

The Future of **Energy**

The future retail market and customers' relationship with it

April 2019



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Executive summary

The retail energy market has evolved considerably since it was created by privatisation two decades ago.

However, incumbent technology and the regulatory regime has, to date, limited the opportunities for the retail energy market to move very far past the original model. Even with the growing number of suppliers operating in the market over recent years, with varying business models and customer propositions, a customer will generally be limited to one supplier and to one meter, supplying gas and electricity at a price based on kW/h.

As the country upgrades from analogue metering to the digital age, the opportunities for the market to evolve and innovate are beginning to open up. We've already seen this in the large business sector, and the next step is to bring these benefits to all domestic and small business customers as well. The breadth and depth of data available could fundamentally change how companies supply energy, how consumers engage with it, and how society views the energy system and benefits from it.

We are already seeing some aspects of current market arrangements being stretched by these new opportunities. If the sector is to maximise the benefits of the smarter energy system, we need confidence that the regulatory framework remains appropriate. We should not attempt to second-guess what the future customer may want, or what future businesses or technologies may offer. Instead, any framework for the future retail market must be flexible enough to accommodate evolving consumer expectations and technological innovations, while ensuring sufficient protections are in place for consumers, regardless of their level of engagement.

In reviewing this future framework, it will be important to build on the successes of the 'supplier hub' model. In an extremely complex industry, it has been successful in insulating the end-consumer from this complexity and risk through a simple, single relationship. This has also provided a valuable policy delivery tool for government and Ofgem that has yielded significant benefits for customers.

At the same time, it has enabled effective regulation of supplier practices to ensure customers' supply and data are protected and that market participants contribute a fair share towards system costs. As customer expectations, business models and technology continue to evolve, it is right to consider whether any unnecessary barriers result from legacy arrangements. However, any reform will need to ensure that the basic required functions continue to be delivered in a cost-effective manner that ensures a competitive market.

Work will be needed to review the current governance of market participants and activities, ensuring that an appropriate regulatory regime remains in place that can encourage innovation and take account of converging markets. Importantly, customers must be protected regardless of their level or route of engagement with their energy supply.

“The breadth and depth of data available could fundamentally change how companies supply energy, how consumers engage with it, and how society views the energy system and benefits from it.”

Emerging thinking and potential solutions



No.	Opportunity	Forward direction	Potential solution
1	Companies may want to enter the market or offer a new service, but be put off by the number of undertakings (such as metering and settlement) required.	Enable customers to contract with multiple energy suppliers if they so choose.	Industry to work with Ofgem and the Department of Business, Energy and Industrial Strategy (BEIS) to explore options to enable customers to receive energy services from multiple suppliers, while ensuring a fair allocation of costs and adequate consumer protection.
2	Ensure the delivery of supplier obligations does not act as a barrier to new business models emerging.	Once existing schemes are completed, the energy system should not, as a matter of course, be required to deliver government social policy initiatives.	Review the use of supplier obligations as a means to deliver government social programmes. Alternative models should not preclude those businesses with experience and expertise from delivering services.
3	Reforming regulatory frameworks could increase innovation.	A rethink in the way the energy retail market and all of its participants are regulated.	Move towards a functional, principles-based approach to licensing where the regulator defines certain activities. If you are a participant in them, you are subject to their licensing aspects.
4	Ensure regulatory frameworks support cross-sector offers/bundles.	Consider the alignment of approaches across utilities to allow for the development of cross-sector offers and bundles.	Government to keep under review the convergence of consumer markets and actively consider the findings from the National Infrastructure Commission's regulation study.
5	Reducing regulatory uncertainty could encourage greater levels of investment in innovation.	Consider how to ensure that regulatory certainty and regulator independence are part of any reforms.	The Government to make a renewed commitment to proper scrutiny of regulatory decisions through merit-based appeals to an expert body.
6	Reforming current industry codes could increase innovation.	Review and reform current industry codes and their governance arrangements.	Industry to support the BEIS/Ofgem review of industry code governance.
7	The market has an untapped resource of data. It could be used to realise the benefits of a smarter energy system to drive an efficient, competitive market.	Ensure market participants have access to relevant data, while ensuring sufficient controls are in place to protect customers.	Industry to support the work of the Government's Energy Data Taskforce.

