV deals and services becoming a ubiquitous mass market by the late 2020s.

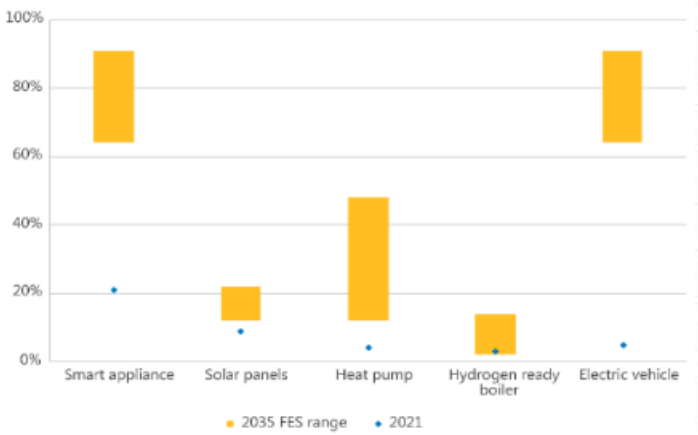
3.1.3 Enabling greater flexibility from consumer demand

The energy transition will also drive a range of different forms of direct and indirect consumer engagement across the areas of power, heating, transport and flexibility. Many domestic users will not simply be passive consumers of energy: an increasing number will be engaged in domestic generation, storage and flexible demand as more smart appliances are purchased.

[17] EV Energy Taskforce: Charging the Future- Drivers for Success 2035. https://evenergytaskforce.com/charging-the-future

[18] https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030

By 2035, there could be up to 20GW of solar PV[19] installed by households and up to 2GW by of residential battery storage capacity.[20] By the same time, 64-91% of homes are expected have smart appliances.[21] Energy Systems Catapult's modelling found that 95% of BEV drivers and 85% with PHEV chose smart charging over 'dumb' charging,[22] with National Grid ESO FES suggesting by 2035 up to 83% of peak demand could be shifted via smart EV charging.[23]



Low carbon tech deployment. *Source: National Grid ESO, FES 2022. Figure NZ.12 Household ownership – current and by 2035 in FES.*

Much of this enablement of greater flexibility will hinge on both the full rollout of smart meters and market-wide half hourly settlement.[24] The timing of consumers becoming more engaged in their energy usage will depend on a variety of factors, but uptake of EVs and low carbon heating is likely to be a key trigger. For example, National Grid ESO assumes the trigger point for residential consumers moving to dynamic tariffs is getting an EV.[25]

Key implications for energy retail

- Energy retail services can play a key role in unlocking flexibility that will be highly valuable as energy retailers and network companies try to keep pace with growing electricity demand and intermittent supply.
- Technology, data and market signals are likely to lead to bi-directional and dynamic relationships evolving between the consumer and the system. Energy retailers can play a much bigger role in mediating between energy consumers and the upstream system, unlocking value for both.

3.1.4 Enabling digital and data transformation

Data and digital technologies represent the plumbing that will enable a net zero energy system. Measuring or predicting energy usage, generation, carbon intensity or other metrics will increasingly be done in automated ways and can provide benefits to consumers and the system. Up to 11% of residential energy demand at peak could be shifted by white goods by the late 2030s[26] if appropriate data and digital protocols and systems, along with consumer incentives, are

19 https://www.nationalgrideso.com/document/263951/download
20 Ibid.
21 Ibid.
22 https://es.catapult.org.uk/tools-and-labs/our-national-net-zero-toolkit/consumers-vehicles-and-energy-integration-model
23 https://www.nationalgrideso.com/document/263876/download
24 As of the end of 2021, there were 26.1 million smart meters in domestic properties in Great Britain (of which 22.0 million were smart meters operating in smart mode). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1059591/Q4_2021_Smart_Meters_Statistics_Report.pdf
25 https://www.nationalgrideso.com/document/263951/download
26 Ibid.

realised. Without these data flows, and enabling digital technologies, the complexity of the system will more expensive and difficult to manage.

The digital sector contributed an estimated £141bn[27] to the UK economy in 2021 and presents a huge growth opportunity. The next phase of the net zero transition may well be defined by the building of digital critical national infrastructure in the energy sector.

Beyond the building of physical infrastructure, robust standards (e.g. for metadata, interoperability, and data licensing) is needed to ensure the effective flow of data across the sector. This will require governance protocols and clear roles and responsibilities to ensure robust management of data assets. Better quality, more granular and real-time information monitoring of networks is essential to understanding the role of domestic flexibility, and to accurately signal the value of behaviours to the market. Network data down to 11kV will be necessary for retailers to offer targeted products and services to consumers, with data about those consumer/retailer interventions needing to be passed back up to the network operator(s).

Key implications for energy retail

- Energy retailers can unlock huge value for wider system optimisation by enabling and incentivising consumers to use smart control and digitalisation to meet their needs.
- Energy retailers will need to become more skilled users and analysers of data, making best use of the explosion in energy data to offer services and insights that are valuable (and acceptable) for consumers.

3.2 What challenges will the energy transition present for consumers?

3.2.1 Consumer diversity

Energy consumers have a variety of different needs which will impact on the choices they make. Recognising that many consumers will not be prepared to spend time engaging in the detail, there is huge scope for energy retailers to develop more granular customer segmentation to deepen their understanding and develop and target products effectively.

