

Dynamic Regulation to Enable Digitalisation of the Energy System

14 May 2019

Introduction

Energy UK is the trade association for the GB energy industry with a membership of over 100 suppliers, generators, and stakeholders with a business interest in the production and supply of electricity and gas for domestic and business consumers. Our membership covers over 90% of both UK power generation and the energy supply market for UK homes. We represent the diverse nature of the UK's energy industry – from established FTSE 100 companies right through to new, growing suppliers and generators, which now make up over half of our membership.

Our members turn renewable energy sources as well as nuclear, gas and coal into electricity for over 27 million homes and every business in Britain. Over 680,000 people in every corner of the country rely on the sector for their jobs, with many of our members providing long-term employment as well as quality apprenticeships and training for those starting their careers. The energy industry invests over £12.5bn annually, delivers around £84bn in economic activity through its supply chain and interaction with other sectors, and pays £6bn in tax to HMT.

This is a high-level industry response to the Council of European Energy Regulators (CEER) consultation on Dynamic Regulation to Enable Digitalisation of the Energy System. We would be happy to discuss any of the points made in further detail with CEER or any other interested party if this is considered to be beneficial.

Executive Summary

Energy UK welcomes this consultation by CEER and we are broadly supportive of the analysis it provides on the potential impacts and opportunities offered by the successful digitalisation of the energy system. Maximising these benefits for consumers will necessitate action from national regulators and governments establish regulatory frameworks in place are appropriate, removing unnecessary barriers to innovation, whilst guaranteeing consumer protections in evolving markets and ensuring a fair allocation of costs across participants. Energy UK, therefore, generally supports the draft regulatory proposals put forward in this consultation, and we are pleased that the GB regulator, Ofgem, is already undertaking a number of the proposed actions.

The GB energy system is undergoing a radical transformation, underpinned by the ongoing smart meter rollout and wider digitalisation of the energy system. A number of projects are already underway to assess how the GB regulatory framework needs to evolve to meet the challenges and deliver the opportunities of this future system.¹ Energy UK has also examined the energy transition detail, with our

¹ For example, the joint government/Ofgem Future Energy Retail Market Review, the National Infrastructure Committee's Future Regulation study, and the upcoming Energy and Consumer Markets White Papers.

April 2019 *Future of Energy* report setting out a way forward for the energy sector to deliver better for its customers as advances in technology and the vital need to decarbonise our economy transform the way we use, generate, store and transport energy.² In addition to the overall summary, the report also includes five sections looking in details at different aspects of the energy transition, with recommendations for regulators, government and industry:

- The future retail market and customers' relationship with it
- Funding future electricity generation and system services
- Reducing emissions from buildings
- The sustainable transition to a low carbon road transport system
- Transporting energy to and from customers through transmission and distribution networks.

Energy UK believes that competitive markets deliver the best results for consumers through innovation and adaptation to evolving consumer demands. Since the 1991 privatisation of energy in Great Britain (GB), competition in both energy generation and energy supply markets have delivered for customers through lower costs and secure supply, whilst simultaneously driving innovation. Competitive markets will remain the crucial vehicle in which the digitalisation of the energy system will be most efficiently delivered, and the consumer benefit best realised. Any changes to the regulatory regime must, therefore, ensure that the energy sector remains a safe and reliable place to invest in order for the full benefits of new technologies and methods to be realised for the consumer.

New, innovative products and service offerings have the potential to enthuse and excite the consumer, providing new avenues to market engagement that help achieve a low carbon energy system delivering excellent service, choice and value for money to all UK's homes and businesses. We cannot, and should not, attempt to second-guess exactly how consumer expectations will evolve alongside technology. However, we are already beginning to see new service offerings being taken up by consumers in the GB market, such as innovative EV tariffs, choosing smaller community generators, or securing the lowest possible cost for electricity supply on an ongoing basis. Such market developments, in particular a possible increase in cross-sector offerings, could give cause to refining the manner in which sector-specific regulators interact, or even for reforming the means by which these converging consumer markets are regulated. However, the costs and benefits of any such proposals must be assessed in full for a robust business case to be put forward.

