

Future for all

Making a future retail energy market work for everyone



Future Energy Consumers

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Contents

Summary	02
Approach	05
Barriers and perceptions of new energy supply models	08
Future supply models	15
1. Time of Use	15
2. Energy as a Service	21
3. Trading Platforms	25
4. Efficient Consumption	30
5. Lifestyle Products	34
6. Bundling	38
Changes to enable new supply models	40
Recommendations	51



Future Energy Consumers

This work programme explores how consumers might use energy products and services in future, and how markets and regulation need to change to meet their needs.

Summary

We are quickly moving towards a smarter, more decentralised energy future. As many people as possible **must be able to benefit** by accessing the new ways of buying energy that are already emerging.

For the majority of people, their experience of the retail energy market will not have changed much over recent decades, with a bill from a conventional energy supplier landing on the doormat. However, drivers like digitalisation and technological change mean the retail energy market is expected to evolve **rapidly in the coming years**.

Decarbonisation, and particularly the recent adoption of a net zero emissions target, has also added fresh impetus to ensuring the energy retail market functions for all consumers. Attractive retail propositions that consumers are confident enough to use will be vital to enabling take up of renewable energy, electric vehicles, low-carbon heating and efficiency measures by households. There is a real risk that those that can't engage with the future retail energy market will face paying a **disproportionately high burden** of decarbonisation costs. Without a retail market that works for everyone, it won't be possible to have a just low-carbon transition. There is a need then for **protection to ensure the market works for everyone**.

Recognising this, the government and the energy regulator are reviewing the arrangements for the energy retail market, aiming to:

- enable consumers to benefit from a smarter, more flexible system
- ensure appropriate protections are in place post-price cap, and
- enable innovation and new business models

We **strongly welcome** the focus on enabling consumers to benefit and providing more opportunities for attractive, innovative offers. Since market liberalisation, the energy market has been characterised by relatively low engagement, with a trend towards loyal customers paying more over time. Some consumers have been particularly poorly served in the past. For example, people with prepayment meters have faced fewer options of tariffs and energy providers, and consequently higher prices.¹ These issues culminated in the imposition of a price cap to tackle the loyalty penalty faced by customers.

While more choices and specialised offers are likely to bring benefits to many consumers, new barriers to using these may also emerge. A fair future retail energy market must ensure that all consumers are not unnecessarily restricted from accessing products and services, and have a good range of

¹ CMA (2016) [Energy Market Investigation Final Report](#)

choices, while also protecting those who do not engage. Accessibility is important because it ensures choice, fairness, and a good chance of getting the best deal. This research is centred on identifying barriers to participating in a future market, and making sure these are minimised.

The qualitative phase of the research identified some appetite for new offers in the market, particularly those that enable consumers to purchase local and renewable power. Participants recognised problems with the traditional model for buying energy, such as rising prices and a lack of clarity on billing. But people also had some **key concerns** around new models related to the risks of giving up control, alongside a reluctance to invest more time in their energy supply and a desire to keep it simple.

Alongside this, the desk-based phase of the research identified some major barriers to accessing offers in a future market, including **digital exclusion, financial barriers, and issues around consumer engagement and trust**. Other barriers, such as those caused by housing characteristics and tenure, affect fewer people but are nonetheless important to tackle. The issue of vulnerability also cannot be seen in isolation - especially as new forms and formats of energy supply could give rise to new circumstances in which people find themselves vulnerable.

The scope of the research is deliberately limited to the retail market, though we are conscious that reforms to the wholesale market and network charging arrangements may also act as key enablers to create viable business cases for many future energy supply models, especially those focused on flexibility.


The new retail energy market is also evolving against a background of broader changes, many of which will be key to **enable new supply models**. Some of these are regulatory programmes that are moving to implementation, such as faster switching and half hourly settlement. Others are at an earlier stage. A growing role will be taken by third party intermediaries, but the regulatory framework around them remains incomplete. The debate over duty to supply will become more complex, while decisions on multiple suppliers, tariff rules and policy obligation costs could act to help or hinder the market's development.

To achieve a fair, inclusive future energy market, barriers to engagement will need to be overcome through **action by businesses, regulators, government and third sector bodies**. We set out a number of detailed recommendations to ensure as many people as possible can benefit from the retail energy market's evolution.

Our 4 key principles for the future energy market

1. Enable all consumers to choose from a good range of supply models
2. Make information about products and services transparent and accessible
3. Protect vulnerable consumers and ensure people are not penalised for loyalty
4. Put consumers in control of their energy outcomes

5 practical ways to get there

 One in four (26%) UK adults don't have a saving or investment product.²

The government should explore provision of grants and low-interest loans for new energy technologies



5.3 million UK adults are non-internet users.³

Energy service providers should offer non-digital ways of signing up, staying in contact and managing services.



186,000 energy issues were raised with local Citizens Advice in the last year.

Policymakers and regulators should ensure regardless of how people engage with the energy market there is a level playing field in how they are able to access advice and redress.



4.5 million households lived in private rented accommodation in GB in 2017.⁴

Innovators should consider how incentives for new energy technologies can be split between tenants and landlords, and regulatory barriers to this should be minimised.



51% of respondents in upcoming research were not comfortable sharing near real-time energy usage data.⁵

Consumers should retain access to and control over their energy usage data by default.

² FCA (2018) [Financial Lives Survey 2017](#)

³ ONS (2019) [Exploring the UK's digital divide](#)

⁴ ONS (2019) [UK private rented sector: 2018](#)

⁵ Accent (2019) smart meter and smart appliance data preferences research for Citizens Advice

Approach

This report is based on findings from two independent research studies commissioned by Citizens Advice. The findings are supplemented by insights from consumer contacts at local Citizens Advice offices, the Consumer Service and the Extra Help Unit. The report also draws on previous analysis by Citizens Advice and desk-based research.

The scope of the research is the domestic GB energy market. However we recognise that future energy models will also impact microbusiness consumers.

The first research study considers six business models identified by Delta Energy and Environment (Delta-ee) - a research and consulting company with a specialism in new energy supply models.

These six were selected because at this point they represent some of the types of future energy offerings that are expected to become prominent in future.⁶ Many already exist, at least in a pilot form, in the GB energy market. The six models also give a good illustration of the opportunities and accessibility barriers likely to emerge. They are not mutually exclusive - it is likely that energy companies could offer a combination of these models.

The research looks at the following models:

- **Energy as a Service (EaaS)**
Offerings based on selling a set level of comfort, rather than units of energy: Delta-ee considered EaaS offerings based on providing the use of products or services as continued service offerings (e.g. leasing a battery), and considered EaaS offerings based on managing the household's existing equipment to deliver better outcomes.
- **Time of Use (ToU) optimisation**
Offerings based on rewarding demand-side flexibility, pricing to reflect energy scarcity.
- **Marketplace models (trading platforms)**
Offerings based on a third party offering a way to buy and sell energy outside the conventional energy supply structure, often with a local element

⁶ Smart Energy GB (2017) [How Could We Buy Energy in the Smart Future](#)



Efficient consumption

Offerings aiming to improve energy efficiency by monetising a reduction in energy usage: Delta-ee considered efficient consumption offerings involving making a household's behaviour more efficient, or offerings that would make the home more efficient



Lifestyle products

Offerings focused on improving a customer's quality of life or experience, primarily through in-home devices and apps



Bundling

Offerings based on adding value from selling several services at the same time

Delta-ee highlighted the relative expected importance of each future model in the energy sector, as well as the potential barriers that consumers would face to accessing them.

Delta-ee determined the relative difficulty of overcoming each barrier based on its insight of market models. They estimated the proportion of the population that would be affected by each barrier using publicly available databases. The research also outlined potential actions different energy stakeholders could take to overcome these barriers.

The research agency Impact carried out a second research study with 106 participants to gain a direct understanding of the views of consumers from England, Scotland and Wales.

People took part in workshops in each location, or in-depth interviews for consumers whose personal circumstances prevented them from attending the workshops. The workshops were held in a deliberative format to gain deeper insights. Participants received information and were asked about their views on:

- the current energy model
- ToU optimisation models
- Marketplace models - specifically trading platforms offering peer-to-peer (P2P) trading
- EaaS models - with a focus on heat as a service

These 3 new models were selected as being the most distinct and likely to have the largest impact on the future energy market. The number of future models was limited to 3 as educating participants about all six models and gaining useful insight would have been impractical in the timescale of the workshops.

Impact then analysed consumers' discussions to highlight the potential risks and benefits of each future model. Workshop participants were presented with a pre-workshop task to spark thinking on the topic, and all participants received a post-discussion task which captured how opinions changed after time reflecting on the discussions.

Citizens Advice hosted a Future of Energy conference in April 2019 where industry stakeholders gave their perspective on the barriers to new energy supply models and informed recommendations at an early stage. We are grateful to all participants.

Taken together, these insights allow us to explore the barriers to uptake of the new energy business models, and how they can be overcome.

Barriers and perceptions of new energy supply models

Introduction

The research projects identified:

- Barriers to accessing future energy models
- Consumer characteristics that limit access to future energy models
- Consumer characteristics affected by high accessibility barriers
- Consumer expectations for the energy market

1. Barriers to accessing future energy models

Delta-ee research framework

1. Future business models

Delta's research framework begins with identifying types of future domestic energy supply business models



2. Barriers to accessibility

Potential barriers to accessing these business models were then identified (81 in total)



3. Characteristics that would affect accessibility

Delta-ee then identified characteristics that would make consumers susceptible to the barriers, and estimated how many people have each characteristic.



4. Approaches to improve accessibility

Finally, Delta-ee detailed potential ways to improve accessibility

Based on their insight and existing database, Delta-ee identified that consumers face different specific barriers depending on each future business model. Most barriers fit into five categories of consumer characteristics that are common across models.

As a result, individuals who face cross-cutting barriers might have greater challenges to accessing all business models. Addressing cross-cutting challenges would therefore deliver significantly improved accessibility across all business models as the market evolves.

The barriers Delta-ee identified as most difficult to overcome for multiple models were:

Lack of trust in companies

- Energy as a Service (both offerings)
- Time of Use
- Lifestyle products

Upfront cost

- Energy as a Service (offerings based on providing continued use of products)
- Efficient Consumption (both offerings)

Financial lock in - where a commitment for a set period is necessary

- Energy as a Service (offerings based on providing continued use of products)
- Lifestyle Products

Energy not a high priority compared to competing priorities

- Trading Platforms
- Efficient Consumption (both offerings)

Not having control over energy demand

- Trading Platforms
- Time of Use

2. Consumer characteristics that limit access to future energy models

Each barrier is related to particular consumer characteristics, for example the barrier of upfront cost would link to the characteristic of having insufficient savings for a large upfront cost. Delta-ee identified the **key groupings of consumer characteristics** as:

Financial situation: this includes a household's access to savings, level of income or predictability of income

.....

Attitudes: this includes how motivated the household is to engage in the energy system, who they trust and how much they feel a need to be in control

.....

Personal circumstances: this includes demographics, family dynamics, work schedules, and whether a household rents their home

.....

Comprehension and understanding: How easily a household can understand new business model propositions or learn to use new technology

.....

Attributes of the property: The physical building in which household members live

Specific characteristics exist within these groups. For example, financial situation includes characteristics of: unpredictable monthly income, poor credit score, insufficient savings for upfront cost, only just financially managing and existing high cost not being a motivation. Delta-ee estimated that the characteristics **impacting the greatest proportion** of the UK⁷ population include:

Financial situation	Consumers have insufficient savings for large upfront costs

	Existing high energy costs limit consumer motivation to engage

Attitudes	Consumers value their control

	Consumers are not motivated to engage

Personal circumstances	Energy is not a high priority compared to other competing priorities that consumers face

⁷ Delta-ee (2019) How Accessible are Future Energy Supply Business Models?