It will be necessary to be conscious of key characteristics that will affect how consumers engage with energy system and manage their energy use. These will include personal characteristics, such as occupation/income, family size/make-up and health outcomes. Particular focus is needed in relation to meeting the needs of vulnerable consumers, including, for example, methods to help test assumptions being made about vulnerable households, such as the Smart Consumer Protection Manual.[28]

Other important characteristics will include housing tenure (which will affect the ability to make fabric improvements and ability to build longer-term relationships with retailers) and type and situation of the home (e.g. access to off-street parking, proximity to amenities and availability of public transport options etc.), as well as transport needs and car / EV ownership.

3.2.2 Helping consumers navigate key choices and hazards

The net zero transition will result in an array of net zero choices for consumers' personal decarbonisation journey. To date, energy retailers have had limited involvement in helping consumers shape their responses to these choices to date but may need to take an increasingly

[27] https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-monthly-gva-to-march-2022
[28] https://es.catapult.org.uk/guide/smart-consumer-protection-manual

active role in helping consumers navigate the transition to net zero. These choices may create new hazards will need to be managed and overcome.

Area of consumer choice	Potential hazards
How much energy to use Consumers can reduce their carbon footprint by using less energy.	Cutting back on **non-discretionary energy use** could lead to severe hardship and / or negative health impacts.
	Consumers may **lack knowledge** as to how much energy they are using or how to reduce energy usage most effectively.
Carbon intensity of energy Consumers can reduce the carbon intensity of the energy they use, e.g. using electricity when it has a lower carbon intensity, choosing a 'green' tariff, switching to cleaner energy (e.g. electric).	Defining what constitutes 'green' is hard and **consumers may struggle to distinguish** between products (risk of greenwashing).[29]
	Consumers may face risk of unacceptable **price fluctuation** without appropriate safeguards and tech (e.g. to support automation).
	Options may be limited if consumer **lacks access to suitable tech** (due to cost or difficulty of use) or doesn't have fast internet.
Low carbon investment There is a growing range of low carbon investment opportunities to consider, both within the home (i.e. installing low carbon assets and insulation) and outside the home (e.g. investing in community energy production).	Disruption during **installation** process; non-financial costs (e.g. time).
	Deviation from consumer **expectations** (e.g. level of noise; bill savings) or risk of poor service / unexpected consequences. Products that don't live up to their expectations can result in reputational damage and limit net zero progress.[30]
	Consumers may lack the **information** needed to make technology decisions. Some tools exist but increased complexity in the energy system could increase confusion among consumers.
Access to personal data As the energy system becomes more digitised, consumers will need to make choices in relation to what data they are prepared to make accessible and to whom.	A smarter and more digitalised energy system will require **personalised data** to be recorded and shared with trusted parties, increasing the real or perceived risk of personal data being misused.
	The increasing prevalence of interconnected appliances will create new **cyber security threats** (e.g. malicious attacks or unintended failures).

The role and opportunity for energy retailers will be to simplify the complexity that consumers face, making sure that the transition to low carbon energy does not harm consumers and instead improves their lives. This will be essential to maintain public support.
The following sections describe how energy retailers can help overcome these challenges while delivering consumers' net zero needs.

[29] See *Designing smarter consumer protection in a smarter energy world*, Energy Systems Catapult (2019) https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Closing report Using field trials to learn how to design energy as a service FINAL version for May release.pdf

[30] There may be specific expectations challenges in relation to buying/selling homes which have low carbon assets installed, especially if there is uncertainty around ownership of the assets (e.g. leased solar panels) https://www.renogy.com/blog/the-impact-of-solar-panels-on-your-mortgage

4. Future retail service opportunities

As we progress on the net zero transition, with growing electrification of heat and transport energy demand, then the services to satisfy consumer needs for low carbon consumer power, heat and transport will become increasingly blurred. The system's need for flexibility to enable new propositions will cut across all of these consumer needs. And consumer lifestyles and service needs will continue to evolve in ways that require a different approach from energy retailers. Notably, retailers will need to support consumers to: make timely investments in low carbon technologies (such as heat-pumps and electric vehicles); be more flexible in the demand for electricity to accommodate increasing amounts of variable renewable electricity generation; make behavioural changes to reduce their carbon impact.

4.1 Overview of new consumer needs and energy retail service opportunities

To address these challenges, we have identified a range of services that are likely to be important in the coming period (i.e. 2025-2035). This aims to provide an illustrative (but not exhaustive) overview of the types of different service opportunities that will be needed from energy retailers to meet both the evolving needs of *consumers* and the wider *system* in the journey to net zero.

Key propositions identified are enabling access to low carbon assets; green tariffs; time of use tariffs; type of use tariffs and load control; and community energy propositions. These propositions span across power, heat and transport needs. Some of the services described are already emerging in the market today, whilst others are still at earlier stages of innovation development. It is important to note that many of these services will have direct interlinkages between them, and whilst some can be standalone services they will in many cases be linked together as packages. There are a lot of opportunities to engage consumers in a variety of different ways, and energy retailers are going to need to be considering which of these many areas they want to play in.