Data will be at the heart of these new, innovative approaches to engage consumers in the energy market and needs to be effectively harnessed. It will, therefore, be important to have the most efficient regulatory regime in place to ensure appropriate access and protections are in place, and hold accountable those making use of this proliferation of customer and system data. These data-driven or enhanced services or products will not be limited to energy alone so it will be important for governments, regulators and industry to think cross-sectorally when designing governance and market structures. In achieving this, particular attention must be given to maximising the control that customers have of their data and their ability to share with whom they choose.

Value Proposition for Energy Consumers

1. What impact do you consider that digitalisation will have on the energy system and which are the most important?

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.

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. Going forward, increasing volumes of analytical data will be generated across the sector,

² <https://www.energy-uk.org.uk/our-work/future-of-energy.html>

whether from the smart meters themselves, or electric vehicles, connected home appliances and/or businesses via the development of bundled customer propositions.

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.

Digitalisation of the energy, alongside the rise of smart home technology, the rapid adoption of EVs, increasing volumes of micro-generation and the decarbonisation of heat, could precipitate a fundamental shift away from relationships based simply around kilowatts supplied. In particular, the boundaries between a consumer and provider could be redefined by innovative technology and services that are enabled by the abundance and clarity of data.

Although Energy UK would 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. The pace at which such developments are enabled will be dependent upon the successful digitalisation of the energy sector. The information provided from connected home technology, such as appliance health, and heating system operation, may also drive further sector convergence. Paths for consumer engagement with their energy may also evolve as a result, with some choosing to engage with multiple markets through a single entity such as a third-party aggregator, and shunning the traditional relationship between a customer and supplier.

There will be a number of new challenges as a result of digitalisation and the innovation that is progressed as a result, not least in ensuring that distribution systems remain reliable, and adequate consumer protections are effective in an evolving market. The ongoing costs of using, maintaining and improving market structures and functions will also need to be recovered in a fair way across the spectrum of new and incumbent 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.

The scope and pace of these impacts will be dependent upon the regulatory framework in place, which will need to be set up to most efficiently monitor, support and enforce in a market will likely see a growth in cross-sector offerings and evolving challenges.

2. What are your views on the changes for the energy system highlighted in this chapter and are these the most relevant?

Energy UK agrees with the three changes for the energy system that CEER has highlighted within its consultation. In addition, we believe that it will important to consider the overall positive opportunities that digitalisation will open up for the sector to decarbonise further and quicker.

a. Increases the productivity of the existing system;

Energy UK agrees with the potential increase in productivity of the existing system that digitalisation could deliver.

However, fundamental to realising this potential to the full will be appropriate visibility of data. Any reforms of the energy system to enable digitalisation must also consider the appropriate data framework. In the GB sector much of this data is hidden from market participants, preventing its inherent value from being fully realised. This has led the UK Government to form the Energy Data Taskforce, led by the Energy Systems Catapult.³ 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

³ <https://www.gov.uk/government/groups/energy-data-taskforce>

data. Energy UK believes that for both energy system and consumer data, the regulatory regime needs to facilitate and incentivise as much openness as is consistent with customer consent, data protection and other GDPR principles.

b. Enables new products and services that alter electricity demand;

Energy UK agrees with CEER's analysis and particular examples of new products and services that could be enabled. The GB market is already seeing a number of these new market offerings coming through.⁴

However, we should not attempt to second-guess what the future customer may want, or what future businesses or technologies may offer and be successful. In particular, it will be important to ensure that any changes to the regulatory framework do not attempt to "pick winners" in terms of technologies and services that may result from digitalisation. There must be a level playing field between existing regulated entities and new entrants to ensure that market participants are not disadvantaged due to a disproportionate share of costs or regulatory obligations.

In addition, as highlighted previously, the potential for greater market convergence driven by new participants or offers utilising the benefits of a digitalised energy system should not be discounted. 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 Nissan⁵ and Volkswagen⁶ are offering energy services in the GB market.

c. Brings new digital marketplaces that transform the way the sector transacts.

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. Many of these digital market places are still in their early stages but we agree with CEER that these new business models are likely to come forward to reward those customers who can shift their demand to match the changing status of the system.

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.⁷ Although we do not yet know the potential impact of blockchain on the market, or the consumer appetite for this level and manner of engagement, the industry and government should be ready enable its development if there is a benefit to customers.