Drivers of change



Key points:

- **Energy companies will continue to diversify their offerings to enter into new related markets, and we can expect non-traditional energy companies to enter into the energy space.**
- **New data, new technology and new opportunities will encourage customers to engage with the energy system as never before.**

The retail market has changed dramatically over the last decade. New suppliers have entered the market, challenging incumbents and winning market share, bringing innovative concepts across the sector to the benefit of customers. In turn, this has created a much more competitive domestic market, and one that reflects levels of innovation and competition we've already seen in the business sector.

However, this is just the start of the journey. The energy sector is transitioning to a low carbon future, coupled with a data and technological revolution. Although the traditional relationship remains between an energy customer and their supplier, new business models and data opportunities are being unlocked by advances in technology and systems. How consumers can engage with energy, and the services they are offered, will continue to evolve and could be very different in the future.

These developments are being driven by three main trends that are beginning to challenge the existing market structures:

- the changing relationship between consumers and energy markets
- rising significance of new platform technologies
- data and increasing customer personalisation.

1. The changing relationship between consumers and energy markets

The retail energy market is currently built around the traditional industry model of a single supplier/customer relationship per household or business. But questions are being posed to these established market structures, driven by rising competition in the energy sector from non-traditional market participants, new forms of energy trading and customer platforms such as peer-to-peer trading.

The rise of smart home technology, the rapid adoption of EVs, increasing volumes of micro-generation and the decarbonisation of heat could lead to a shift away from relationships based simply around kilowatts supplied. Instead, we could see the dawn of service-based models based, for example, on the number of warm hours, or miles of electric transport. With some 50 billion connected devices expected globally within the next five years, the rise of in-home technologies may well be the catalyst for wider products from a wider variety of providers. Energy companies are likely to continue to diversify their offerings to enter into new related markets, and conversely we can expect non-energy companies to enter the energy space – look no further than the automotive sector where companies such as Nissan¹⁵ and Volkswagen¹⁶ are offering energy services.

¹⁵ <https://www.nissan.co.uk/experience-nissan/electric-vehicle-leadership/storage-solutions.html>

¹⁶ https://www.businessgreen.com/bg/news/3068996/electric-life-vw-to-launch-energy-supply-division?utm_medium=email&utm_content=&utm_campaign=BG.Technology_RL.EU.A.U&utm_source=BG.DCM.Editors_Updates&utm_term=&im_company=&utm_medium=email&utm_term=

The information provided from connected home technology, such as appliance health and heating system operation, may also lead to sector convergence. Interpreting data from household devices as unremarkable as kettles, lights and thermostats could, for example, help health professionals establish that a person is up and about and that their home is being heated to an appropriate temperature. In turn, this data could avoid a precautionary home visit – or indeed, urgently trigger one.

Using this smart energy infrastructure will be a key enabler in offering innovative services across all business types and sectors. In addition, more businesses will be inspired to join those who already actively control their energy demand. Their current view (“energy = a bill”) will be overturned when they make energy a central component of their business planning.

2. Rising significance of new platform technologies

New technology is also opening entirely new opportunities for consumers to engage with the energy system. From the rise of automated switching services, battery storage and electric vehicles (EVs), to flexible time-of-use tariffs, and demand side response (DSR) enabled by smart metering, individuals and businesses are being positively encouraged to engage.

With increasing levels of intermittent generation on the system, we are expecting a greater variation in energy costs based on the time a household or business uses (imports) their energy and growing opportunities to sell (export), in order to help balance the overall system.

An increasing amount of power generated will be by low or marginal cost plant, and using energy when power is plentiful (or reducing demand when it's scarce) will have a value to the system.