4.2 Future energy retail propositions

Enabling access to low carbon assets

The net zero transition will require significant low carbon investment (heat pumps, insulation, etc.) but energy consumers often lack the means for this. Propositions that overcome the barriers to financing, installing and maintaining low carbon assets will help increase access to them. Examples of this include:

- **"X-as-a-service" -** The energy retailer provides a service (such as an agreed level of heat, comfort or warmth[31]) rather than selling electricity and gas as commodities. Shifting to a fixed price for delivery of this service helps align retailer-consumer incentives to reduce energy usage through investment in assets in the home (heat pumps, insulation, etc.)[32] and behaviour change.
- **Long-term bundling of assets / services -** By gathering and processing detailed information about the property, a phased approach to reducing the carbon footprint is identified[33] and potentially financed through a partnership with a finance provider.

[31] Examples of heat, comfort or warmth as a service include: https://es.catapult.org.uk/case-study/smart-systems-and-heat ; https://sero.life/press-room/the-sero-life-way

[32] See Ovo and Cornwall Council whole-house retrofit partnership.

[33] https://es.catapult.org.uk/case-study/sero-net-zero-homes/

	• **Low carbon home building -** By partnering with housing providers, energy retailers can help ensure new homes are equipped with low carbon assets to reduce their carbon intensity.[34] • **'Rent-a-roof' -** Installation and maintenance of solar PV on a consumer's roofs for free in exchange for some of the income it generates. Various propositions have been developed in this area but rollout has been limited. Consumer **incentives** to reduce carbon remain weak and so the energy retailer has limited leverage – although the current high energy prices might address this. Many of these propositions require high levels of **trust** in energy retailers (e.g. providing building data and confidence that service offer will be met) and potentially longer-term relationships. Some of these services require the formation of **new partnerships** with other entities (property developers, manufacturers, installers, etc.) and / or greater levels risk (financial, technical etc.) to avoid competing across too many fronts.
Green tariffs 	A green tariff involves the consumer's energy use being matched with the purchase of renewable or other low carbon energy, or linked to the procurement of other environmental benefits. There are many different types, including: • Tariff linked to procurement of low carbon electricity generation (e.g. the Renewable Energy Guarantees of Origin scheme). • Closer to real time matching of demand with local renewable assets such as local wind farms (e.g. Octopus Fanclub). • Tariffs linked to the direct funding of renewable sites with accompanying energy bill reductions (e.g. Ripple Energy windfarm). • Broader environmental benefits such as carbon offsets or linking a tariff to a certain amount of tree plantations (e.g. Ovo Beyond). As of August 2021, **9 million British households were on green tariffs, with over half of all new electricity tariffs launched being badged as '100% renewable' or 'green'**.[35] However, there are challenges in relation to the current frameworks. Varying claims of relative greenness can make it **confusing** for consumers to make meaningful comparisons or to understand if/how their choice is driving additional investment in low carbon electricity generation.[36] Also, the REGO scheme is not sufficiently granular in terms of **time-specificity** to drive behaviour that benefits the grid. Greater time-tagging to reflect the carbon intensity of the grid (see section 6.1.3) could mitigate this.

[34] Octopus Energy and ilke Homes announced plans to develop homes that guarantee zero energy bills for residents, with asset optimisation covering cost for imports of electricity.

[35] https://www.forbes.com/uk/advisor/energy/green-energy

[36] Note: Ovo announced in July 2022 it was the first supplier to commit funding via premium Power Purchase Agreement (PPA) contracts to specifically support subsidy-free REGOs for renewable generators that have not received any subsidy from Government or industry backed schemes.

Time-of-Use (ToU) tariffs

Time-of-use tariffs offer customers varying prices per unit of electricity depending on when it is consumed. This could allow the energy retailer to charge higher prices when electricity supply is scarce relative to demand (e.g. when the wind is not blowing) and help the customer to shift consumption to cheaper times of the day through the use of automation and other technology.

Basic forms of these tariffs have existed for many years (e.g. Economy 7 and Economy 10 tariffs) but there are still very few dynamic tariffs in the market, and many have recently been withdrawn.[37] The scope will need to expand to help mitigate issues resulting from the increase in intermittent renewable electricity generation and the uptake of EVs and heat-pumps. However, the full value of domestic flexibility **cannot be adequately accessed and rewarded**, undermining commercially sustainability (see section 6.1.2).[38] Also, how dynamic the tariffs can be hindered by **technical factors** such as limited rollout of smart meters, market-wide half hourly settlement not expected to be completed until 2025, and limited data available on network signals. There are also concerns about **potential consumer harm** if exposed to unpredictable price fluctuation. A crucial role for energy retailers will be to understand how to persuade and enable consumers (e.g. through automation and simplicity), unlocking demand response whilst maintaining delivery of the outcomes that consumers want.

Type-of-use tariffs and load control

To cater directly for the uptake in 'smart' low carbon assets, energy retailers are exploring tariff options targeted at particular technologies which are increasingly using automation and direct load control to save consumers money without having to manage unpredictable and fluctuating prices. Tariffs aimed at EVs are currently the most advanced, with charging propositions including vehicle-to-home (e.g. Indra), vehicle-to-grid (e.g. Octopus-Powerloop) and numerous others (e.g. Ovo Drive + Anytime, Intelligent Octopus, Good Energy Green Driver, E.On Next Drive, EDF GoElectric). Other asset-specific tariffs have been launched including for heat pump (e.g. Good Energy – Green Heat), battery storage (e.g. Moixa, EDF/Powervault) and smart control tariffs (e.g. Ovo Smart Home). There are also potential propositions to link consumers' low carbon assets to energy procurement outside the home for a simplified and easier to manage experience, such as linking public EV charging to consumers' energy bill.