3. Consumer characteristics affected by high accessibility barriers

Delta-ee estimated the height of each barrier - how hard they are for consumers or companies to overcome - represented as a qualitative score out of five based on their expert insight into new energy models.

The proportion of consumers with characteristics that would be affected by each barrier was determined using publicly available information, for example statistics on the number of people in rented accommodation, and assumptions based on market experience where necessary.

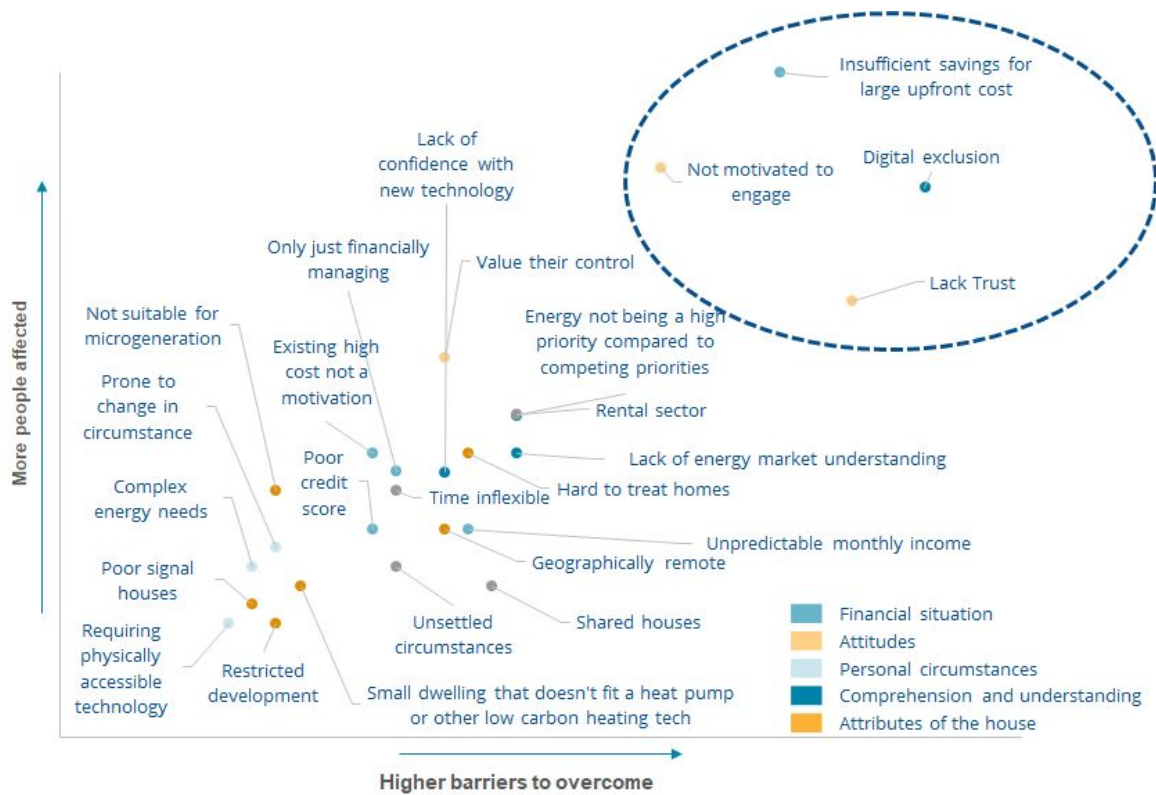
By combining these two elements, the research identified the characteristics that **are most difficult to overcome** and **which are likely to affect the most people**, and therefore could be those which require most attention:

- Having insufficient savings for the large upfront cost of technologies
- Lacking the skills or confidence to use apps or websites (being affected by digital exclusion)
- Not being motivated to engage in the energy market
- Not trusting trust energy suppliers or other companies in the energy sector

However, it is important to be clear that all characteristics and barriers will have some impact for individual consumers and are important to address where practical.

The height of barriers and proportion of people affected are shown for several barriers, fitting into the 5 consumer characteristic groupings discussed previously.

Cluster of financial and attitude barriers that will be critical to address for future energy business models to succeed



4. Consumer expectations for the energy market

Impact's research - centred on deliberative workshops and in-depth interviews - highlighted that consumers feel the current energy model is easy to use and works well enough, but consumers also have some appetite for a more innovative energy market.

The research participants were ambivalent towards the current energy market and on the whole are not very engaged with it. The participants were receptive to technology that could improve their experience, but there are fears that an increase in the role of technology may further exclude consumers in vulnerable circumstances.

Participants felt that a more complex future supply market would require additional support and guidance for consumers, and would need to achieve the following outcomes.

Fairness

Ensuring all consumers, especially those in vulnerable circumstances, receive sufficient support from energy suppliers and advice organisations

This would require mechanisms to:

- Enable consumers to obtain and use equipment required for various business models
- Support and advise consumers about how to interact with different models
- Ensure models involve incentives to drive consumers to change behaviour

Transparency

- Increasing trust in the energy market by ensuring any move to an alternative energy supply model to involve more transparency and sharing of information regarding elements such as tariffs and contract length

Consumer protection

- Representing consumer opinions in decisions on the future energy market, for example through Citizens Advice's advocacy work
- Ofgem regulating future energy supply models to ensure that consumers are protected from unfair prices and have a reliable supply of energy

Simplicity

- Ensuring that energy offerings are easy to understand
- Offering various platforms for consumers to engage with energy models, including well-designed and accessible apps and easy-to-understand technology
- Ensuring that billing is simpler and more straightforward
- Where possible, allowing a trial period for consumers to understand the practical implication that an energy contract would have on their lifestyle

Control

Incorporating aspects of flexibility or personalisation, such as:

- Shorter contracts of up to 2 years for EaaS
- Choice in the peak hours for ToU
- Options to select where your energy comes from and if it is green for trading platforms

Environmental Responsibility

- Protecting the environment is becoming increasingly important to consumers, and new supply models should enable this
- There is, however, a general lack of awareness among the participants of the benefits of low-carbon technologies, with some participants citing negative experiences with solar panels and concerns over smart meters

In the sections below, we give a more detailed explanation of what each future energy model involves, discuss what the barriers to accessing them might be, who this would affect, and what consumers thought the main risks and benefits of each model were.

Future supply models

1. Time of Use

ToU models all involve a variation in energy prices over the course of the day to reflect changing levels of supply and demand.

At a simple level, ToU has been a feature of the household energy market for decades through Economy 7 tariffs - rewarding overnight power usage.

More innovative offers are now emerging, using data from smart meters, to dynamically adjust prices. When demand is low, or if supply is very high (for example on sunny, windy days), prices will be lower to prompt people to use more energy at that time. When many people are trying to use energy or the availability of energy falls, prices will be higher to prompt people to use less energy at that time.

As electric vehicles offer vehicle-to-grid charging possibilities and on-site renewables and storage becomes more prevalent, the potential for more complex future supply models with a key ToU element becomes clear.

ToU business models can be grouped by how they fall into two different choices:

Fixed or dynamic prices

- **Static tariffs** have set prices for different parts of the day. These stay the same throughout the duration of a contract
- **Dynamic tariffs** have prices that are linked to the wholesale energy cost for each part of each day. Prices could change every half hour from day to day and week to week

Consumer or automated control

- **Active customer enabled tariffs** allow customers to manage their energy use independently by directly carrying out energy-consuming activities at a time that they think is appropriate
- **Passive customer enabled tariffs** allow a third party to control when energy-consuming appliances are used, or when energy is drawn from an on-site battery rather than the grid

These variations mean ToU models offer consumers a choice in how they engage with energy. A simple, manual version of ToU can be taken up without major investments or alterations to the property, so it is comparatively low cost and low risk to try.

However, with the more complex ToU offerings involving automation, some up-front technology investment can be expected.

Example: Ontario's ToU Tariff

Static ToU tariffs were implemented from 2006 in the province of Ontario, Canada. The tariffs rely on smart meters, with the electricity supplier using consumption data to charge customers for the amount of power used at any given time. The prices and peak times are set by the Ontario Energy Board. Consumer electricity use falls into one of three categories:

- Off-peak: night time, weekends and holidays
- Mid-peak: low demand times of the day
- On-peak: high demand times of day

Peak times vary by season, reflecting changing usage of for example air conditioning in summer and heating in winter.

1.1 Future importance

National Grid's Future Energy Scenarios⁸ expect an increase in electricity demand and a fall in conventional dispatchable thermal capacity. The system operator recognises the key role residential demand-side flexibility could play in balancing the system. In its 2019 Community Renewables scenario a high smart meter roll-out and a large number of smart appliances could suppress demand by 10% by the late 2030s, and 13.5% by 2050, equivalent to around 1.6GW of peak electricity demand. Residential battery systems, heat storage and smart EV charging will also further reduce demand - it is anticipated that over 75% of EVs could be using smart charging by 2050.

Flexibility can also avoid the need for expensive local electricity grid infrastructure upgrades. This need for future flexibility is reflected in the future importance scores assigned by Delta-ee to the model. Each business model was rated from low to high importance for each of the three groups, and these were combined to give an overall rating of importance based upon Delta's expertise.

Importance to customers



- Potential for cheaper energy in the short and long term
- Risk of higher energy costs in the short term
- Restrictions on energy use
- Enables decarbonisation and consumer environmental goals

Importance to energy networks



- Enables domestic demand-side response which can reduce peak demand on electricity grid and reduce the need for upgrading grid

⁸ National Grid ESO (2019) [2019 Future Energy Scenarios](#)

Importance to policymakers

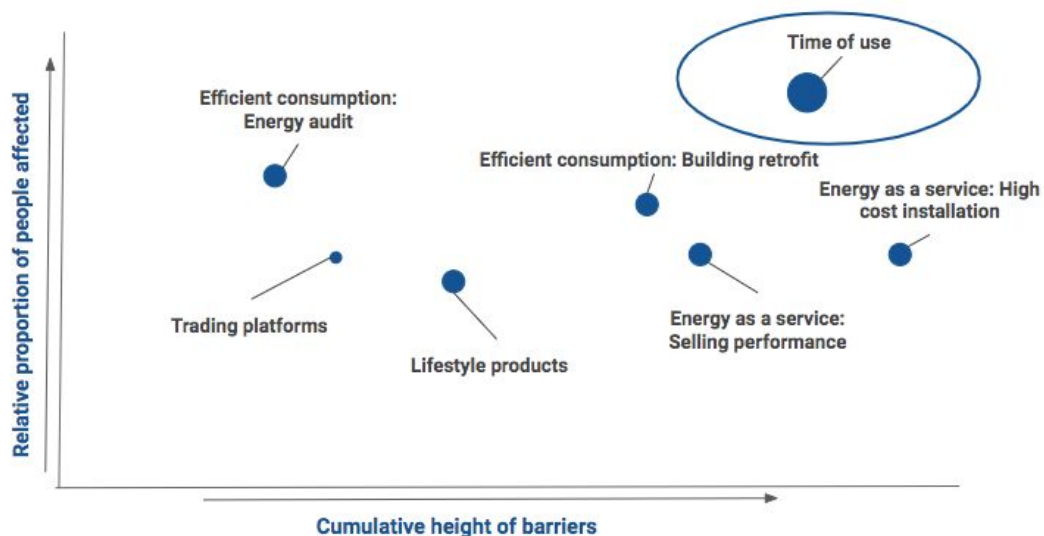


- Enables future electrification of domestic heating and transport, and use of energy from renewable generation, supporting climate goal progress

1.2 Barriers to accessibility

Delta-ee found that barriers to accessing ToU models will affect more consumers relative to other future energy supply models. The combined relative height of the barriers is also one of the highest compared to other future models as shown here. This means that this while this model will be important for the future energy market, substantial barriers exist. Solving them must be a priority for policy makers.