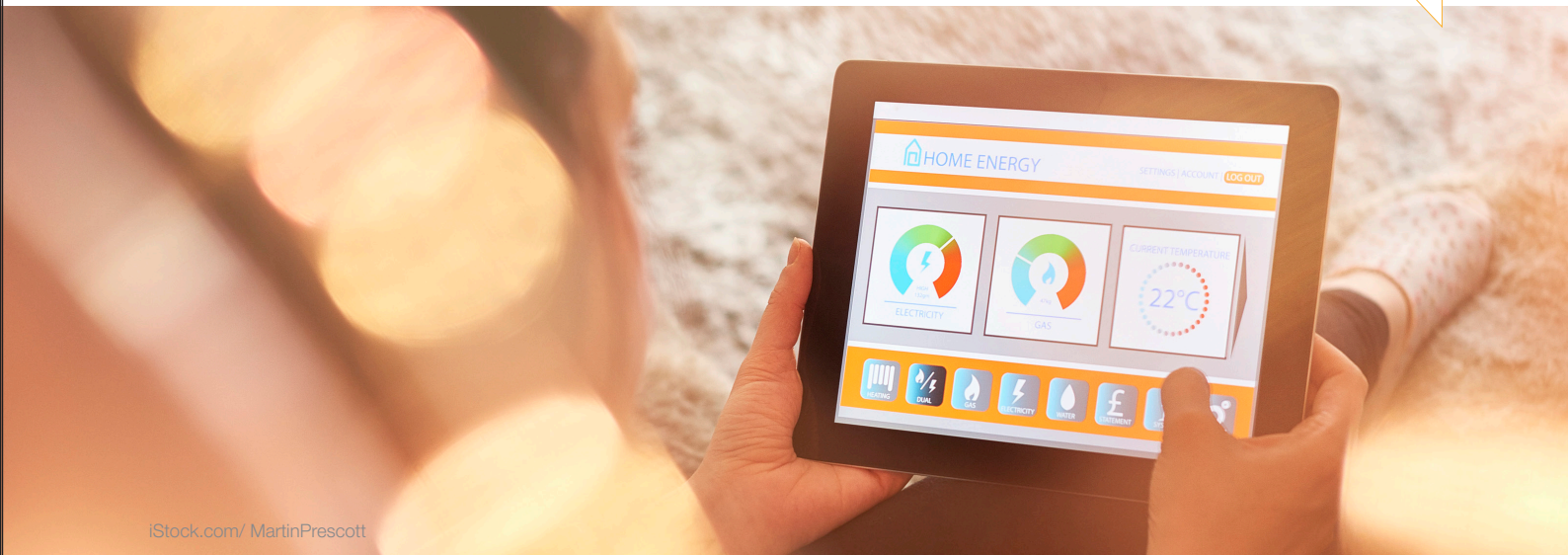
New business models will come forward to reward those customers who can shift their demand to match the changing status of the system.

Case study

EDF Energy has been working with Howz to develop a smart home monitoring system to help people to live independently for longer.

The system learns routines within the home to help spot changes early. It provides reassurance that activity is happening as expected, thanks to its easy-to-install and non-intrusive sensors, and sends an alert if changes are detected. It can reassure you that a relative is up and about and has had their morning cup of tea, or give you invaluable insight if someone you care for is having more disturbed nights, or is starting to leave home less often.

In the longer term EDF Energy hopes to integrate smart-meter data to the system to make it accessible for anyone who has had a smart-meter installed in their home.



The rise of new platform technologies such as blockchain also have potential to help optimise and monetise value for customers. Indeed, the first energy blockchain transaction was successfully completed in 2018 at the residential Banister House estate in Hackney, London, and involved neighbours trading solar power. Although we don't yet know the potential impact of this development on the market, or the consumer appetite for this level and manner of engagement, the industry and government should be ready to take advantage if there is a benefit to customers.

3. Data and increasing customer personalisation

The smart meter rollout for domestic and smaller business users is a key enabler for the digitalisation and development of the sector, supporting the advances that have already been accomplished for larger businesses. The industry is fully committed to a successful rollout.

Going forward, increasing volumes of analytical data will be generated across the sector, whether from the smart meters themselves, or electric vehicles, connected home appliances and/or businesses via the development of bundled customer propositions.

The more providers understand about a customer's usage, the more value they can add to their propositions, offering options beyond simply a price to supply a homogenous product.

This will also create new reasons for businesses to regard energy as an opportunity, not just an overhead. We have already seen early examples of this in other sectors, such as retail banking. Through the "open banking" initiative, customers are able to share current account data with third parties and other competitors via online apps. In return, they can receive advice on budgeting and payment management, and other accounts and services in real-time.