Recent trials[39] have highlighted the potential of consumers to respond to signals to alter demand in response to network needs but **longer-term behavioural change** to alter demand may be difficult for many consumers. **Interoperability** in the metering and control communications is a crucial component of many of these propositions, particularly to avoid consumer lock-in to a particular supplier or manufacturer.

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[37] Available dynamic tariffs include Octopus Agile. Note many similar tariffs have in recent months been withdrawn from receiving new customers such as Ovo Drive + Anytime, E.On Next Drive, EDF GoElectric, Good Energy Green Driver.

[38] For examples of barriers to domestic flexibility, see: https://www.energy-uk.org.uk/files/docs/Research and reports/DeliveringthepotentialofFlexibility.pdf
https://www.theade.co.uk/assets/docs/resources/Lets_Talk_About_Flex_DigitalRep_FINAL-min.pdf

[39] https://octoenergy-production-media.s3.amazonaws.com/documents/OE-NGESO_Domestic_Scarcity_Reserve_Trial_Results_vSEND_v2.pdf

Community energy propositions

Many consumers like the idea of 'community energy', particularly when it relates to cheaper, greener energy and where it benefits their local area[40]. Many consumers also trust the motives of not for profit 'communities' more than profit maximising corporations. Future opportunities for retailers to explore might include:

- collaboration with **community engagement groups** to address local energy needs (e.g. linking with local renewable energy projects; district heating initiatives)
- solutions for consumers to **offer their assets for use by others in the local area** (e.g. community EV charging networks to enable consumers to rent out their home EV charger)[41]
- initiatives seeking to **enable consumers to trade of energy at the local level** (e.g. peer-to-peer)[42], perhaps including renting out consumer chargers (similar to Airbnb).

There is much **divergence** with regards to what 'community' actually means and therefore who energy retailers should be engaging with when designing community propositions. Additionally, consumer perceptions around **capability** of community groups in relation to ensuring energy security could undermine confidence in community propositions.

[40] See Energy Systems Catapult's work on: Smart Systems and Heat and User Acceptance of Smart Local Energy Systems.
[41] For example, Co-Charger.
[42] See the work of some of the Prospering from the Energy Revolution (PFER) projects.

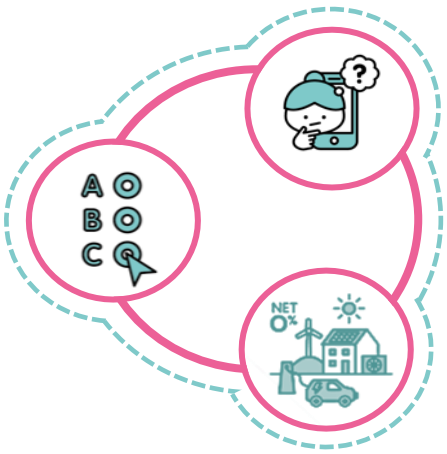
5. Building the new energy retailers

5.1 Principles guiding change

Ultimately, energy retailers must focus on delivering the key objectives within the energy trilemma – namely, secure, clean and affordable energy but some principles for *how* they do this are:

Simplicity

The energy system will be become increasingly complex and energy retailers who thrive will be those who can create a simple interface for consumers



Trust

New and enduring relationships will be needed to guide customers through new net zero choices and investment decisions (net zero stewardship)

Holistic

Moving beyond maximising kWh, value can be added in selling comfort / convenience, drawing a range of disparate products and services into a desirable package

To be well placed to be able to deliver these products and services, clean energy retail companies will need to consider new strategies, functions and approaches and shift from the status quo. Priority themes will include customer relationships, new commercial models, partnerships, digital/data and skills and capabilities. These are set out below.

5.2 Strategies for change

5.2.1 Customer relationships

The net zero transition will transform our energy needs and energy retailers will need to fundamentally rethink and deepen their relationship with customers. As **the main interface with the energy system**, energy retailers must simplify complex realities into compelling customer propositions. They must also build trust with customers to establish effective and long-lasting relationships. And they must communicate risks and benefits (e.g. in relation to new propositions like ToU tariffs) in a way customers understand (e.g. telling consumers how much it will cost to charge an EV per month, not per kWh) while being transparent and responsive if things go wrong.

Energy retailers will need to understand the **differences between customers** so they can design and deliver a range of products and services to appeal to different consumer types, allowing for personalised products and service bundles. A "modular" approach, whereby consumers build their own propositions[43], could enable trialling of new propositions, accelerating learning and improvement. With the rapid pace of technological change, products and services should be adaptable and allow for continuous improvement. Consistency in rules and licensing will remain important to ensure consumers enjoy the same protections and access to support regardless of who they engage with.

[43] An example of this could be a bespoke home energy efficiency package managed by the energy retailer that has control and responsibilities for connected smart devices in the home that can be added or removed.

As stated in section 3.2.2, the complexity of the net zero transition means energy retailers will need to communicate complex messages to their customers. As **net zero educators**, they can provide consumers accurate and trusted information (e.g. on where their energy use or emissions is relative to others or an average level), and help consumers make informed choices.

Such strategies could be supported through the use of **personal net zero data profiles**. By building up an accurate picture of the customer's decarbonisation needs (subject to data permissions being granted) the energy company provides information about suitable decarbonisation action (e.g. where insulation would be appropriate; when a heat pump could usefully be installed etc.). This could also involve improved visualisation and "gamification" for consumers of certain metrics (e.g. Ovo Greenlight energy tracker highlighting consumer response to periods of low carbon intensity on the grid).