3. In your view, what are the most important value propositions for consumers, which should be prioritised? (Cost Savings, Convenience, Choice, Participation)

First and foremost, it is important to differentiate between consumer groups. Domestic, large non-domestic, small non-domestic and microbusinesses will all have different priorities to each other and even one another, depending on their individual priorities, ability to engage and energy needs. The digitalisation of the energy system, and the greater availability and depth of data for analytical use could

⁴ A number of case studies are included in our separate *Future of Energy* report on retail markets: [https://www.energy-uk.org.uk/files/docs/The_Future_of_Energy/2019/FutureofEnergy_ReportSection_Chapter1_04.19\(1\).pdf](https://www.energy-uk.org.uk/files/docs/The_Future_of_Energy/2019/FutureofEnergy_ReportSection_Chapter1_04.19(1).pdf)

⁵ <https://www.nissan.co.uk/experience-nissan/electric-vehicle-leadership/storage-solutions.html>

⁶ 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=&utm_medium=email&utm_term=

⁷ [https://www.energy-uk.org.uk/files/docs/The_Future_of_Energy/2019/FutureofEnergy_ReportSection_Chapter1_04.19\(1\).pdf](https://www.energy-uk.org.uk/files/docs/The_Future_of_Energy/2019/FutureofEnergy_ReportSection_Chapter1_04.19(1).pdf)

help industry, government and regulators better understand the motivations and priorities of different energy customers at a more granular level than is used today.

However, Energy UK agrees with the value propositions put forward by CEER (cost savings, convenience, choice and customer participation), particularly in relation to the domestic sector.

4. In your view, will digitalisation lead to more consumer participation in energy markets? Please provide your reasoning.

Energy UK agrees that digitalisation of the energy system and innovations have the potential to boost the participation in energy markets by consumers who are currently less engaged. The level of any increased participation or engagement would be dependent upon the framework ensuring their confidence in the offers and protections in place, that they can engage to a level of complexity they are comfortable with, and that they are adequately informed.

However, engagement is not a binary option of being 'engaged' or 'disengaged'. It will likely need a better understanding as new ways to engage with energy, with appropriate protections for consumers opting to use new services such as third-party aggregators or switching services as they become more available and potentially more automated.

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.

If done right, even those customers that are not actively participating should be able to benefit from digitalisation.

Enabling the Benefits of Digitalisation and Protecting Against the Risks

5. What are the key enablers needed to unlock the benefits of digitalisation for consumers?

Energy UK views there being 4 key enablers that will be needed to unlock and maximise the benefits of digitalisation for all consumers.

Data Availability - The value of data cannot be overstated in leveraging the benefits of a smarter energy system for consumers. As such, there is a fundamental need to ensure that data is available and visible to market participants to deliver the impacts of digitalisation that CEER has highlighted. The ease of which data can be shared should also be streamlined, as far as is possible in accordance with relevant data privacy and security arrangements that will govern the market and consumer protection.

Competitive Markets – Unlocking the benefits of digitalisation will be best achieved by open, competitive markets in which the necessary level of investment can be secured and retained. In practice, this means a commitment to merits-based appeals of regulatory decisions to an expert body to maintain investor confidence. It is widely recognised that good regulatory decisions are most likely to materialise where the regulator itself can be challenged, as regulators are not infallible and may not always have recognised the scale of the impact of their decisions on specific parties (including customers). For example, Ofgem's decision to impose a limit of four domestic tariffs on suppliers was later revoked by the CMA in its 2014-16 Energy Market Investigation, having been found to be

detrimental to consumers. With new technologies and business models it may also not be reasonable to expect any sector-specific regulator to always have robust insight into the impacts of all changes on all parties.

Appropriate Regulation – An appropriate regulatory framework will need to be in place that minimises undue barriers to innovation, whilst ensuring consumer protections, to effectively unlock benefits of digitalisation.

The current “supplier hub” model in the GB market since privatisation has worked 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, this regulatory regime requires all retail suppliers to apply for, and comply with, an onerous and prescriptive 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.