Case study

Verv have joined forces with Centrica for a community energy trial on 13 blocks of flats at a social housing community in Hackney, aiming to discover how peer-to-peer trading on the blockchain could lower customer bills.

Powered by Verv's artificial intelligence technology and blockchain, the team will explore how customers will be billed if selling excess energy to their neighbours.

Verv rolled out its blockchain-based energy trading platform to the London community earlier this year and executed the UK's first physical peer-to-peer trade of energy on the blockchain in April.



Case study

In 2018, Octopus launched 'Agile' - a time of use tariff - that made dynamic half-hourly rates available to customers based on wholesale and grid prices.

Octopus are making half-hour prices available for the following day from 4:30pm, made accessible directly through the account dashboard.

Agile has an open API, meaning customers and fellow energy innovators alike can engage with cheap, green energy pricing and create smart integrations. This tariff can also link up to in-home smart products, for example Amazon Alexa to provide information on electricity prices or personal consumption.



The new energy market

Key points:



- **We should not second-guess the evolving expectations of future customers or set out concrete plans to address them.**
- **Technological and business innovation, underpinned by the smarter energy system, has the potential to reach beyond the energy market.**
- **We must consider the wide spectrum of current customer engagement, and recognise that future routes may not just be driven by usage.**

Given the speed of change, we cannot second-guess what consumers will want in a hypothetical future; there are too many unknowns. The focus for industry and government, then, should be to make sure that as the future unfolds, the market framework can flex to enable consumers to make choices and benefit from innovative products and services. The prize for all stakeholders, if the industry and government get it right, is huge.

As we have seen with the default tariff cap's introduction, the current domestic market is perceived as delivering poor value for some customers, split between those who engage and access the best deals and those who don't. In reality, the picture is more complicated, with a spectrum of engagement. But encouragingly, the changes we may see in the coming years offer the opportunity for all customers, of all scales, to benefit from a competitive market in the type of dynamic way currently taken by large businesses.

Any perceived or real failings in the market may well be addressed as new technologies, models and greater volumes of data are used to encourage customers to engage. In addition, opening up a vibrant market with even more players and products could, if done right, help to drive further innovation and lower costs to all customers – whether they're actively participating or not.

Indeed, we are already seeing the first signs. Energy suppliers are starting to diversify their product offerings for domestic and smaller companies, in a way we have only traditionally seen for larger corporates. Over the next few years we are likely to see multiple new products and services being launched, with ease and simplicity encouraging any customer across the spectrum to get engaged. Domestic and non-domestic properties could also be built with smart solutions as part of their original design, or through regeneration projects, enabling a greater uptake of innovative offerings.

Of course, addressing wider-ranging customers, each with very different needs, will demand altogether smarter capabilities to gauge whether future markets are delivering for them. Simply monitoring monthly figures to measure engagement is likely to become an exercise in futility.

Case study

E.ON's Future Energy Home collaboration with Berkeley has seen E.ON install a range of smart energy solutions in their innovative and award-winning Urban House at the Kidbrooke Village regeneration development in south east London.

The solutions installed include solar glazing integrated into a glass canopy above the home's roof terrace, a battery storage system, electric vehicle charge point, smart thermostats, plug sockets and light switches.

All solutions are connected to E.ON's innovative home energy dashboard. The dashboard offers intuitive visualisation and control of installed solutions without having to navigate a maze of separate apps for each piece of technology.

e-on

Engagement is not a binary option of being 'engaged' or 'disengaged'. Some customers will want to be hands-on, taking frequent advantage of movements in energy prices (for example, through time-of-use tariffs which track wholesale prices, or by buying/selling energy through peer-to-peer trading). Others will be mildly active, wanting to set preferences for the warmth of their home or the length of charge of their EV, while leaving the nitty gritty of management to a third party. For some businesses, greater automation may be attractive to heat and cool their properties or for generating power on-site to minimise their costs. Others may see new commercial opportunities to increase revenues or expand the range of products and services they offer.

Then there are those, particularly at the domestic and small business end of the scale, who will engage like they do today. But they do want to be assured they are receiving fair value while acknowledging that other options are available. It is important to recognise that this is, in itself, a conscious decision not to engage, perhaps driven by multiple factors including loyalty to a provider and/or high standards of customer service.