5.2.2 Commercial models

The energy retailer of the future will provide the products and services to power and heat consumers' homes: simply providing energy and billing will no longer be sufficient. New **revenue models** may be needed. Energy retailers have traditionally been incentivised to maximise the amount of energy sold to consumers. This needs to be turned on its head, such that energy retailers' profit margins are aligned with a reduction in carbon emissions – for example, charging a fixed price for a particular "outcome" (e.g. EV "miles" or household "temperature"), and incentivising consumers, with the aid of automated technology, to optimise their usage within this. Such a major change would need policy reform to drive new behaviours (see section 6) but there are precedents in other sectors (e.g. fixed price outcome propositions are common in the telecoms / broadband sector).

How consumers **finance** their shift to low carbon energy will be another future energy retail challenge. Moving beyond simply selling a commodity, energy retailers will need to enable consumers to invest in improvements to their homes (e.g. energy efficiency) or new assets (e.g. heat pumps). Financing models will be crucial to help consumers spread the cost of these longer-term investments. Energy retailers often lack appetite or ability to take significant credit risk given the current supply licence and price cap regulation. This may lead to retailers partnering with banks / lenders or brokering links between customers and finance providers who will take credit risk. Other models might involve partnerships with community groups (see section 5.2.3), or require energy retailers to build longer term relationships with customers (see section 5.2.1).

There will be all manner of **complexity** and diverse systems to straddle: multiple vectors (e.g. EVs and heat-pumps), diverse compliance/regulatory standard, different tax systems and various consumer protection frameworks (e.g. Financial Conduct Authority vs Ofgem). Future energy retailers must embrace this and create value in developing simple consumer propositions.

5.2.3 Partnerships

Energy retailers will need to build partnerships with multiple actors across various disciplines. In terms of **product delivery**, no single company can compete on all fronts. Opportunities abound for energy retailers to work with innovators and SMEs to bring new products to market and to form networks of companies to integrate services coming into the home (e.g. a "friends of" network).

Some propositions may require **non-market sources of funding** to be commercially viable, such as installation of energy efficiency products in low-income homes. Partnerships with local authorities and other grant-funding institutions may be necessary to secure stable income streams.

Initiatives such as Local Area Energy Planning (LAEP)[44] offers the opportunity for a whole energy system evidence-based approach to identify the most effective route to net zero that respects local considerations. Such planning is particularly valuable in highlighting areas that could benefit from alternative energy supply arrangements (e.g. district heat).

Partnerships may also be valuable in relation to **reaching consumers** and building trust. Tapping into local networks such as Neighbourhood Watch Groups or Residence Associations could help overcome informational barriers for consumers. Fitting low carbon technologies such as heat pumps in community buildings could act as demonstrators to local people to test out and understand new low carbon products. This could help provide opportunities for the future retailer to become a trusted partner in delivering net zero to various localities across the UK.

Finally, facilitating partnerships can be valuable in terms of **ownership** opportunities. By building relationships with community or other local groups, energy retail companies can help enable community owned solar or heat projects or local heat networks where there is significant demand.

5.2.4 Digital functions and capabilities

Innovative technology and the effective use of data have the potential to greatly enhance the energy customer experience – including managing flexibility and improve energy efficiency – with minimal or no effort required by consumers. Energy retailers have a key role to play in supporting the adoption of new devices that utilise consumer data. They can work with device manufacturers to ensure data products work for consumers – e.g. allowing data to be transferred when moving to a new energy retailer. They could gather evidence and learn from behavioural insights to enhance uptake.

Data science capabilities can develop a deep understanding of consumer's energy needs using data from devices, networks, and other sources, and therefore drive the origination of new opportunities to meet identified demand.[45] As well as solving consumer outcomes, they can also support retail hedging, flexibility market opportunities and validating their predicted position against actual consumption earlier in the balancing/settlement cycle.

5.2.5 Skills and capabilities

All of this will require a focus on energy retailers to build new skills and capabilities could involve a radical overhaul of core skills and capabilities. Priorities might include, but not be limited to:

- Decarbonisation, including educating consumers on future net zero journey.
- Technology, including explain how devises work and can benefit the customer experience.
- Consumer insight, including deep understand of differing consumer needs.
- Digital and data skills, such as programming and developing.

There may be opportunities to retrain staff in priority areas and pivot from major programmes such as the rollout of smart meters. Bigger companies may find they can develop these skills and capabilities in-house but others may sub-contract out and focus on their core value add. There will also be implications for the wider supply chain and retailers may have a useful role to play in stimulating and building this up. Installing heat pumps and insulation, for example, can be labour intensive and there could be value in strategies such as developing a pool of local trusted trades people to avoid supply chain bottle necks (e.g. PAS2035 retrofit advisors and installers).

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[44] https://es.catapult.org.uk/tools-and-labs/our-place-based-net-zero-toolkit/local-area-energy-planning/

[45] https://www.forbes.com/sites/forbestechcouncil/2020/12/10/it-as-a-profit-center-finding-gold-in-the-couch-cushions-of-digitalization

6. Building an enabling policy framework

There are limitations to what retailers can do within existing frameworks and regulation. Wider enablers will be necessary to unlock the services and models identified. Policy change is needed to enable clean energy retailers to develop offers which:

- Incentivise people to make low carbon choices and become more flexible;
- Simply consumer interaction in the energy system simple whilst maintaining trust;
- Ensure the transition to clean energy is accessible for all.