Relative height of barriers and proportion of population affected by business models



The key barriers that consumers are likely to face in accessing ToU business models are:

Inability to shift large amounts of energy use

This barrier might apply to people:

- whose working patterns or family members' energy requirements prevent them from shifting use. Previous research has revealed that it is the more

affluent energy users have more choice over how, when and on whose terms they economise their flexibility capital, if at all⁹

- who rent a room in a shared household and can't control overall energy use
 - who can't afford a battery to store energy when it is cheap
-

Inability to engage in passive customer enabled tariffs

To take advantage of the lowest rates offered by a ToU tariff, consumers might have to:

- own appliances that can be remotely controlled by a third party, which might be a barrier for those who can't afford smart appliances
 - relinquish control to a third party to manage their energy use and operate appliances when energy is cheapest, which might be a barrier for consumers who distrust a third party to appropriately manage their energy use, or who don't wish to release control of energy use
-

Unwillingness to shift energy use

- Consumers might need to manually change their energy consumption behaviour to avoid the highest price periods.
 - Consumers would need to spend more time thinking about and planning energy use, when they don't currently prioritise thinking about energy consumption
-

Limited understanding of the mechanisms through which ToU models operate

- This could put consumers at risk if they don't understand that using energy at peak times can expose them to higher energy prices
-

Barriers for ToU optimisation are most likely to affect people who:

- Have low income or lack access to savings
- Hold attitudes of distrust towards the energy market
- Are not motivated to engage in the energy market

⁹ Powells and Fell (2019) [Flexibility Capital and Flexibility Justice in Smart Energy Systems](#)

1.3 Consumer perceptions

Interest in ToU

ToU was the least popular model and participants in the Impact workshops were by far the most sceptical of this model. However, they understood this model quickly and were able to compare it to day and night rates on existing Economy 7 tariffs.

Fixed tariffs were easier to understand than dynamic pricing, which was perceived to require frequent advance planning. Many consumers disliked the idea of a ToU model since it would limit control over when they use energy.

Low opt-in to ToU is reflected in existing energy research literature. A 2015 survey showed that 30% of respondents were strongly or somewhat in favour of switching to a static ToU tariff, or to an automated dynamic ToU tariff.¹⁰ However, a systematised literature review from 2018 by the same authors indicated that the proportion of bill payers who say they would be willing to switch to a ToU tariff in national surveys is five times higher than actual enrolment rate to ToU tariffs available.¹¹

Barriers to engaging with ToU

Participants stated that some energy-using activities can't reasonably be shifted to different times of day, for example watching television. Shifting demand by operating appliances overnight can be disruptive to the household, or neighbours due to noise. This is particularly a barrier for people who live in a shared property with rules against operating appliances at night. Using appliances when no one is home is also seen as a potential safety or fire risk. This finding from consumers reflects the barrier identified by Delta-ee that people might be unwilling or unable to shift energy use.

Participants felt that this model relies on consumers making substantial life changes to achieve the environmental and network benefits, without requiring similar investment from energy suppliers. Workshops held to explore the popularity of smart charging for electric vehicles for another piece of Citizens Advice research¹² also revealed participants held mixed views about who should bear responsibility for balancing electricity supply and demand, in terms of whether EV drivers should accept some

¹⁰ Fell, M.J., Shipworth, D., Huebner, G.M. and Elwell, C.A. (2015) [Public acceptability of domestic demand-side response in Great Britain: The role of automation and direct load control](#)

¹¹ Nicolson, M.L., Fell, M.J. and Huebner, G.M. (2018) [Consumer demand for time of use electricity tariffs: A systematized review of the empirical evidence](#)

¹² TRL (2019) [Smart Electric Vehicle Charging: What do drivers and businesses find acceptable?](#)

responsibility, or whether it should lie entirely with National Grid, energy suppliers, or the government.

While consumers understood the need for demand-shifting, they felt the cost should be borne by industry, and that ToU might only allow energy suppliers to justify charging higher prices.

What is needed to make ToU acceptable?

Consumers felt that ToU contracts should allow for changing circumstances. Dynamic ToU would also require additional support for customers who cannot purchase smart appliances that can be controlled by a third party or load shifting tools such as batteries. The Impact research also highlighted how there is a missed opportunity to frame ToU tariffs as delivering an environmental upside by allowing greater renewables deployment.

Who would benefit from ToU?

Research participants had differing opinions on who would benefit or lose out from ToU models. Some participants felt that consumers who are home during the day would likely benefit from this model since they can be more flexible with energy use. Others felt that those who are home during the day might need to use energy more constantly and can't turn it off when it is expensive, for example if they always need the heating on, or if they use electric medical equipment. Generally, people who have school-aged children and those who work shifts were perceived to have more inflexible lifestyle routines, which could make energy demand-shifting more challenging.



“Yes, your washing possibly, your dryer, but heating, cooking, TV...”

You’re not going to say ‘Can you hang on an hour for your tea, kids? Can you hang on an hour for television?’”

Cardiff workshop

2. Energy as a Service

The current energy supply model is based on suppliers selling energy measured in kilowatt hours, with consumers billed on their usage.

But, recently, some providers in GB and in other energy markets have been trialling offering “Energy as a Service” (EaaS). At its most fundamental, this is the concept that a set level of comfort is delivered for a fixed price - this could mean, for example:

- a guaranteed temperature in a home, or
- a set number of hours of heating a day

A common comparison is drawn to mobile phone companies moving in recent years from charging for calls per minute or text to an overall monthly all-inclusive service offering that includes the handset.

This model is also often framed as enabling the installation of new energy equipment. For example, having a new heating system installed at no up-front cost and it being paired with a new technology that automates heating and power consumption.

International experience to date with the service-based model on a commercial scale shows it can achieve an energy savings potential of up to 20–25%.¹³

Example: Bristol Energy and Energy Systems Catapult

Local authority-owned energy supplier Bristol Energy and innovation agency the Energy Systems Catapult announced in February 2019 that through a government-backed trial, households can buy a “Heat Plan” tailored to their individual home and lifestyle. Heat Plans provide consumers with room-by-room, hour-by-hour control over their heating.

Data is collected via a smart heating control system, with the energy provider then able to calculate a fixed monthly cost that is bespoke to the triallist’s home and lifestyle. The service is being offered to 100 “living lab” homes that took part in a previous trial, having had their homes upgraded to a smart homes standard expected to be common in the mid-2020s.

¹³ ACEEE (2019) [Energy as a Service](#)

2.1 Future importance

In the context of decarbonisation, the importance of a new approach to heat emphasises the potential importance of EaaS - providing as it does, a means of installing new heat equipment and achieving a comfortable temperature.

The importance of new heating infrastructure was reinforced recently by the Committee on Climate Change's Net Zero report, which found that by 2050, almost all household heating will need to be low-carbon, reducing average annual heating emissions to below 0.1tCO₂e in 2050. This would require the removal of almost all gas boilers.¹⁴

Importance to customers



- Can simplify a complex future energy market
 - Enables consumers to access new low-carbon technology
 - Delivers an agreed service level, with the best way to achieve this worked out by the provider
-

Importance to energy networks



- Smart control can enable demand-side response, reducing the need for local network reinforcement and lowering costs
-

Importance to policymakers



- Offers a means to reduce the barriers to heat decarbonisation
- Enables replacement of gas boilers without consumers bearing the financial burden of buying new technology

¹⁴ CCC (2019) [Net Zero – The UK's contribution to stopping global warming](#)

2.2 Barriers to accessibility

Delta-ee identified that barriers to accessing EaaS can vary depending on whether the model offers a set service level or new equipment. Given the differences in these two options, their barriers were assessed separately. Overall, the biggest barriers to emerge were the following

Physical aspect of the home

- Service companies might not guarantee outcomes for unsuitable homes. Energy inefficient homes might be prohibitively expensive to guarantee a temperature for
 - Homes may also be unsuitable if there is insufficient space to install new equipment
-

Changes in circumstance

- EaaS contracts may agree to deliver set outcomes, but if personal circumstances change, different outcomes might be needed
 - EaaS contracts would be unattractive if they don't allow for change, or if the changed contract might lead to a higher price than normal supply
 - This leads to the threat of being locked into an unfavourable arrangement
-

Trust

- The concept of EaaS is currently unfamiliar to consumers
 - Consumers would need to trust a third-party to externally deliver the agreed-upon service in order for this business model to work. This could well be with an unfamiliar provider
 - Previous field trials have revealed that consumers did not understand responsibility for rectifying errors or routes to redress¹⁵
-

Digital literacy

- EaaS requires accessing energy use through technology, while a significant minority of the adult population continue to not have smartphones or regularly access the internet
- People with low digital literacy may find this unappealing, giving the impression of a reduced level of control if they are unsure, for example, of how to achieve the desired level of heat, compared to the relative simplicity of a thermostat

¹⁵ ES Catapult (2019) [Designing smarter consumer protection in a smarter energy world](#)

2.3 Consumer perceptions

Impact's research focused discussions on EaaS primarily on heat as a service since this was the most practical example for consumers. People had mixed views of this supply model.

Consumers felt that homes need a high level of energy efficiency before this model can be viable. This is reinforced by the fact that existing offers involve a minimum energy efficiency level. Participants felt that when it comes to heating in particular, the government and energy suppliers should be collaborating with consumers to optimise homes for decarbonised future energy use. Delta-ee similarly highlighted physical aspects of the home as a barrier to accessing EaaS models. Consumers in the primary research had concerns around who should be footing the bill for making homes viable for future energy models.

During the Impact workshops, consumers also discussed the potential for other applications of EaaS, such as electric vehicle charging bundles, and this seemed more viable to consumers in the immediate future.

The fear of losing control was a recurring theme. Contracts that might be 5 years long were very unpopular since consumers thought it was likely that their energy consumption behaviour would change during that time.

Participants had several opinions regarding the fairness of this business model. They were concerned that consumers who are less digitally-savvy could be excluded from this energy supply model. However, EaaS also offers fairness benefits since it might allow consumers who may be home for longer parts of the day, for example due to a disability, to lock in a set level of heating for a price that won't fluctuate monthly.



“In order to heat your home up to 18, you need to put it up to twenty-three. This comes back to putting the groundwork in first. You need to make sure everyone's home is insulated properly”

Glasgow workshop

3. Trading Platforms

Delta-ee's Trading Platforms business model describes organisations which, rather than offering products and services, transform the actual marketplace in which these products and services are offered.

This model is characterised by 4 levels, with different degrees of complexity:

- **Price comparison services**, focused on supplier switching
- **Auto-switching**, which automates and simplifies the task of supplier switching
- **Trading platforms**, allow consumers to directly partner with generators, often on a local level
- **Smart markets**, allow for a full range of services to be offered, where energy might be a part of the offerings

Some of these levels of the model are already well established, with price comparison sites emerging shortly after retail market liberalisation and the ability to choose supplier. Given the future-focused nature of this report, we have focused on the implications of the more complex levels such as P2P trading.