Finally, and most importantly, the future system must work for those who do not have the financial or technical means to engage or adapt in the way they would like to.

We must, therefore, ensure all customers can get the service they want, when they want, and how they want it, and to ensure the energy system continues to allow all customers' needs to be met in a fair and sustainable way.

Case Study

Chameleon Technology has developed a cloud solution to help consumers understand and control their energy consumption in new ways. "I•VIE" integrates real-time smart meter data with home and lifestyle data, such as calendars, smart appliances, EV, heating and micro-generation.

Using automated controls and commands, along with continuous machine learning, I•VIE determines how best to optimise and balance energy efficiency, comfort and cost based on customers' preferences. It creates predictive, tailored and actionable insights and recommendations that enhance consumers' lives.



Building the future markets

Key points:



- **The successes of the current ‘supplier hub’ model should be recognised and built on as we seek to reform the market framework.**
- **There is a need to examine the impact that supplier obligations would have on the future retail market, either through distorting competition or deterring new entrants or innovative offerings.**
- **The current regulatory regime will need to evolve to better foster innovation and protect customers across converging markets.**
- **A number of issues will underpin all decisions taken in reshaping the framework: how best to guarantee supply; how customers in vulnerable circumstances can be supported, protected and be viable for market players; and how the framework can ensure that there is no free-riding by market participants or cost burdens falling unduly on specific customer segments.**

Flexible and adaptive market structures

Industry, government and the regulator will need to work together to ensure the right regulatory structures are in place to support retail markets that drive innovation, competition and efficiency to the benefit of future consumers.

Building on the ‘supplier hub’ model

The current supplier hub model works successfully. Suppliers provide a single, easily understandable and recognisable interface for the customer to ensure that system costs are settled; wholesale risk is managed on behalf of customers; consumption is metered; social and environmental obligations are collected and delivered on behalf of government; and that there is a conduit for consumer protection.

However, new and potentially disruptive entrants to the market may be deterred by the scale and complexity of the role that suppliers have to fulfil, or by insufficient access to customer data. Take, for example, an enterprise that is only interested in serving a specific customer need, such as heating or EV charging. It may well be deterred if it's required to deliver any of the plethora of services required of current energy suppliers. This may also come at a cost to the consumer if each and every service provider must undertake all the functions of a traditional supplier, rather than working within a framework that ensures they contribute their fair share of costs. New models, such as peer-to-peer, may also be unable to interact effectively with wider energy systems and back-office arrangements.

Having concluded that there is a strong case for reforms to be explored, Ofgem and BEIS have already started reviewing the future of the supplier hub model. A possible reform is to allow multiple energy suppliers to provide supply to a single home or business if the consumer chooses. But the potential benefits, and the market developments it could facilitate, must be weighed against the downside risks of forcing additional complexity on customers; making market participants' activity harder to monitor and regulate; creating greater opportunity for ‘free riding’; and the cost and disruption of delivering it.

As a foundation for any framework, it will be essential that the basic required functions continued to be delivered in a manner that ensures a fair, reliable and competitive market.

No.	Opportunity	Forward direction	Potential solution
1	Companies may want to enter the market or offer a new service, but be put off by the number of undertakings (such as metering and settlement) required.	Enable customers to contract with multiple energy suppliers if they so choose.	Industry to work with Ofgem and the Department of Business, Energy and Industrial Strategy (BEIS) to explore options to enable customers to receive energy services from multiple suppliers, while ensuring a fair allocation of costs and adequate consumer protection.

Rethinking supplier obligations

Alongside a review of the energy market structure, there is also a need for the Government to explore alternatives to the delivery and recovery of costs for programmes currently delivered through supplier obligations.

As a point of principle, the energy system is not an efficient surrogate for intelligently developed and delivered government social policy.

With the funding agreements for key programmes scheduled to end in the early 2020s (i.e. Energy Company Obligation (ECO) in 2022 and Warm Home Discount (WHD) in 2021), and with the potential for new data sharing initiatives following the Digital Economy Act 2017, it is time to review the use of supplier obligations to ensure they remain fit for purpose as a vehicle for funding and delivering government policy.