The current energy and cost-of-living crisis will require immediate action which is beyond the scope of this report. However, it will be vital to ensure that the action taken for the short-term is consistent with the longer-term objectives set out here.

6.1 Unlocking incentives to decarbonise and become more flexible

The incentives for householders to reduce their carbon emissions remain weak and rely on personal commitment. The potential longer-term bill savings can look unattractive when faced with upfront costs and disruption. Similarly, there are limited requirements on householders to take action to decarbonise their homes. Energy policy costs fall onto electricity bills, which further reduces the incentive to switch from gas. All this undermines the ability of energy retailers to develop attractive consumer propositions which align decarbonisation and affordability.

6.1.1 Outcome-based requirements to drive positive action

The introduction of **outcome-based requirements** on key players in the system could help to drive change. Homeowners could be set a long-dated requirement to ensure that their homes meet a net zero consistent standard of carbon performance (e.g. by 2040). ESC has previously considered how this potential approach could be introduced as part of a policy framework of incentives, regulatory requirements and low-cost finance to drive decarbonisation of buildings[46]. A long-dated regulatory requirement has successfully driven the development of low carbon vehicles that are attractive and aspirational for consumers.[47] Another approach could be to set energy suppliers a "Clean Electricity Standard", which would require them to supply a decreasing proportion (or carbon intensity) of their energy from clean sources.

The case for a market-wide 'Clean Electricity Standard'

Building on the current voluntary approach for consumers to purchase low carbon electricity (i.e. REGOs) a Clean Electricity Standard could, for example, **require** all suppliers to meet a level of decarbonisation across their entire portfolio of energy purchases. This would provide stronger incentives for upstream contracting with low carbon generators and innovation in flexibility / demand response to drive down reliance on high carbon peak resources. It would require arrangements to "time tag" electricity production and match it with demand, most likely integrated within mainstream electricity wholesale market trading and settlement arrangements. Design considerations would need to be resolved to ensure accuracy and integrity, while allowing for deep and flexible trading of electricity over multiple timescales. Initiatives such as *EnergyTag*[48] are exploring how to define and build a framework for hourly energy certificates.

[46] https://es.catapult.org.uk/insight/six-steps-to-zero-carbon-buildings
[47] https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030
[48] https://energytag.org/

6.1.2 Unlocking incentives for flexibility

There will be growing opportunity to achieve savings for consumers by **unlocking more efficient use of the physical energy assets on the system**. Retailers need to be able to innovate to find effective ways of shifting consumer electricity demand to when, for example, the wind is blowing, and reducing it when it is calm. This is likely to involve a mixture of price incentives (bill reductions) and technology to automate decisions so that consumer effort is avoided. The introduction of half-hourly settlement for all customers – due by 2025 – will be an important development. The smart metering programme is also crucial but a stronger push is needed to reach 100% take-up.

A bigger factor to unlocking greater consumer flexibility will be **reforms to balancing services, network charges, and the wholesale market to enable the value of flexibility to be accessed by retailers and adequately rewarded.** As highlighted in section 4.2 many dynamic tariffs seeking to incentivise consumer flexibility are currently commercially unsustainable at large scale. Balancing and ancillary services at both national and distribution level do not provide a level playing field to allow domestic flexibility propositions to be rewarded fairly.[49] The design of network charges similarly fails to provide adequate signals of flexibility value to which retailers can respond and recent decisions (such as the Targeted Charging Review[50]) may have weakened the incentive for domestic demand flexibility.

Wholesale markets will also need to be reformed to provide more granular signals of constraints and the real-time status of the grid so that retailers are able to build propositions that reflect this. The **strengthening of locational price signals** in electricity markets, as included as a proposal in the government's Review of Electricity Market Arrangements (REMA) consultation,[51] backed up with appropriate consumer protection, would help unleash energy retailer innovation in this area.

The uptake of electric heating has been held back by the policy costs levied onto electricity bills reducing the incentive to switch from gas. Removing **policy costs** from electricity bill and funding it through taxation could also improve the ability of retailers to develop tariff and service propositions that make it attractive for consumers to move to electrified (cleaner) heating and transport. In the medium term, this could be achieved through shifting the levies onto gas bills, but in the longer-term, the aim should be to phase out the use of gas for heating.

6.1.3 Improving green tariffs

The policy and regulatory foundations of green tariffs could also benefit from reforms, particularly regarding the **establishment of a more granular (i.e. 30 minute) market for REGOs**. This could substantially strengthen the role of energy retailers in converting consumer demand for green energy offers into investment in upstream assets to enable carbon reductions, such as storage and flexibility, that are critical for decarbonisation. It could also enable propositions seeking to improve the matching of demand to periods when grid carbon intensity is low and better incentivise consumer behaviour to better respond to carbon signals.[52]

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[49] Certain reforms such as National Grid ESO's *Balancing Mechanism Wider Access* are attempting to make improvements, but notable issues regarding metering and minimum clip size remain a barrier.