Trading platforms are underpinned by the trends of connectivity and digitalisation. They enable consumers to become more active market participants with more choice over where they purchase energy from, and additional options to generate and earn revenue from exporting and ultimately trading energy. P2P trading emphasises consumer choice, localism and renewables.

Example: Sonnen's trading platform: sonnenCommunity¹⁶

Sonnen is a company that offers an intelligent battery storage system (sonnenBatterie) that can be used in conjunction with solar PV panels to automatically adjust energy use in a household. Members of the SonnenCommunity (currently in Germany, Austria, Switzerland and Italy) are battery owners that can use their solar panels to cover their own energy needs on sunny days, and possibly generate a surplus of energy. Any surplus is shared with others in the community, monitored via a central software which balances supply and demand. Since members would use energy from their own solar panels and those of others from the community, they no longer need a conventional energy provider. They would instead pay a monthly fee to join the SonnenCommunity, which includes support services, alongside trading platform access.

¹⁶ sonnen (2019) [sonnenCommunity](#)

3.1 Future importance

The primary driver behind these comparatively low importance ratings is the fact that in Delta-ee's view, trading platforms are not expected to be mass-market in the short to medium term and therefore their impact will be relatively small.

Pilot projects to establish the viability of this business model, and some of the key drivers of future importance are there, such as reducing pressure on local grids. In a workshop session at the Citizens Advice Future Energy Consumers conference in April 2019, industry delegates viewed this model as potentially having a high future importance.¹⁷ This therefore may well be a model whose importance grows over the coming years into the longer term.

Importance to customers



- Increased consumer choice
 - Potential cost savings
 - Supporting local community energy systems
-

Importance to energy networks



- Reduced demand on the energy system and less pressure on grid infrastructure
 - Limited impact if it is a niche business model
-

Importance to policymakers



- Potential to reduce the need for other, more expensive, low-carbon energy incentives which are funded by the government

¹⁷ Citizens Advice (2019) Consumers at the heart of the future energy system meeting notes

3.2 Barriers to accessibility

Delta-ee found that relative to other business models, barriers to accessing trading platforms are not as high and do not affect as great a proportion of the population. The main barriers to accessing energy trading platforms are:

Disengagement with the energy market due to low prioritisation or limited motivation

- Participating in energy trading platforms requires more active engagement with the energy market, including independently generating energy from on-site sources, deciding where to source household energy from, and deciding how to share or sell the excess energy generated.
 - Direct cost benefits of this model to the consumer can vary, which means that households who won't see any cost benefits won't be motivated to engage
-

Limited digital and energy literacy

- To get the most benefit from participating in an energy marketplace, prosumers would require an understanding of energy supply and demand
 - Consumers might need to learn to use additional technology, such as a battery storage system, to change settings and access energy
 - P2P trading platforms are likely to rely on engagement via apps or internet
-

Distrust and an unwillingness to release control over energy demand

- To take advantage of the best prices for selling, buying or storing energy, consumers might need to relinquish control to third parties or technology platforms that regulate what energy sources a household is using
 - Consumers might not know what to do or who to contact when things go wrong. Existing energy supply protections may not be suitable for people buying energy like this
-

Upfront cost

- To become a prosumer, households require hardware for microgeneration or battery storage, which often have an upfront cost. Without these technologies they may be less able to benefit
-

Suitability of the house to new technology

- Households that are less able to support microgeneration or storage equipment, such as private rented flats, might not be able to benefit from acting as prosumers in this model

3.3 Consumer perceptions

Interest in trading platforms

Participants were most positive about this model, Participants liked the element of choice presented by the peer-to-peer model around who they pay for energy, with the perceived benefit of rewarding micro-suppliers, ethical traders, or local schools and organisations that might act as generators. Trusting traders is less of a barrier, considering that trust in the current energy system is already quite low. Consumers also see more direct links between this model and renewable energy than with the other models. Impact found that the choice, environmental and local benefits that P2P trading platforms offer resonated with participants. This supports earlier polling by Ipsos MORI, showing a preference for a “Renewable Communities” model, with greater choice and responsibility at community level.¹⁸

Consumers’ perceived benefits of P2P trading platforms are also echoed by existing programmes. For example, Powerpeers, a marketplace community launched by Vattenfall, is described as having attracted different people for various reasons:¹⁹

- Young people are drawn into the technology aspects that allow people to see local generation sources pop up in the app all over the country
- Older people like the sense of community the marketplace creates with their neighbours and the lower price of electricity
- People interested in environmental outcomes value the transparency around generators

¹⁸ IPSOS Mori (2016) [Public priorities for our future energy system](#)

¹⁹ Engerati (2018) [Lessons from peer-to-peer energy trading in the Netherlands](#)

Concerns around engaging with P2P trading platforms



“the greedy people [...] I’m going to cover my whole house with solar panels, I’ll put them in garden, that’s not fair”

Milton Keynes in-depth interview

In the primary research, consumers highlighted their main concern around this model relating to reliability of energy supply if a trader goes on holiday or doesn’t generate enough energy. These opinions reinforce the need to improve reassurance and understanding.

Some consumers were interested in the option of becoming a trader, but others highlighted the financial barriers to doing so. Financial barriers also pose equity concerns, since those who are unable to afford generation equipment might be left behind.

In P2P trading platforms, third parties could mediate trading. While people in the research felt that third parties would be the easiest way to access energy in this type of model, they were concerned that third parties might act like traditional energy suppliers, or alter energy prices to their benefit.

Finally those living in rented accommodation might not benefit from P2P models. If, for example, their landlords or social housing associations install solar panels, there is a risk that they might do so without tenant permission without getting any benefits.

What can make P2P more attractive?

P2P trading platforms offer consumer choice, community-based and environmental benefits. This model would be more popular if there are options to support those who can’t pay for generation equipment to participate - for example through local authority funding, government grants, or social housing participation.

People would also be interested in traders from this model contributing to the wider community through initiatives such as ‘energy banks’ that can collect donations of excess energy for fuel poor households, utilising energy storage.

4. Efficient Consumption

The Efficient Consumption model identified by Delta-ee offers data-driven commercial arrangements to help consumers lower energy consumption and ultimately reduce their bills.

Domestic energy efficiency programmes to date have delivered successes. Around 2.5 million measures had been installed in around 2 million properties through the Energy Company Obligation (ECO) or under the Green Deal Framework at the end of 2018.²⁰

However, supplier-led programmes such as ECO have limitations. As the installation figures show, most upgrades consist of applying a single measure, in isolation from other initiatives. More complex and expensive measures, such as solid-wall treatments have received comparatively less attention. More broadly, home insulation rates have fallen as low as 5% of peak installation delivery in 2012.²¹

Delta-ee identifies that there are two general approaches to new energy efficient consumption business models:

Energy audits

- Remote audits of energy usage – these provide energy usage insights and can be performed without a site visit
- Customer engagement tools – this approach aims to educate consumers and generally has a strong behavioural focus

Building efficiency

Complete building re-fits – this approach aims to upgrade a home with a wide range of improvements, completed at one point in time through a holistic approach

Example: Nottingham Energiesprong

It was announced in January 2019 that Nottingham City Council had secured over £5mn through the European Regional Development Fund (2014-20) to roll out its Energiesprong, ultra-low energy homes pilot, which will include improvements to over 150 Nottingham City Homes properties. The upgrade includes new highly insulated outside walls and windows, a solar roof, and a state of the art heating system. The intent is that environmental performance will be improved to almost net zero energy.

²⁰ BEIS (2018) [Household Energy Efficiency National Statistics](#)

²¹ IPPR (2018) [Beyond ECO](#)

4.1 Future importance

The importance of efficient consumption was reinforced by the recent Committee on Climate Change Net Zero report. This advocated that energy efficiency retrofit of the 29 million existing homes across the UK should now be a “national infrastructure priority”.²²

Importance to customers



- The potential to reduce bills offers direct financial savings
 - There are also wider benefits to having a more comfortable, warm home, avoiding the wide range of poor health outcomes from cold homes²³
-

Importance to energy networks



- Increasing energy efficiency will result in a reduced demand for energy thereby reducing the grid capacity and generation capacity required. GB electricity generation output in 2018 was 63TWh (16%) lower than in 2005²⁴, with increased energy efficiency significantly contributing to this
-

Importance to policymakers



- Efficient Consumption business models are of high importance to government as they can directly reduce energy consumption in the domestic sector and therefore help GB to cost-effectively meet the binding carbon budgets

²² CCC (2019) [Net Zero The UK's contribution to stopping global warming](#)

²³ Public Health England (2014) [Fuel poverty and cold home-related health problems](#)

²⁴ Carbon Brief (2019) [UK electricity generation in 2018 falls to lowest level since 1994](#)

4.2 Barriers to accessibility

Barriers to consumers accessing efficient consumption business models typically centre around willingness to engage and financial barriers. These are also distinct as to whether an energy audit is the extent of the model offer, or whether it includes installation, The highest cross-cutting barriers were the following:

Energy not being a high priority

- Consumers who have higher priorities than efficient energy consumption are unlikely to respond to Efficient Consumption prompts, particularly if disruptive installations are required
 - This may be exacerbated by the need for consumers to place their trust in providers, sharing a large amount of data and continually engaging with the audit findings to shift behaviour
-

Upfront cost

- The typical household retrofit is expensive and therefore is inaccessible to certain consumer groups without either direct funding from an outside organisation or provision of credit on terms generous enough to incentivise uptake
-

Long term commitment

- Given the upheaval of a major retrofit, consumers are likely to want to be committed to a house long-term before undergoing the disruption, and will want to be there long enough to accrue the benefits

4.3 Consumer perceptions

Consumer perceptions of Efficient Consumption as a distinct business model was outside of the scope of the Impact workshops, because it is a concept that is already familiar and at its most simple level falls within the current supply model.

However, it is notable how energy efficiency was observed by participants to be a key enabling factor in other future business models. EaaS was seen as more appealing if it also offered a means to access energy efficiency upgrades.

Research participants were resistant to paying for energy efficiency measures themselves, with an expectation that the government should pay for these upgrades.

Other research conducted in this space is captured in a recent academic literature review²⁵ of consumer perceptions of energy efficiency. It concludes that:

- electricity use is often overestimated for low-energy consuming appliances, and underestimated for high-energy consuming appliances
- using less energy from existing appliances is preferred to installing new appliances or technologies
- consumers lack information about how much electricity can be saved through specific strategies

²⁵ Vedran Lesic et al (2018) [Consumers' perceptions of energy use and energy savings: A literature review](#)

5. Lifestyle products

“Lifestyle products” are tools that focus on improving consumer quality of life or experience through connectivity of homes and devices.

Products in this business model intend to create tangible value for consumers, or to excite and engage them. Lifestyle products are often offered alongside tariffs or services and delivered through in-home devices and apps.

These products can be grouped into three categories outlined below. Since the market is quite new, the categories represent different levels of increasing connectedness, but there are some similarities between the levels.

1. Stand-alone devices

These are usually purchased by early-adopters because they can solve problems in a new way, making life easier via imaginative use of technology, or are ‘cool’ or have an appealing design.

2. Smart home

This involves multiple connected devices, only some of which relate to energy.

3. Smart life

This extends the ‘Smart Home’ category through smart technology that can perform various functions, like providing an energy wallet for electric vehicle charging, or supporting an elderly family member via alerts about their energy use.

Example: EDF’s Sowe²⁶

Sowe are a subsidiary of EDF that functions as a hub for various home services. It provides connected heating controls that automatically adjust home temperatures based on comfort or budget. It also allows people to control other smart appliances in the home.

The product has been on the market since the end of 2016 and EDF aims to install it in a million homes over the next 10 years.