As noted above, continuing to place obligations on suppliers to deliver government social policy may also deter new market entrants where they are not consistent with desired business models.

As a minimum in the short-term, government should reform obligations so that supplier exemptions and thresholds are not required. Such exemptions have already distorted the state of competition in the domestic retail market.

No.	Opportunity	Forward direction	Potential solution
2	Ensure the delivery of supplier obligations does not act as a barrier to new business models emerging.	Once existing schemes are completed, the energy system should not, as a matter of course, be required to deliver government social policy initiatives.	Review the use of supplier obligations as a means to deliver government social programmes. Alternative models should not preclude those businesses with experience and expertise from delivering services.

Supply licence reform

The current regulatory regime requires all retail suppliers to apply for, and comply with, an onerous licence if they wish to supply energy to domestic or business customers. This poses a significant risk to a future retail market: such a bureaucratic system will prove a barrier to entry to innovative businesses whose principal interest does not lie in energy supply. It also limits the opportunities for some businesses to take more control over their interactions with the wider energy system.

Indeed, as more disruptive players enter the market this approach is already becoming untenable. This is not a new concern; separately, Energy UK has previously highlighted that regulation needs to respond to the evolving ways customers are engaging with energy. Most notably, this applies to price comparison websites (PCWs) and, in the non-domestic sector, third party brokers. In addition, the recent growth of auto-switching services pose new regulatory challenges.

We believe a rethink is needed in the way all market participants are regulated, to ensure trust in new market offerings and in the service providers who don't directly supply energy. One option worth exploring is to move to a functional approach to licensing: the regulator defines certain activities, and if you engage in them you are subject to their specific licencing aspects¹⁷. This approach could better foster innovation, allowing suppliers and service providers to tailor their offerings to meet evolving consumer expectations, and enabling some businesses to manage certain functions of their interaction with the market by themselves.

A functional regulatory regime would also need to differentiate between domestic, small non-domestic and larger non-domestic customers. There may be instances where additional support or protections are appropriate in the microbusiness sector compared to larger non-domestic customers that have a different relationship with their energy providers. Where any protections are considered, they should be based on rigorous analysis and take into account any potential unintended consequences.

To realise the full benefits of this type of change, regulation also needs to evolve from its central, prescriptive role to one more focused on supporting and fostering competition. At the same time, it needs to retain its strict enforcement powers to protect consumers.

With this in mind, we look to the regulator to place effective and proportionate entry and monitoring requirements on all market participants, to protect customers and other market players. One option could be to base these requirements on the risk that each service provider places on the system, bringing equivalence in costs and burdens across the market.

No.	Opportunity	Forward direction	Potential solution
3	Reforming regulatory frameworks could increase innovation.	A rethink in the way the energy retail market and all of its participants are regulated.	Move towards a functional, principles-based approach to licensing where the regulator defines certain activities. If you are a participant in them, you are subject to their licensing aspects.

The regulatory system also needs to be set up in a way so that it can efficiently monitor, support and enforce in a market that will be likely to see a growth in products coming from multiple sectors.

Although we counsel against second-guessing the product landscape of the future, or its possible popularity with customers, we can already see energy becoming just one part of bundled services as market offerings converge, especially for domestic customers. With it, there would be a risk to customer confidence if the regulatory regime was not suitably aligned. For example, if a consumer purchased an electric vehicle, with financing, insurance, product guarantees and energy supply all bundled in, the currently designed regulatory system would not be able to act effectively or consistently if one or more of these services failed.

¹⁷ Redesigning Regulation, Powering from The Future, Laura Sandys, Dr Jeff Hardy, Professor Richard Green, Dr Aidan Rhodes, 2018

Alongside rethinking the licensing regime for energy market participants, there could be scope for wider reforms across consumer markets. In a future where customers may regularly be engaging with multiple markets through a single entity (such as a third-party aggregator), current arrangements for sector-specific regulation may not be the most effective means to protect consumer against potential harm and maintain consumer confidence.