[50] https://www.ofgem.gov.uk/publications/targeted-charging-review-decision-and-impact-assessment

[51] https://www.gov.uk/government/consultations/review-of-electricity-market-arrangements

[52] Energy retailers can utilise National Grid ESO's Carbon Intensity API to showcase to consumers when their energy will be greenest, providing support to those who wish to manage demand in line with renewable generation on the grid. Recent innovation trials have demonstrated the potential for domestic customers to respond to flexibility signals at

Given the commitment to a net zero grid by 2035, it is arguable that standard tariffs will now incorporate the costs of grid decarbonisation according to that timetable. This changes the context for 'green tariff' offers and it is important that they demonstrate an *additional* green benefit. There should be consideration of **more robust definitions of the additionality required for green labelled products and their benefits in relation to decarbonisation** (e.g. a kite mark system), which could help facilitate investment into subsidy-free renewables.[53] It would make sense for this to be accompanied by updated electricity-specific carbon accounting mechanisms and consideration should be given to improving tagging/matching of green electricity and developing a market-wide standards to drive investment in system decarbonisation (see section 6.1 above).

6.2 Making low carbon simple and easy

6.2.1 Simplifying the customer experience

Energy retailers must rise to the challenge of simplifying the complexity of the energy system into easy to understand and usable propositions for consumers. But there are also wider systemic changes that could support this. Key areas to consider include:

- Reform of licence conditions surrounding consumers' energy bills, including regulations on what *can* and *must* be displayed, and in what *format*, following principles-based regulation to enable innovation;
- Simplified consumer consent processes, enhanced by digitalisation;
- Improved data sharing requirements and interoperability.

Energy retailers cannot go it alone. To build consumer trust and understanding, other key players such as government and government-backed institutions should contribute to consistency of about net zero messaging.[54]

6.2.2 Redefining the roles of energy retailers

We have described various new retail products, services and strategies, some of which involve new roles for existing companies and some of which might involve the participation of other players.

The current **'supplier hub' model** is based around suppliers acting as the primary interface between consumers and the energy system, with other entities transacting with consumers via the supplier. Such a model has led to the role of the supplier being entrenched in wide-ranging legal frameworks, licensing arrangements and industry rules. Whilst this model has served well to date, reform is needed to unlock innovation and maintain fair outcomes. Energy retailers should continue to provide the primary interface with the energy system. However, core functions should be refined and others should be allowed explicitly to be outsourced. Care is needed to ensure appropriate levels of consumer protection remain consistent across these entities, particularly regarding issues such as informed consent, billing and debt chasing, and exceptions handling.

Alongside this, regulatory frameworks governing the **financial health and stability** of energy retailers need bolstering. Oxera's 2022 review of Ofgem's regulation[55] pointed to insufficient visibility to predict potential insolvency and inadequate rules in relation to financial stability.

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the national and local level, while initiatives such as the EnergyTag trial is testing how a credible system of hourly clean energy certificates could be developed.

53 https://www.ovoenergy.com/ovo-newsroom/press-releases/2022/july/ovo-investment-subsidy-free-regos

54 Notable recent examples include: Smart Energy GB campaign, Gov.uk Improve Energy Efficiency portal, Gov.uk Heat Pump Suitability checker, Ofgem's Energy domestic consumer advice for Autumn/Winter 2022

55 https://www.ofgem.gov.uk/publications/review-ofgems-regulation-energy-supply-market

Reforms should include strengthening of financial monitoring of the market and more robust rules on financial health and so retailers do not make bets with consumers' money.

Furthermore, improvement is needed in relation to licensing. Energy Systems Catapult's paper on **Digitalising Licensing in Energy**[56] proposes the adoption of a digitalised, risk-based licensing regime where licensees provide regular updates to the regulator across numerous categories (such as number of customers or volume of energy managed) as well as data on their compliance with licences. This should enable the regulator to apply logic-based rules based on the data submissions and assign proportional regulation to the organisation.

6.2.3 Measuring competition: looking beyond the focus on switching

The deregulation of the GB energy markets rightly put competition at the heart of driving improvements in efficiency. However, the methods of measuring market competitiveness in the energy retail market – and the overwhelming focus on "switching" – risks missing opportunities to drive energy retailers to forge the meaningful relationships with consumers we need. As we have discussed, trust with consumers is vital for positively influencing energy behaviours and encouraging investment in assets that have long payback periods.

We need better ways to measure and drive competition in the future. This will require a clearer articulation of the outcomes we want future energy retailer to deliver – such as help to decarbonise and customer satisfaction – and while it will remain important that customers can switch their energy supplier, reforms should support the building of longer-term service relationships. This should unlock long-term financing options of improvements that are integral to a property (e.g. fabric improvements and installation of heating systems) without long term tie in to a specific service provider. Technological and digital interoperability will also be important and protocols are needed to ensure devices installed with one energy company are operable with others.[57]

6.2.4 Improving data access

The Energy Data Taskforce (EDTF) and Energy Digitalisation Taskforce (EDiT) reports made recommendations on improving access to data – with success in several areas and several ongoing activities.[58] To enable energy retailers to operate and develop robust customer propositions, a few additional activities are required that are not currently in train.

The regulator should mandate **Open Energy**[59] as an industry wide data sharing mechanism. Open Energy has, via a competition run by government, created a service that enables trusted actors to share data in a consistent way across the energy value chain. Mandating this solution would accelerate its adoption and make consistent an approach, reducing costs and barriers to entry.