²⁶ EDF (2019) [Sowe](#)

5.1 Future importance

Delta-ee found that Lifestyle Products will probably be very important to consumers as they are taken up by the mass market, and are likely to enable uptake of other models. However, these products will probably have limited importance on their own to energy networks or policymakers.

Importance to the customer



- Enhanced convenience over managing household activities and temperature
 - Potential to improve quality of life, especially consumers who need to be monitored
-

Importance to energy networks



- Not expected to provide any standalone benefit to the energy system, but might support people in engaging with ToU and other models
-

Importance to policymakers



- Potential to reduce the need for state-funded intervention to assist people who have disabilities (e.g. house visits by a carer)
- Not expected to contribute to decarbonisation goals and therefore remain of low importance

5.2 Barriers to accessibility

Overall, the biggest barriers people face to accessing lifestyle products relate to consumer ability or willingness to commit to a subscription or upfront cost, and consumer trust in the company offering the product. Physical disabilities might also pose a barrier to accessing this model due to the interaction with various technologies and household products.

However this barrier can be overcome if companies develop accessible products. A positive example is the collaboration between Energy UK, smart meter display manufacturer Geo and the Royal National Institute of Blind People (RNIB) on an Accessible In-Home Display (AIHD) for smart meters to benefit blind and partially sighted customers.²⁷ The highest barriers that Delta-ee identified for this business model are described below:

Financial barriers

- Lifestyle products are likely to be sold as part of a subscription requiring fixed payments
- Lifestyle products that avoid contracts might need to be purchased outright - for some products, such as smart appliances, this might be prohibitively expensive

Distrust of energy companies

- This business model relies on monetising data acquired from customers, which might be a barrier if companies are distrusted

Limited digital and energy literacy

- This model relies on consumer interaction via technology to change settings
- Consumers would need to have some level of energy literacy to make good decisions and benefit from this interactive model

Attributes of the property

- Lifestyle products are most likely to be effective in homes with up-to-date products that can be connected; homes might be unsuitable if they have thick walls which block wireless signals

²⁷ Smart Energy GB (2018) [Smart Energy GB responds to the development of Accessible In-Home Displays](#)

5.3 Consumer perceptions

Lifestyle products fell outside of the scope of the Impact workshops around consumer perceptions, since they were not expected to have as large an impact as Trading Platforms, EaaS, and ToU models.

Lifestyle products have the potential to drive people's engagement with the energy market. Joint research between Cornwall Insight and Abtran highlighted that individuals' engagement with the energy market is influenced by demographic factors.²⁸ Millennials' opinions are influencing how the energy sector delivers customer service. Of this group, 41% interact with their supplier via social media channels. They are also more likely to be early adopters of new energy products and services.

Delta-ee also highlights the potential for lifestyle products to engage customers with aspects of their energy that they would not normally engage with, such as their heating system²⁹. For example, an integrated offer of smart control products, such as the Sowe example, can incentivise customers to invest in energy infrastructure as long as the product is affordable and convenient.

In their report, Cornwall Insight stated that people also want "autonomy in how and when they use their energy, personalised products and services, multiple payment options, and an ability to interact with their service provider when, where and how they choose".

Lifestyle products have the potential to appeal to certain groups of consumers if they are able to simplify, customise and personalise energy use.

²⁸ Cornwall Insight and Abtran (2017) [Attracting and Retaining Customers in a Disrupting Energy Market](#)

²⁹ Delta-ee (2018) [European Heat Summit 2018 - innovation is heating up in an industry that needs to engage with customers to enable growth](#)

6. Bundling

Bundling - selling products or services together - is not a new trend, or indeed one that is unique to the energy market. The most obvious example would be offering dual-fuel tariffs, where suppliers offered to supply gas as well as electricity.

Bundling was not researched by Delta-ee in the same way as other business models were since it cuts across several models, and the barriers to accessing bundled packages will depend on barriers of the specific products or services within the bundle.

Bundling is becoming increasingly prevalent in energy, and across sectors, driven by factors including the desire to grow revenue from the consumer end of the value chain as commodity margins fall, and better understanding of consumer needs driven by data analytics.

Bundling has also grown in its sophistication, ranging between:

- additional products where a new product is added to an existing service
- multi product bundles, where a core business model is built around offering several services as a means of simplification
- smart bundles, where products complement each other creating additional value pools

Example: Anesco at Home

GB's market-leader in grid-scale battery storage confirmed in May 2019 that it will enter the domestic market with a multifaceted offer. Anesco at Home provides homeowners with a model for generating, storing and managing their own power.

Described as the "complete home energy system", it combines solar, storage, heat pumps and electric vehicle charging technology, with an energy tariff auto-switching service and operations and maintenance care plan. Expected benefits include lower bills, a reduced carbon footprint and expert system design and installation.

6.1 Importance to the consumer and barriers to accessibility

Key consumer benefits from bundled offerings include:

- convenience and simplification of ever-growing choices, both within energy, but also with other household services
- improved peace of mind and long term satisfaction via tailored offers, fixed price contracts or flexible contracts depending on consumer circumstances
- provision of exciting, novel and useful technologies which consumers might not otherwise engage with, which is required for access

Many of the barriers to consumer uptake of bundled offers are similar to the wider cross-cutting barriers. Consumer trust is an issue that could be particularly magnified by bundling as a negative experience with one aspect of a bundle could lead to a wider negative perception of new energy supply offerings.

6.2 Consumer perceptions

As part of the pre-task exercise to the Impact workshops, participants were asked to consider what other products or services energy offerings should be like.

The majority of responses focused around a bundled service, similar to that of a mobile phone contract (e.g. combined electricity usage with a TV package). Participants identified convenience as the main benefit - if services are combined it would be easy to shop around for the best deal.

Changes to enable new supply models

The development of the future supply models explored in the previous section as well as the BEIS/Ofgem Future of Energy Retail Market Review are not happening in isolation. There are broader industry developments and rule changes that are likely to have a significant bearing on enabling future supply models. Some of these are well underway, like the smart meter rollout, or in the advanced planning stage, like half hourly settlement.

Below we consider some of the most significant changes which are at an earlier stage of thinking, or where we think more action is needed, through the frame of enabling as many people as possible to engage with the future retail market.

1. Third Party Intermediary regulation

In a future retail market consumers are likely to use intermediaries to help them choose energy products and services, as they do today. But intermediaries may also take on more of the ongoing consumer relationship, for example automatically switching consumers very frequently between supplier and taking on the responsibility for being the primary consumer interface, for example in billing.

They could be important for ToU in automating energy use, and some future models, like peer to peer trading platforms, could function as new intermediaries between the consumer and generators, entirely displacing the supplier role. However, unlike suppliers, intermediaries are not subject to sectoral regulations.

Third Party Intermediaries range in function from simply providing advice, to acting on a customers behalf to procure their energy supply and managing how it is delivered. Different types now active in the domestic energy market include:

- price comparison sites
- auto switching services
- aggregators, that have generally focused on the non-domestic space, but in some cases are now looking to aggregate domestic storage assets

Third party intermediaries have made a higher level of engagement possible in the domestic space - in the quarterly Ofgem/Citizens Advice consumer

perceptions survey in the first quarter of 2019,³⁰ over two-thirds (68%) of respondents said they would use a price comparison website to compare energy suppliers, far ahead of other means.

Where would you go to find information that would allow you to compare the products and services offered by different companies? (Q1 2019)



Base: All Participants (3,200), on average two sources cited

We support the role of TPIs in enabling greater engagement with the market. However, since TPIs are regulated by Ofgem’s voluntary Confidence Code or generic consumer law rather than direct sectoral regulation, consumers may be exposed to higher risks than if they bought from, or interacted with, a supplier directly.

Current simplified regulatory framework

Type of regulation	Organisations it affects	What it covers	How is it enforced?
Supply licences	Energy suppliers	Comprehensive rulebook, including general fairness and vulnerability principles and specific rules	Through Ofgem enforcement and compliance, ranging from guidance to provisional and final orders
Confidence Code	Accredited domestic price comparison websites	Document setting out expectations on factors such as independence, market coverage and accuracy	Ofgem auditing, only formal penalty being ejected from the code. No code member has ever been ejected, but some have resigned
Consumer law	All other organisations offering	Legislation against practices like pressure selling and	After offences have been committed through the legal

³⁰Ofgem (2019) [Consumer Perceptions of the Energy Market Q1 2019](#)

	products/services, e.g. auto-switchers	products being of satisfactory quality	system, with plans to give powers to enforce consumer law to regulatory bodies
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Supply reliability

Participants in the Impact research workshops highlighted concerns around using trading platforms relating to reliability of energy supply if a trader does not generate enough energy, as well as concerns that third parties, who might be helpful in mediating trading, would distort prices to their benefit. These fears may be unfounded - although consumers could face high imbalance costs if purchased generation did not match demand - but demonstrate that there are real confidence issues with these services.

These barriers are reflected by stakeholder workshops hosted by Ofgem and BEIS as part of the Future Energy Retail Market Review. Stakeholders highlighted that TPIs might be of most benefit to consumers who are disengaged, however these consumers are more likely to lack the confidence to use TPIs due to fears of being cut off, or lack of knowledge about the service, even for the simpler versions of TPIs such as price comparison websites. In more complex markets, these fears are likely to be exacerbated and might exclude vulnerable consumers from using new energy business models for which TPIs play a more important role.

Third party decision-making

Another barrier that can be posed by current and future TPIs is around how they make decisions on behalf of consumers. For example, some automatic switching websites have limited transparency about market coverage, and it is not always clear how consumers can control non-price factors that are also relevant to switching decisions, like customer service performance.

14 suppliers have exited the retail energy market since the start of 2018, with many of these appearing near the top of price comparison sites shortly before market exit. Many of these suppliers also offered below average levels of customer service, and some were so poor that Ofgem intervened to stop them taking on new customers. This sort of experience can deter consumer engagement in the market and may lead to negative outcomes.³¹

There are also concerns regarding how factors such as Warm Home Discount availability are taken into account by these services, as this could reduce or even cancel out the savings achieved for a consumer in vulnerable circumstances.

³¹ Citizens Advice (2019) [Picking Up the Pieces](#)

Transparency will be even more important in a future energy market, in which a TPI could decide which peer trader to purchase energy from, or who to sell someone's energy to. TPIs might also make decisions around when to allow someone to access appliances in a ToU or EaaS model. Consumers will need to understand the impacts of the decisions they make in setting parameters or target outcomes for TPIs, and retain the control to change these.

In future energy supply models, TPIs are likely to include new providers that interact with consumers' energy data. Currently, some TPIs use Consumer Access Devices (CADs) or clip-on monitors to collect consumption data from a smart meter. This sits outside of the Data Access and Privacy Framework for smart metering, and enables collection of very granular electricity consumption data, albeit in line with GDPR rules. It has been recognised by Energy Systems Catapult that there is a need to define good practice and establish precedents so there is greater clarity of the interpretation of GDPR by all parties.³²

Collection of large amounts of data is likely to increase in future, for example, an EaaS company may need to control a heating system and measure home temperature as well as the gas consumption to deliver a warm home service.

Another company may need access to data on a vehicle's battery, charger and electricity prices to deliver a mobility service. Companies delivering lifestyle products and services might also need access to data about a person's routines.

As mentioned in the research, energy companies are generally distrusted and collection of such detailed information might put some consumers off, in the absence of strong controls on data collection and use. Company access to customer data outside of the governance framework can also lead to harm if data collection is not transparent or if customers don't realise how their privacy is affected.