There may also be competing or contradictory requirements between regulatory systems that stifle innovation or result in unnecessary extra costs for the customer. Solutions may include a more joined-up approach between sector-specific regulators and regulatory regimes, or strengthening general consumer protections. There may even be a case for an overarching consumer markets regulatory authority that would also incorporate currently unregulated sectors. We urge the Government to monitor the extent to which markets are converging and assess opportunities to reform the regulatory system if necessary.

No.	Opportunity	Forward direction	Potential solution
4	Ensure regulatory frameworks support cross-sector offers/bundles.	Consider the alignment of approaches across utilities to allow for the development of cross-sector offers and bundles.	Government to keep under review the convergence of consumer markets and actively consider the findings from the National Infrastructure Commission's regulation study.

Any regulatory reform must also support the UK market's status as a safe and reliable place in which to invest. Existing and new market competitors must continue to feel confident, and an unreliable regulatory regime could deter the investment needed to realise the full benefits of the energy system transition.

To attract this necessary investment, it is paramount that the Government also remains committed to an independent and authoritative regulator, in line with the Competition and Markets Authority's (CMA's) Energy Market Investigation recommendations. The CMA found that a lack of robust and transparent decision-making increases the risk of policy decisions that work against competition in the energy market. We therefore hope that the Government will make a renewed commitment to proper scrutiny of regulatory decisions, improving decision-making and sustaining investor confidence.

In practice, this means a commitment to enable appeals to an expert body, as well as judicial review. It is widely recognised that good regulatory decisions are most likely where regulators can be challenged; they are not infallible and do not always appreciate the impact of their decisions on specific parties (including customers). With multiple new technologies, models and market convergence, it might also be unrealistic to expect an energy-specific regulator to have sufficient insight into every impact on every party.

No.	Opportunity	Forward direction	Potential solution
5	Reducing regulatory uncertainty could encourage greater levels of investment in innovation.	Consider how to ensure that regulatory certainty and regulator independence are part of any reforms.	The Government to make a renewed commitment to proper scrutiny of regulatory decisions through merit-based appeals to an expert body.

Industry code and governance reform

As the sector has transformed, so has the complexity of its governance. Developments such as clean energy, smart energy, and retail competition have led to new frameworks being regularly overlaid on legacy arrangements. This complexity is paid for by customers and taxpayers, and in 2015 Policy Exchange¹⁸ estimated the cost of industry administrative bodies (excluding government) was over £500 million per year.

The CMA went on to identify code complexity as a barrier to entry as part of its 2016 review. It noted that large suppliers dominate the decision-making arrangements for industry codes, which are unnecessarily complex and a hindrance to new entrants and innovation.

These codes need to be simplified, with their governance supported by a balance of established expertise and scope for new ideas. We therefore welcome the recently announced BEIS/Ofgem programme of code governance reform, and hope its outputs include actions to ensure responsiveness to new issues that come with innovation, and which remove the risk of incumbency drag or resource requirements being a barrier to new market offerings.

No.	Opportunity	Forward direction	Potential solution
6	Reforming current industry codes could increase innovation.	Review and reform current industry codes and their governance arrangements.	Industry to support the BEIS/Ofgem review of industry code governance.

“Developments such as clean energy, smart energy, and retail competition have led to new frameworks being regularly overlaid on legacy arrangements.”



¹⁸Policy Exchange, Governing Power - Improving the administration of the energy industry in Great Britain, November 2015

Data utilisation

The value of data cannot be overstated in leveraging the benefits of a smarter energy system to drive an efficient, competitive market. It is likely that innovative ways of using data will underpin many of the new services and products that surface as a result of the energy system transition. It follows, then, that any reforms of the energy market must also consider the future data framework. Currently, much of this data is hidden from market participants, preventing its inherent value from being fully realised. This led the Government to form the Energy Data Taskforce, led by the Energy Systems Catapult. Its remit is to recommend how industry and the public sector can work together to facilitate greater competition and innovation through more available and transparent data.

When handling both system and consumers' half-hourly consumption data, regulation needs to encourage as much openness as possible. There is a need to assess how data can be used to the fullest extent, while observing all proprietary and privacy legislation.

Fit-for-purpose security arrangements will also need to be implemented, as well as mechanisms to ensure that the cost of any new data flow infrastructure is borne equitably between market players.