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. For the GB market, Energy UK is recommending a to a principles-based, functional approach to licensing: the regulator defines certain activities, and if you engage in them you are subject to their specific licencing aspects. 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. It should also be extended past traditional suppliers, and take into account evolving business models that utilise the energy system, such as price comparison websites, auto-switching services or energy brokers.

In addition, distortions in the market due to legacy obligations or unfair distributions of costs should be avoided. Currently in the GB market, suppliers (with some exemptions based on customer portfolio size) are obligated to fund and deliver certain social and environmental policies. In a future market, with innovative or cross-sector participants or products, such obligations could negatively and unfairly impact upon traditional supplier businesses. As a point of principle, Energy UK believes that the energy system is not an efficient surrogate for intelligently developed and delivered government social policy and would need to be assessed when designing a regulatory framework for a digitalised energy system.

As highlighted by CEER’s consultation, Ofgem runs a regulatory sandbox through its “Innovation Link” initiative. Energy UK believes that the continuation expansion of regulatory sandboxes as digitalisation progresses will be crucial to enabling the benefits that innovative offerings could bring to consumers. This will be even more useful if markets continue to converge and non-traditional energy market participants seek to utilise the digital energy system for their services.

Smart Meter Roll-out – Digitalisation of the energy system, and its associated benefits, are underpinned by the successful roll-out of smart meters and the abundance of data and services that they will enable.

6. What are the main risks for consumers arising from digitalisation of the energy sector?

Energy UK considers that the main risks for consumers which regulators and governments will need to address include:

- Forced complexification of the energy system risks consumers being underinformed about their energy, or the services that they are choosing to participate with. There will therefore be a need to keep a level of simplicity for consumers who want it, or who do not want to engage.

- Consumers who are not able to, or do not want to take advantage of new, innovative offerings could risk facing an increased burden of costs that others may avoid if the appropriate regulatory and competitive framework is not in place. This will need to be addressed to ensure that all are paying their fair share of costs, whilst allowing benefits of a digitalised energy system to be enjoyed by all consumers. As an example, a customer's type of property tenure, or the high upfront costs of solar panels and EVs, will inevitably restrict access to related services and benefits to customers who can afford them and are able to have them installed. With the right regulatory and competitive framework, those who can afford an EV will be reducing the costs of decarbonising and managing the system for all consumers, whilst being rewarded directly for the flexibility they are offering. Financial and non-financial support, based on a clear understanding of customer needs, may be required to provide equal opportunities for those businesses and households that are less able to engage with new services and products. As part of this, better data matching between regulators and governments could also ensure that customers in vulnerable circumstances can be more efficiently identified and given the important protections and opportunities they need.
- The convergence of markets could lead to risks from customers interacting with unregulated services or businesses if the regulatory framework does not evolve. This is not a new concern, and the regulatory regime in the GB market has failed to keep pace with changes such as the rise in importance of price comparison website or energy brokers.
- With the abundance of new data sources, and proliferation of services accessing and utilising that data, there are increased risks surrounding the privacy and security of consumer data.

7. What would a “whole energy system” approach look like – would this unlock more benefits of the digitalisation of the energy system?

Digitalisation in energy would interlink with more than just new ways for consumers to buy energy. It will help to better understand and manage the energy usage in buildings, allow transport to become more interconnected, allow innovative services in health and other sectors. Energy UK believes that while the primary focus may be on the “whole energy system” in terms of benefits, there must be consideration and an appreciation that the digitalisation of the energy system will involve and impact on the much wider economic system.

8. Do you agree with the analysis presented here on the key areas in which energy regulators should focus?

Energy UK generally agrees with the scope of CEER's draft regulatory proposals. Our *Future of Energy* report gives a number of recommendations for regulators, government and industry in order to unlock and maximise the benefits of a smarter, more flexible future energy system and would welcome CEER assess these recommendations as part of its wider review. While we note that this consultation's scope covers national regulators, there are important aspects of enabling digitalisation that are generally outside the remit of regulators and will need direction from governments, particularly in relation to regulating converging markets.

9. Which of the specific draft proposals should regulators pursue? Which should they not undertake? Please indicate your top 5 priorities for action by regulators in the near term.