Connected homes where multiple companies are responsible for various aspects of household energy consumption are likely to create a complex customer journey. The delivery of a desired outcome becomes the shared responsibility of multiple parties. If the consumer faces a problem, it may not be clear who is responsible for helping them.

It has previously been highlighted that in EaaS trials, consumers did not understand who was responsible for solving their problems or routes to redress³³. For example, if a consumer agrees that in order to buy an energy service, they will also have insulation, smart controls and a new heating system installed, it may not necessarily be clear who they would then need to

³² ES Catapult (2018) [Energy Data Review](#)

³³ ES Catapult (2019) [Designing smarter consumer protection in a smarter energy world](#)

contact if there was a problem (e.g. one of the product manufacturers, one of the installers, the service provider, or someone else).

The micro-business segment faces its own, distinct issues in relation to TPIs. These consumers are much more likely to use a broker to purchase energy, rather than a price comparison site. While the majority of experiences with these services are positive, a minority of consumers experience issues including high pressure sales tactics and mis-selling onto poor value contracts. These consumers lack good options for gaining redress. The current experience of these non-domestic customers is reflective of the fears of the research participants around the risks with services like peer-to-peer trading platforms.

To guide our advocacy, Citizens Advice are in the process of establishing a monitoring framework for TPIs, with the intention of identifying consumer detriment as their usage grows, and proactively engaging with TPIs to mitigate risks to consumers.

We have previously called for TPIs to be brought into the scope of sectoral regulation for certain consumer-facing activities and that consumers should be protected to the same level regardless of how they engage with the market.³⁴ Ofgem also identified this as a key area of focus for regulation following a call for evidence on future retail market arrangements.³⁵ Activities-based regulation, combined with high level principles based rules, was previously suggested by the Competition and Markets Authority as the most effective approach to regulating TPIs.³⁶ This approach is already used by the Financial Conduct Authority.

In energy this would mean that rather than regulating based on specific entities (such as energy suppliers), Ofgem would instead regulate activities in the energy market, regardless of who carries them out. This could create a level playing field in which all companies face the same rules and consumers should expect the same outcomes. This approach could also be more suitable to a future market with more diverse supply models, in which the range of activities companies undertake is much wider, and would be more flexible if these change over time.

2. Duty to Supply

The supply licence, requires - with specified exceptions - all energy suppliers to offer terms to all domestic customers that make a valid request and to provide a supply of gas or electricity where the customer accepts the offered

³⁴ Citizens Advice (2015) [TPI regulation market](#)

³⁵ Ofgem (2018) Future supply market arrangements – response to our call for evidence

³⁶ CMA (2017) [Digital Comparison Tools Market Study](#)

terms. The basis behind the requirement is to avoid the risk of ‘cherry-picking’ by suppliers which would potentially exclude less ‘desirable’ groups of customers - those with a higher cost to serve - from the competitive market.³⁷

In practice, the current duty to supply does not guarantee that all consumers have equal access to the market. Suppliers can act to exclude customers that offer limited commercial benefit by offering them uncompetitive prices. This is particularly evident for customers using prepayment meters, which have traditionally had a higher cost to run and been more likely to be used by vulnerable groups.³⁸

More recently some suppliers have also acted to specialise their customer service offerings in ways that may exclude certain customers, for example requiring customers to get in contact via a smartphone app. Others have used acquisition strategies that target certain groups, such as the more affluent and the digitally engaged, through price comparison exclusive deals.

In the discussion about the future retail market some have argued that the duty to supply is a significant barrier to innovation, requiring suppliers to be ‘all things to all people’, and preventing specialisation and innovation that would enable companies to develop attractive consumer propositions.

However, within the current framework some companies have nonetheless been able to develop innovative ToU and local generation offerings, while also offering a ‘vanilla’ product for all consumers to meet their duty to supply requirements.

As an essential service, **the energy market needs to serve all customers well**, and there is a risk that removing the duty to supply will lead suppliers to compete for a subset of consumers with attractive characteristics. Allowing those consumers to be more effectively cherry-picked may improve the outcomes they receive at the cost of **worse outcomes** for those left behind. Hard to serve and/or particularly vulnerable consumers may lack any real choice, and face higher prices as a result. This may not be politically or publicly tenable, as perceptions of fairness matter to consumers, as demonstrated by the recent introduction of an energy price cap to tackle the ‘loyalty penalty’ faced by disengaged customers.

To some extent, future energy models misalign with the duty to supply. Future energy models suggest the potential for specialised energy offerings which might be suitable only for certain groups of people. For example, a supplier focused on electric vehicles might not be well placed to supply customers without these, and a company which specialises in automatic ToU tariffs might

³⁷ Ofgem (2006) [Report to Steering Group - Duty to Supply](#)

³⁸ Ofgem (2018) [Decision of the Gas and Electricity Markets Authority to close its compliance engagement with Bulb on the requirements of Standard Licence Condition 27 of its gas and electricity supply licences](#)

not be a good fit for someone who does not have smart appliances in their home.

A market without a duty to supply, characterised by such specialised offers, could be more engaging for some consumers, but could also be more challenging for some consumers. Those who are disengaged may struggle to switch to a new contract each time an existing one is ending if there is no requirement for the existing supplier to maintain the contract. Those who move homes might not be well suited to the incumbent supplier's service. Customers who are in debt and unable to sign up to a tariff that requires savings or a good credit history, this might leave them struggling to find a supplier.

In such a market, government and the regulator will need to ensure the universal service obligation can still be delivered in a different way. Firstly, choice for consumers to engage should be maximised by minimising the barriers identified in this research. Customers who can't engage should be protected by default arrangements that offer a sufficient level of service at an affordable price - although there is a significant risk that these consumers lose out on the benefits of innovation and are left behind. This outcome could be avoided through government and regulatory intervention on the level of service these customers receive, and support to enable people to get back into the competitive market.

We think it is currently unclear whether removing the duty to supply and replacing it with other alternative arrangements would, on aggregate, reduce costs and be a more efficient way of delivering the universal service obligation. But we think this research demonstrates the clear risk that barriers some people face to accessing the market can result in significant winners and losers. Tackling these barriers would become even more vital if the option of modifying the Duty to Supply is taken forward in future reforms.

3. Meter Splitting

Another industry development that has wider significance as a facilitator of future supply models is the proposal to allow electricity meter splitting. This would fundamentally change the supplier hub model, under which each consumer is served by a single company which manages almost all their interaction with the energy market.

At present, an individual domestic consumer can only obtain their power from a single supplier at any one time. However the industry code administrator

Elxon has advocated³⁹ that customers should be able to buy energy from (and sell energy to) parties other than their main retail supplier.

A modification to the Balancing and Settlement Code is currently being pursued that would enable accurate allocation of electricity volumes and costs for different parties through a single meter, which in turn will allow multiple suppliers to reflect these volumes in their bills and payments to consumers.

Advocates of this change argue that this would act as an enabler of market innovation, would increase choice, including community energy supply, peer-to-peer trading and allow bespoke supply for electric vehicles. These options are among those which are most attractive to research participants in our deliberative workshops, so there could be significant benefit to consumers.

However, this is a fundamental change that goes beyond the settlement process, and wider consideration of how it would affect existing consumer protections will need to be conducted by the regulator. Certain responsibilities in relation to customers may need to be owned by one party only, and there may need to be new mechanisms for sharing data about consumers between parties, to ensure requirements in relation to vulnerability can be met. There must also be clear accountability in where consumers need to go to resolve issues simply, and that they continue to be able to achieve redress.

As highlighted throughout the report, consumer trust and engagement will be critical to secure broad participation in the future retail energy market. To achieve this, clarity on roles and responsibilities between different suppliers at a property will be essential.

4. Tariff design rules

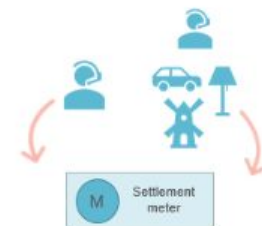
Energy licence conditions require that all tariffs are displayed using a standing charge and “unit rate” or “ToU rate” (although either of these can be set at a level of zero).⁴⁰ This rule aligns with the traditional method of selling energy,

Graphic illustrating benefits of meter splitting

The current arrangements facilitate limited disaggregation



The proposed change would allow for more effective competition for customer volumes



Source: New Anglia Energy

³⁹ Elxon (2017) [Enabling customers to buy power from multiple providers](#)

⁴⁰ Ofgem (2019) [Electricity Supply Licence Condition 22A](#)

but it poses challenges to developing future business models that want to alter how energy tariffs are represented.

For example, in an EaaS model for heat, a household would likely purchase hours of heating a home at a specified temperature. This could include services to bring the home to an appropriate level of energy efficiency and products to store energy when it is cheaper or regulate energy temperatures in the home. It would also include energy supply. However all services would be offered at a fixed or pre-agreed price, which does not vary depending on the actual units of energy supplied to keep the home at the agreed temperature. In the current energy market, this approach would not meet the licence conditions.

Having a standard way of presenting energy tariffs should allow for transparency and comparability across the market so that consumers know if they are getting the best rate. If the requirement is removed, regulators will need to consider how consumers can still compare options across the market to know what is best for them. TPIs are likely to be one useful way of conducting more complex comparisons, but these are likely to be difficult for digitally disengaged consumers to use, and there may be protection gaps due to the lack of regulation of these services. Additional support may be required for digitally disengaged consumers.

5. Delivery of government schemes and regulatory obligations

Some larger energy suppliers are currently responsible for delivering government schemes, particularly the Warm Home Discount, which provides a rebate to qualifying low-income households, and the Energy Company Obligations (ECO) which requires the installation of energy efficiency measures.⁴¹

These obligations can distort competition, by increasing the costs of obligated suppliers thus putting them at a disadvantage compared to newer entrants. We have supported removing the thresholds for these schemes to avoid this distortion and, in the case of the Warm Home Discount⁴², ensure all consumers can access the benefits. We welcomed the decision by BEIS to reduce the threshold for participation in ECO to 200,000 customer accounts (from 1 April 2019) and then to 150,000 customer accounts (from 1 April 2020).

⁴¹ These thresholds have reduced in recent decisions. Under ECO3 the threshold is reduced from 1 April 2019 to 200,000 customer accounts and from 1 April 2020 to 150,000 customer accounts.

⁴² For the Warm Home Discount the threshold will be reduced to 200,000 in 2019/20 and 150,000 domestic customer accounts in 2020/21.

There is also concern related to the fact that energy efficiency installation is outside the core competence of energy suppliers. This could limit new entry and innovation in how measures are delivered. The current approach does not ensure that support reaches those who need it most, instead can encouraging delivery where it is easiest and cheapest. It means that delivery models that could be more effective in the long term, such as an area-based approach, more difficult to carry out.⁴³

We have called for the government to move beyond the current supplier-led model once the current ECO period is over in 2022.⁴⁴ In the interim we support the Committee on Fuel Poverty's call for a £1 billion fund required to fill the funding gap and achieve the government's fuel poverty targets.⁴⁵ Research for Citizens Advice identified that an effective replacement scheme could be local-authority led with an area-based approach, overseen by a national delivery body and funded through general taxation.⁴⁶ This approach is supported by the recent report from the BEIS Select Committee.

The Warm Home Discount is a vital financial support mechanism for low income, vulnerable consumers. Eligible consumers can be identified through data matching against government benefits data, if they are over 65. Others must apply directly for the scheme and will receive help on a first-come first-served basis. The administrative costs of delivering the Warm Home Discount are low to suppliers especially where data matching is used,⁴⁷ and the scheme includes a reconciliation mechanism to ensure that all suppliers contribute to its delivery.