No.	Opportunity	Forward direction	Potential solution
7	The market has an untapped resource of data. It could be used to realise the benefits of a smarter energy system to drive an efficient, competitive market.	Ensure market participants have access to relevant data, while ensuring sufficient controls are in place to protect customers.	Industry to support the work of the Government's Energy Data Taskforce.

Issues to consider

In addition to the specific areas for review we outline above, there are a number of issues that any reforms must consider and address.

Guaranteeing supply

Under any market structure, customers have a basic expectation: that they can rest assured the lights will stay on and their properties can be heated, regardless of their supplier, how they engage or the wider arrangements of the market. As a principle, they also expect that the market continues to guarantee that everyone can access energy at a reasonable cost, without undue barriers.

However, the current obligation on all energy suppliers to offer terms and supply may not entirely align with maximising the benefits of innovation. For example, a customer could benefit from having their supply of energy tied into products such as EVs or smart appliances. However, as we noted above, this kind of innovation could be constrained if the providers had to offer terms to all households, irrespective of whether they buy the intended linked product.

In thinking about future market structures we must therefore, assess how best to meet customers' expectations of a guaranteed supply while maximising innovation for their benefit. It's worth noting that there is no duty to offer terms in the non-domestic sector and we have seen no issues regarding customers sourcing a supply. It's clear that competition can deliver, and this suggests that the obligation on the domestic sector should be reviewed.

Alongside this, businesses need the flexibility to take greater responsibility for their own energy needs and gain from the wider business opportunities that the energy market could present. The current level of prescription and complexity acts as a barrier to driving greater engagement by businesses at this level.

Charging, and avoiding free-riding

The ongoing costs of using, maintaining and improving market structures and functions need to be recovered in a fair way across the spectrum of market participants. This will ensure that certain customers, services or companies neither have an unfair advantage, nor face undue detriment. This includes considering how some costs are covered if new services or technologies lead to increased system costs, such as if network reinforcements are needed to support EVs.

As a principle, customer groups or market participants should not bear any unfair cost burden. If we fail to ensure equivalence in cost recovery, it could lead to customers who are least able to engage or benefit from new services subsidising those who can.

A possible solution could be to charge customers on their level of connection to the network based on capacity, rather than on units consumed as happens today. Customers would be guaranteed a fixed level of capacity that must be served for essential services such as heat and lighting, and smart charging an EV; while an enhanced level of capacity could be foreseen for additional electricity capacity to allow greater simultaneous demand.

This would be similar to broadband delivery structures where higher speed and unlimited usage packages are priced at a premium. Although this would create a two-tier market it could, if designed appropriately, deliver fairer arrangements and avoid network upgrade costs being spread across all customers – including those who do not value the service or cannot pay.

Supporting customers in vulnerable circumstances

Energy is not a nice-to-have. It's essential to living a healthy and modern life. We must therefore also make certain that any future arrangements support customers who are less able to engage than most - this may or may not be for the same reasons a customer finds themselves in vulnerable circumstance today. As an example, the high upfront costs of solar panels and EVs will inevitably restrict access to related services and benefits to customers who can afford them.

Extra support may be required, both financial and non-financial, based on a clear understanding of customer needs. This could potentially include targeted price support/protections, or other forms of non-financial assistance, for people not served adequately by the market alone. Better data matching could also ensure that customers in vulnerable circumstances can be more efficiently identified and given the important protections and opportunities they need.

However, any protections must be designed in a way that benefits disadvantaged customers without, in a competitive market, placing unequal obligations and costs on various market players.

We need to recognise that customers must remain financeable and attractive for suppliers. There are groups of customers who, due to their circumstances, cost more to serve – i.e. those who make more calls to customer services and/or require greater support. The market structure must not disincentivise suppliers from serving these groups. This prompts a debate about the appropriate approach to recovering costs for a public good. One suggestion could be to explore whether a new levy (on consumption or supply) could be used to level the extra costs faced by some in supporting customers with greater needs.

We must also look to government to act appropriately in its responsibility to make sure that households can afford the basic necessities. Issues such as poverty and digital exclusion are wider societal issues that affect customers beyond simply their energy usage. These are therefore issues for government to address on an economy-wide basis.



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