Draft regulatory proposals 1 and 2 on data availability:

Energy UK agrees with proposals. Overall, we believe that for both energy system and consumer data, the regulatory regime needs to facilitate and incentivise as much openness as is consistent with customer consent, data protection and other GDPR principles.

Draft regulatory proposal 3 on data privacy:

Energy UK agrees with the proposal. However, the increasing availability of data does create greater challenges for regulation, particularly with regards to the use of personal data and protection of consumers' privacy. It may, therefore, be necessary for the governments to also review the resources

and powers of the data or privacy regulators to ensure that they align with wider market regulatory frameworks and increased activity.

Draft regulatory proposal 4 on data security:

Energy UK agrees with the proposal.

Draft regulatory proposal 5 on consumer protections for new products:

Energy UK agrees that regulators should monitor experience with new products. However, where any protections are considered, they should be based on rigorous analysis and take into account any potential unintended consequences. In the longer-term for the GB market, Energy UK believes that a principles-based, functional licensing system would best protect consumers as services, products and technologies continue to evolve in the digitalised energy market. Such a system would also better protect against regulation-lag as it would regulate to ensure consumer outcomes, rather than prescriptive processes that may not cover newer offerings.

Draft regulatory proposal 6 on regulating intermediaries:

Energy UK fully agrees on regulating TPIs. In the GB market, TPIs (price comparison websites and auto-switching services) are becoming main point of initial contact with consumers whilst being unregulated. Energy brokers in non-domestic also play a major role and yet are unregulated. Fundamentally, there needs to be fair playing field between all energy market players, which will also include a fair share of costs and adequate customer protections no matter their choice of engagement route.

However, Energy UK is not supportive of imposing a default supplier in markets which do not have one currently. While we recognise that energy is an essential service, there would be various ways to ensure all customers are protected. In the GB market, suppliers of domestic customers have a duty to offer terms, and Ofgem has processes in place in case of supplier failures that do not disrupt a consumer's supply. Competition risks being undermined by a default supplier, which could limit or negate some of the positive impacts of digitalisation.

Draft regulatory proposals 7 and 9 on network tariffs:

Energy UK agrees with CEER on the importance of ensuring a fair share of costs between all users, and that new innovative services are not a means to avoid wider system costs. However, this should be achieved through better regulation, rather than more regulation.

Draft regulatory proposal 8 on regulation of platforms and new market places:

Energy UK agrees with this proposal, in line with our response to draft regulatory proposal 5.

Draft regulatory proposal 10 on market-based procurement of flexibility services by DSOs:

Energy UK agrees, provided DSOs do not form aggregators and stick to network operation.

Draft regulatory proposal 11 on efficient product definitions for grid services:

Energy UK agrees.

Draft regulatory proposal 12 on TSO/DSO relationship in more decentralised system:

Energy UK agrees, and we are pleased to see Ofgem already undertaking this in its current workstreams.

Draft regulatory proposal 13 on regulators' digital expertise:

Energy UK agrees with this proposal. It will also be important for energy regulators to ensure that they are proactively engaging with other sector regulators as markets converge to protect consumers from unintended consequences of digitalisation.

Draft regulatory proposal 14 on developing new product/business model trials best practice approaches:

Energy UK agrees, and we have been supportive of Ofgem's *Innovation Link* as a means for new business models of products that may have consumer benefits to be tested and guided to market where appropriate.

10. Do you have any other general observations to make on the topic of this consultation paper?

While we understand the scope of this consultation, there are many benefits and impacts of digitalisation that will be out of the hands of regulators to unlock, and instead will need government-level action. For example, there are a number of distortions in bills (such as tax and policy costs) that could undermine innovative or their uptake, or create a fundamentally unfair playing field if different market participants are treated differently based on legacy regulations.

Furthermore, to attract the necessary investment that fully enables the development and implementation of innovation across the whole of the energy system it is paramount that governments are committed to independent and authoritative regulation. In its 2014 Energy Market Investigation, the UK Competition and Markets Authority found that a lack of robustness and transparency in regulatory decision-making increases the risk of policy decisions that have an adverse impact on competition in the energy market.

If you would like to discuss the above or any other related matters, please contact me directly on 020 7747 2931 or at steve.kirkwood@energy-uk.org.uk.