Given the low administrative cost and burden sharing mechanism to ensure fairness, we think that in a future market, this obligation should be expanded so that all suppliers offer the support. Ultimately, we don't think it is fair that consumers' access to the discount depends on their choice of company, and that this is likely to put people off engaging or leave them on more expensive deals. In a future market any rebates should be paid by all companies, to give eligible consumers as wide a choice as possible.⁴⁸ We also think that support should be guaranteed to all eligible consumers, which would allow all recipients to be identified automatically.

As well as delivery of government schemes, suppliers have other specific regulatory obligations in relation to vulnerability. Suppliers are currently

⁴³ IPPR (2018) [Beyond ECO: the Future of Fuel Poverty Support](#)

⁴⁴ Citizens Advice (2018) [Citizens Advice response to BEIS's consultation on the Energy Company Obligation \(ECO 3\) 2018 to 2020](#)

⁴⁵ Citizens Advice (2018) [Blog: The government needs to do more to keep homes warm](#)

⁴⁶ Ibid

⁴⁷ BEIS (2018) [Warm Home Discount Scheme 2018/19 Final Stage Impact Assessment](#)

⁴⁸ Citizens Advice (2019) [Citizens Advice response to Warm Home Discount Scheme 2018/19 consultation](#)

required to identify consumers in vulnerable circumstances, and take account of these circumstances when applying the Standards of Conduct. They also need to maintain a Priority Services Register (PSR) for consumers who qualify for certain additional supplier services, like third party bill access and accessible communications, with details also shared with energy networks who also provide additional support.

In a future market we expect that all participants providing customer facing services should continue to have regard to the needs of vulnerable consumers.⁴⁹ Changes to the duty to supply could mean that some companies try to avoid taking on vulnerable customers, although this is an outcome we would seek to avoid. However, we know that vulnerability is dynamic, and that any customer could be vulnerable at certain points in their life, so any such strategy would not preclude the company from serving people in vulnerable circumstances.

We think there will be an enduring need for companies to follow the vulnerability principle in a future market, and that these may need to cover other participants, like TPIs, for some relevant parts of their services. The types of support offered through the PSR may change in future - for example support with meter reading may be less relevant with smart metering - and the balance of services provided between network and supply companies may change. However, we see an ongoing role for all companies to collectively maintain the register. New data sharing mechanisms, subject to strong privacy controls, may be needed to enable new sharing of data about vulnerability between market participants, particularly if meter splitting is enabled.

⁴⁹Citizens Advice (2019) [Citizens Advice response to Ofgem's open letter to updating the Consumer Vulnerability Strategy](#)

Recommendations

The future retail market should be designed around consumers, and be accessible to as many people as possible.

To facilitate this, we've identified a number of overarching principles and specific recommendations which can help address the barriers to access and build a fairer future retail energy market.

1. Enable all consumers to engage in a good range of supply models

Break down financial barriers

People with a low level of savings or poor credit are likely to be excluded from future energy supply models, especially those that require an up-front cost, such as new equipment like battery storage and solar panels. The FCA's Financial Lives study showed in 2017 that a quarter (26%) of people in the UK had no savings or investment product, and would therefore be unlikely to be able to meet a large-upfront cost.



Recommendation

Policy makers should explore the provision of grants for low income households, and more broadly ongoing financial incentives, low-interest loans and facilitating rental of equipment.

Comparable energy markets have begun providing large scale grants for battery storage, such as South Australia⁵⁰, capped at the equivalent of just over £3,000 per year. The scheme recognises that ultimately reducing peak demand lowers system costs for all consumers.

Given the broader policy context of the Control on Low Carbon Levies, non-direct financial provision may prove the mainstream route. In the non-domestic energy market, Salix Finance has provided £842mn to the public sector to improve its energy efficiency, reduce carbon emissions and lower energy bills. This sees savings from installations initially go to pay off the loan, before installers are then able to benefit themselves. A domestic-level scheme - learning the lessons of the Green Deal - could also lower financial barriers, and follow the market principle of allowing different providers to compete to

⁵⁰ Government of South Australia (2019) [South Australian Government's Home Battery Scheme](#)

encourage customers to take up systems, backed by attractive low-interest loans.

Pilot programmes could be used to explore the best approach to encourage domestic smart energy uptake, including particularly consumers who would otherwise face barriers to access. For example, BEIS has funded innovative domestic Demand Side Response demonstrations⁵¹, but a greater focus could be put in future commercialisation trials focused on people that face barriers to future supply models.

Invest in energy efficiency first

Consumers living in a home with poor energy efficiency face higher energy bills - estimated at £353 over reasonable costs.⁵² New market models could provide a more attractive route for some consumers to purchase efficiency measures, but for some hard-to-treat homes a poor energy efficiency rating could act as a barrier to accessing future supply models.⁵³

While the focus of the latest iteration of the ECO scheme on fuel poverty is welcome, it does not provide enough funding to meet the government's fuel poverty target for England. There is also a widespread view among stakeholders that the supplier-led approach continues to have limitations, because it focuses on improvements that are cheapest and easiest to make.



Recommendation

Work should begin now to develop a post-2022 energy efficiency approach. This could be supported by a national delivery body and funded through general taxation to ensure funding is not regressive. It should combine an area-led approach with a guaranteed safety net for the most vulnerable.

A role could be taken by local authorities who often have valuable housing data and consumer trust to act as a partner. Equally, distribution network operators have an enduring relationship with a customer and - through avoiding network constraints - an incentive to aid reduction in usage. Their involvement in energy efficiency schemes has already been advocated by the Scottish government and the networks themselves.⁵⁴

⁵¹ BEIS (2019) [Innovative domestic DSR competition](#)

⁵² IPPR (2018) [Beyond ECO](#)

⁵³ Delta-ee (2019) How accessible are future energy supply business models?

⁵⁴ Scottish government (2019) [Scotland's electricity and gas networks: vision to 2030](#)

To overcome the immediate shortfall in funding and prepare the ground for future schemes, the government should introduce the Fuel Poverty Challenge Fund¹⁰.

A route to market must be provided for the digitally disengaged

A significant minority of the GB population remain digitally disengaged - in 2018 there were 5.3 million adults in the UK, or 10.0% of the adult UK population classed as non-internet users.⁵⁵ The Delta-ee research demonstrated that future supply models which have been developed so far have typically been primarily provided through an app, or online. This leaves digitally disengaged people highly susceptible to barriers to accessing future energy supply models⁵⁶. Many people also are internet users, but prefer non-digital means of contact, especially when a service goes wrong and they want an immediate answer.

Ofgem's disengaged database remedy trials have demonstrated that segments of the market that would otherwise be unlikely to engage with choosing a new tariff can be incentivised to do so with a clear non-digital mechanism to take up the offer.⁵⁷ Energyhelpline's simplified collective switch trial saw disengaged customers who had been with their current supplier for an average of six and a half years offered a personalised cost saving estimate. The trial saw an overall switching rate over eight times higher than the control group, at 22.4% compared to 2.6%, and 71% of those choosing to switch did so by phone.



Recommendation

Providers of new business models should ensure their services can be accessed through non-digital means.

This could take the form of a dedicated phone-line, or an avenue by which a trusted third person with consent - such as a family member - could complete customer journey on someone else's behalf.

Automation also offers a way to surmount digital barriers as, subject to adequate safeguards, digitally disengaged consumers could - for example -

⁵⁵ ONS (2019) [Exploring the UK's Digital Divide](#)

⁵⁶ Ofgem (2019) [Consumer Perceptions of the Energy Market Q4 2018](#)

⁵⁷ Ofgem (2018) [Active Choice Collective Switch Trial: Early Findings](#)

have smart appliances responding to price signals within set parameters that would not affect their day to day lives.

These parameters could be managed on an ongoing basis through the channel the service was originally set up with, e.g. over the telephone or through a trusted third person

Renters must be able to benefit

A large and growing number of people in GB live in private rented accommodation - 4.5mn households in 2017 - with this trend expected to continue. This places restrictions on how they engage with future supply models, with many being restricted from choosing a model that requires changes to the fabric of the house or installation of new equipment, or longer contracts than their tenancy in the house. Existing new supply model pilots, such as those cited throughout this report, have largely focused either on social housing or owner-occupiers.

Even where this is allowed, there is likely to be less incentive if the consumer moves before seeing the full benefit.



Recommendation

Industry should look to develop business models that enable participation of those in the rented sector. Precedents exist in other markets of recommendations for split incentives for landlords and tenants where both benefit. For example, energy efficiency upgrades being partly funded by increasing rent, which is offset by energy efficiency gains and a more comfortable home.⁵⁸

As an illustrative case study, if a landlord installs a solar and storage battery system the landlord could benefit from a higher house resale value and a percentage of the benefits from selling power back to the grid, while tenants would benefit from lower bills from self-generation. Regulators and policymakers should explore if barriers to these offerings exist, and if so, how they can be minimised.

However, changes that will materially affect the energy supply of a tenant should only be carried out with their consent. The provision that a tenant that pays the energy bills should chose the supplier should extend to new supply models where, for example, the landlord isn't choosing the heating hours for a tenant through EaaS. Longer term parallels can be drawn to Minimum Energy

⁵⁸ Bird and Hernández (2012) [Policy options for the split incentive: Increasing energy efficiency for low-income renters](#)

Efficiency Standards in the private rented sector that could be extended to include provision of equipment needed to engage with future energy supply models.

Housing type shouldn't exclude people

As outlined, new energy supply models often will involve new energy technologies. These will range from upgraded heating systems, to generation assets like solar panels and smart chargers for electric vehicles.

However, often the physical aspect of a property will mean installing such equipment is impractical. For example, in 2017-18, 6.4%⁵⁹ of those living in English local authority housing were in a purpose-built high rise flat - meaning solar panels could not be installed given the lack of a personal rooftop.



Recommendation

While certain parts of physical aspect of a property may not be able to be changed, innovative business models may offer solutions - for example in the instance of high-rise properties, allowing joint ownership of a shared nearby low-carbon generation asset. Regulators should consider changes to enable a share of an asset to be owned and operated as if they were 'behind the meter'. This would enable wider participation in peer-to-peer arrangements.

Other physical aspects will also become increasingly prevalent as an issue, especially given the dramatic upsurge expected in electric vehicle ownership and the limited number of properties with suitable driveways or garages for private charging. In which case, greater visibility should be given to tariffs that enable access to public charging networks, for example on price comparison sites. There is a lack of comparison tools tailored to EV drivers and EV tariffs rarely feature on existing price comparison sites.⁶⁰

Where change is possible, policymakers can also look strengthen building regulations to increase the penetration of technologies for renters and certain housing types, initially in new build, but later in retrofit.

⁵⁹ MHCLG (2019) [English Housing Survey 2017 to 2018](#)

⁶⁰ Citizens Advice (2019) [Take Charge](#)

2. Make information about products and services transparent and accessible

Consumers must be able to understand the benefits and risks of a service before signing up

Given the unfamiliarity of new energy supply models, to feel confident in engaging, consumers will need to be able to quantify in a clear and understandable manner the benefits and risks of taking up an offer.

Trust is an issue in the current market, with energy ranked as the second-lowest sector in the UKCSI Customer Service Barometer 2018. This issue is likely to carry over into a future market unless it can be made more consumer-centric with demonstrably better outcomes.



Recommendation

Previous research focused on future supply has outlined that consumers will need tools designed to help them compare prices and providers in a similar way to that seen in the energy market at the moment⁶¹. Wherever possible, this should be based on a consumer's actual energy usage patterns, subject to data consent.