Industry should also collaborate on building **personal net zero data profiles** for consumers. By building a modular, interoperable consumer data profile for smart energy devices, including heat pumps, EVs, battery storage, etc, industry can reduce the barriers for data sharing and ensure data portability between energy retailers for data relating to consumer assets. This could also reduce

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[56] https://es.catapult.org.uk/report/digitalising-licensing-in-energy

[57] ESC explored this topic in its 2021 publication An Introduction to Interoperability in the Energy Sector

[58] https://es.catapult.org.uk/report/energy-data-taskforce-report ; https://es.catapult.org.uk/report/delivering-a-digitalised-energy-system

[59] https://icebreakerone.org/2022/02/11/how-open-energy-can-support-delivery-of-our-digital-spine-energy-digitalisation-taskforce/

vendor lock-in issues behind the meter. Learnings from Ofgem's Midata[60] project can usefully inform this work.

Finally, industry and the regulator should identify **critical data assets** that enable the consumer transition, and prioritise their appropriate access, granularity, and quality. Critical data assets relate to those that, if they were to become unavailable, would impede operation of market(s) or impact system stability. For energy retailers of the future, this may mean access to price signals in a locational marginal pricing (LMP) model.

6.3 Making the transition to clean energy accessible for all

6.3.1 Evolving consumer protection

The net zero transition and new retail propositions can bring significant benefits for consumers but can also pose new risks. As set out in Section 3.2, risks include those caused by the increasing complexity and volatility of the energy markets (including exposure to price fluctuation) and inability to access facilitative technology. These could create significant potential detriment if **consumer protection** does not keep pace. Policy reform will be required to provide robust backstops, and the consumer protection framework will need to be overhauled to match future opportunities and risks.

6.3.2 Identifying and reaching vulnerable consumers

Current support measures (e.g. for fuel poverty) are crude and poorly targeted.[61] Better use of data and digitalisation could improve the **identification** of fuel poor and **more effective targeting** of interventions in the future. Enhanced targeting could facilitate moving away from a focus on short-term bill reduction towards investment in longer-term and sustainable improvements. With better data sharing, consumer experiences can be enhanced and could involve:

- **Enhanced use of data.** We have the capability to gather rich and valuable data in relation to consumer energy patterns. This could greatly increase the ability to identify consumers most in need of support.[62] Rules on what data can be collected and sharing protocols should be updated to include a strong emphasis on addressing fuel poverty through effective targeting;
- **Trusted partnerships.** We should be creative in finding alternative agents to help identify vulnerable consumers and prescribing packages of support. One option to explore and test is "warmth on prescription", whereby health care advisors, such as GPs, could help identify symptoms or risks of fuel poverty and prescribe support measures such as fuel bill discounts or vouchers for insulation.[63] Alternatively, Local Area Energy Planning programmes could be used to develop place-based action to identify and assist vulnerable consumers;
- **Technological support.** It is important to explore different types of intervention to address fuel poverty. In addition to income-based support, provision of technology, such as smart

[60] https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/midata-energy-programme

[61] The Committee on Fuel Poverty notes less than 15% of fuel poverty policy actually received as assistance by fuel poor households. https://www.gov.uk/government/publications/committee-on-fuel-poverty-annual-report-2021

[62] The Committee on Fuel Poverty commissioned research, undertaken by Deloitte LLP, which found that the use of data and advanced statistics / machine learning (termed broadly as AI) could help improve the identification of fuel poor households: https://www.gov.uk/government/publications/better-use-of-data-and-ai-in-delivering-benefits-to-the-fuel-poor-research-report-and-cfps-recommendations

[63] http://www.peoplelab.energy/2020/07/21/warmth-on-prescription/

controls, could provide vulnerable consumers with greater visibility of how they are using energy (e.g. how much each room is consuming) and the ability to easily control this usage.

Such measures would need to be counterbalanced with consumer safeguards relating to informed consent, control and privacy.

6.3.3 Managing through the current energy crisis

This paper focuses on the medium to long term picture for energy retailers. However, the pressing energy crisis currently facing the UK and Europe conditions the near-term environment for transforming the energy retail function.

Immediate action is required to help alleviate the severe economic and psychological hardship. The scale of the crisis, and the regulation of the price cap, means that industry cannot solve it without significant government support. While it is beyond the scope of this paper to recommend solutions for the immediate period, it is vital that action for the near-term challenges aligns with the medium- and longer-term vision for energy retailers. Key design principles should include:

- **Financial sustainability** – Energy retailers must do all they can to cut costs for consumers, but interventions should mitigate the risk of future large-scale insolvencies. They should also be targeted towards those most in need, given the potential for gas prices to remain high;
- **Maintaining price signals** – Action is needed to alleviate hardships faced by consumers, particularly the most vulnerable. They should be designed in a way that continues to encourage positive net zero choices such as appropriate demand reduction, investment in energy efficiency and low carbon technology, and demand shifting;
- **Innovation** – We will need to develop new and inventive propositions to support the net zero transition. Interventions need to avoid stifling current and future innovation;
- **Investment to reduce reliance on gas** – As well as interventions to alleviate the immediate affordability crisis, complementary investment is needed in solutions to increase resilience to future gas price shocks (such as energy efficiency / insulation and relaxing restrictions on onshore wind / solar build).

By following principles that align with the longer-term vision for the sector, the worst consumer detriment can be addressed while ensuring energy retailers can prepare for the future.

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OUR MISSION

TO UNLEASH INNOVATION AND OPEN NEW MARKETS TO CAPTURE THE CLEAN GROWTH OPPORTUNITY.

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