It is important that any such comparison goes beyond simply comparing price. There is a growing recognition from consumers of the importance of good service quality, particularly given the mixed record from recent energy supply entrants to the retail energy market, which is apparent in our supplier star rating.

New participants - for example the latest generation of TPIs that automatically switch supplier at the end of a contract term - should be transparent on how customer service is incorporated.

Other research has also recognised how non-cost factors will increasingly have a bearing on energy services, for example a risk rating on how much behaviour change will be necessary to achieve desired outcomes. For example, Laura Sandys has put forward the concept of service standard' accreditation - bronze, silver and gold assurance marks - which would incorporate complexity 'marks'.⁶²

Finally, as recognised, many new supply models will require installation of new technologies. Delta identified consumer uncertainty on who to trust in this regard already acts as a barrier. Quality assurance is inconsistent, with

⁶¹ ES Catapult (2019) [Designing smarter consumer protection in a smarter energy world](#)

⁶² Challenging Ideas (2018) [Redesigning Regulation](#)

different consumer protections and auditing requirements across different schemes and technologies. Welcome steps have been taken, for example moves to extend the Microgeneration Certification Scheme to battery storage. However, a universal central certification or trading mark that guaranteed quality across technologies could help build consumer trust.

The effects and outcomes of a service must be easily auditable

Historically some trust issues have arisen where promised cost savings have failed to materialise - for example, there are cases cited in the media of solar panels not delivering promised output, and sometimes the expected savings from switching supplier are not being realised due to actual consumption being different to the estimate used for comparison.

This issue could be replicated in new energy supply models, where there may be a more complex interaction between different products and services in determining the cost or comfort outcomes experienced by the consumer.



Recommendation

Just as consumers will need to be able to quantify benefits before taking up an offer, they will also need to be able to understand after it has started how the technology or service is performing in real-world scenarios in a clearly understandable format.

With the increased volume of data that will become available from new energy supply models, consumers should be able to audit outcomes. Previous research has highlighted the potential that consumer groups and regulators may also need clarity on outcomes, as it may not be clear which party is right, why a service failed and where fault lies.⁶³

Where promised outcomes are persistently not achieved, people need to be able to break contracts. Similar provisions exist in relation to other essential markets, such as around broadband speed.⁶⁴

There is a need to broaden understanding of changes in the market

There is a general lack of awareness among consumers of the benefits of low-carbon technologies and the drivers behind changes in the energy market. This represents a barrier to engagement as shown by the Impact

⁶³ ESC (2019) [Smart Protections](#)

⁶⁴ Ofcom (2019) [Better Information Before You Buy Broadband](#)

workshops - if there is not an understanding of the need for flexibility in the energy system, there will be less appetite to provide it.



Recommendation

There is a role for many different stakeholders in the energy system to provide distinct sources of information to consumers.

Delta-ee identifies a clear need for a “trusted advisor” to step into the market to inform consumers. This advisor could also be involved in raising awareness of energy supply models and the associated technologies, as well as aiding in the customer journey to take up new energy technologies. There is best practice on an EU-level available as to the wide range of communication channels that could be used to deliver these messages.⁶⁵ Broader information sharing may also help address systemic issues around low trust in the energy sector.

Existing information campaigns, such as Smart Energy GB, are already increasingly incorporating more of a focus on why the UK is moving to a smarter, more flexible grid, rather than just emphasising costs.⁶⁶

⁶⁵ European Commission Joint Research Centre (2016) [Effective information measures to promote energy use reduction in EU Member States](#)

⁶⁶ Smart Energy GB (2019) [How smart meters can help to reduce your carbon footprint](#)

3. Protect vulnerable consumers and ensure people are not penalised for loyalty

Future retail market design must avoid the reimposition of a loyalty penalty

The energy market has had persistently low consumer engagement, with loyal customers charged higher prices. Our research shows that consumers in vulnerable circumstances are less likely to engage and switch supplier. The price cap will protect consumers until effective conditions for competition exist in the market, and will be removed by 2023 at the latest.

Market reforms and the emergence of new models should introduce attractive new consumer propositions and make it easier for some consumers to engage. But as this research demonstrates, barriers to the market will remain, particularly for consumers in vulnerable circumstances.

As well as removing as many of these barriers as possible to create an inclusive market, it's imperative that we don't return to a status quo where vulnerable, disengaged consumers pay more.



Recommendation

The greater the number of people who can become actively engaged in the energy market, the better, if there are better outcomes that can be achieved. In past comments to the BEIS Select Committee, Ofgem's CEO, Dermot Nolan, has suggested that some form of enduring protection may be needed for consumers in vulnerable circumstances after the legislative cap has ended, at 2023 at the latest.⁶⁷ Ofgem's recent strategic narrative has also made clear that development of a successor regime to the current default tariff price cap is a priority.

We agree that some form of enduring protection will be needed. The exact form of that protection will depend on whether other changes are made to retail market design, for example in relation to the duty to supply and default arrangements. One option could include an enduring price cap targeted at vulnerable groups, potentially based on indicators such as eligibility for the Warm Home Discount and Priority Service Registers.

Another option could involve obligating suppliers to offer a social tariff, with a fair price supplemented by dedicated assistance and information provision,

⁶⁷ BEIS Select Committee (2019) [Pre-legislative scrutiny of the draft Domestic Gas and Electricity \(Tariff Cap\) Bill](#)

with costs mutualised across suppliers to ensure there is no incentive to shed these customers.

Alternatively, an expanded rebate scheme, like the Warm Home Discount, could be used as a way of offsetting the increasing fixed network and policy costs likely to be faced by consumers.

Given the timescales involved, this debate should begin as soon as possible. We have already stated we would expect to see Ofgem initiating the process of developing and consulting on this replacement scheme during the 2019-20 work year.⁶⁸

Consumers should be able to access advice and redress, no matter how they engage with the market

When consumers engage with the energy market through a traditional energy supplier, the supply licence ensures that they will be signposted to Citizens Advice and the Energy Ombudsman.

Recent reforms mean this should be provided in a form and frequency that is sufficient to enable them to quickly and easily understand how to use these services. The importance of this emphasised by the continuing popularity of the service Citizens Advice provides. In financial year 2018-19, local Citizens Advice helped people find a way forward with 186,057 energy issues, while our consumer service phone line addressed received over 62,000 contacts.

However, these protections do not apply to energy services provided outside the supply licence. A complaint against a price comparison website has no statutory basis on which to be escalated to a third party for arbitration. And TPIs are not required to tell people where to go for support if something goes wrong. The legal powers Citizens Advice has to support and advocate for consumers of these services are also more limited.



Recommendation

All energy consumers should have access to advice and redress, regardless of how they interact with the market. Anyone who offers an energy service should signpost where to get impartial advice and be affiliated with an accredited dispute resolution service.

More broadly, we think there is merit to the Competition and Markets Authority's recommendation that participants acting as Third Party

⁶⁸ Citizens Advice (2019) [Response to Ofgem consultation: Forward Work Programme 2019-21](#)

Intermediaries should be subject to an activity-based form of regulation, to ensure consistency regardless of how people engage with the energy market. Priority areas for this would include ensuring responsibility for vulnerability rests with a wider group of market participants.

Responsibility for identifying vulnerability should rest with a broader range of market participants

We have expressed strong support for Ofgem's approach to vulnerability, which has delivered a more dynamic and responsive approach to the issue. However, as we move toward the future market people may experience vulnerable circumstances in new ways, while new technology also offers new approaches to address vulnerability. Ofgem's 2025 strategy, which is being consulted on currently, should look to ensure the approach to vulnerability is future-proofed.



Recommendation

The current definition of vulnerability will come under pressure in the face of current changes in the energy system. We need to consider the distributional impacts of the smart and low-carbon energy transition in terms of people's ability to participate and access new products and services, and where the benefits and costs fall.

Ofgem should work with the energy networks and other stakeholders to build a full inventory of the emerging ways that future markets and systems might generate unfairness and leave consumers behind in the energy transition.

4. Put consumers in control of their energy choices

Contracts must be flexible to allow for changes in circumstances

Contracts for future energy services longer than a couple of years are regarded as very unpopular by consumers.

Concerns centre around being “locked-in”, especially if there is a change in personal circumstances that affects their energy needs. This creates an issue where new energy services are designed with the longer term in mind, or where longer contracts are needed to enable payback of energy efficiency measures or technology. This is particularly relevant for example for EaaS where internationally, contracts can be as short as two years, but can stretch to 15.



Recommendation

While contract lengths are a primarily commercial concern, policymakers and regulators should consider what flexibility should be given to consumers to amend or break contracts when their circumstances change. This is particularly relevant for EaaS

Requirements to treat customers fairly already apply to a company's discretion to waive charges, like exit fees, but it's unclear if this will provide sufficient protection. Extended protection could take the form of a principle that where a significant change of circumstance occurs - e.g. loss of employment, development of a disability, a young child becoming resident in the property - providers are flexible to allow energy contract terms to be reopened or adjusted.

Similar provisions exist in other markets, for example in housing, customers of some providers can ask for a mortgage payment holiday. This is an agreement you can make with your lender that allows a customer to temporarily stop or reduce your monthly mortgage repayments to reflect a sudden change in circumstances that require a period of adjustment. The Financial Conduct Authority also states providers should consider changing the term of payment on request.⁶⁹ This could offer an example of an industry-led approach allowing for a principle of flexibility to recognise the need to adapt to changed circumstances.

⁶⁹ FCA (2019) [FCA Handbook](#)

Consumers should have a choice over how much usage data is shared with their supplier

There is a broader concern among consumers about what data is collected about them and why.

This is particularly the case for energy, where usage data is becoming more granular and personal with the smart meter rollout. The Impact workshops revealed that there is scepticism about what data is being collected and why, as participants feel it may relate to pricing changes that may disadvantage them in the future. Upcoming research conducted by Accent for Citizens Advice showed 51% of respondents were not comfortable sharing near real-time energy usage data.⁷⁰

However, to make many future supply models work, more data may be required than for traditional offers. In order to maintain consumer trust and confidence they need to retain control and have a choice about how and when their data is used and for what purposes.



Recommendation

Privacy and security should be built into technologies and services by design. Devices and services should only be collecting data where there is a clear user need. And customers need to be able to understand how automated decisions have been made.

There should be appropriate levels of transparency and consumer control over their data, including the ability to see who is accessing data and for what purposes, and change this if necessary. Citizens Advice has produced a proof-of-concept of a smart meter Data Dashboard which would allow a consumer to see who is accessing their smart meter via the DCC, over what time periods and in what detail.

Positive steps have been taken in this area, including the ability of consumers to opt-out of half-hourly settlement - giving the right balance between preserving consumer choice over sharing their data and realising system benefits. However, the debate on this is not yet settled, and this position will need to be defended in future decisions.

Issues are likely to emerge as the market continues to develop, for example monitoring will be needed to ensure that established parties aren't able to monopolise or become gatekeepers to access consumer data. Already services incorporating CADs are operating outside of the Data Access Privacy

⁷⁰ Accent (2019) smart meter and smart appliance data preferences research for Citizens Advice

Framework. That more granular data is being collected outside of the framework that governs and determines the levels of access to energy consumption data from smart meters for energy suppliers, network operators and third parties is an area of continued concern. As well as being important from a protection perspective, there is also a consistency issue where consumers may be confused that the same rules are not being applied to their energy data depending on who is accessing it.

Policy makers should consider a review of whether the GDPR framework is sufficient and whether there are any gaps or further protections can be extended in relation to CADs outside the Data Access Privacy Framework.

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