

# Delivering a smart and secure electricity system

Citizens Advice response to BEIS's consultation



September 2022

# Introduction

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At Citizens Advice, we're in a unique position as the statutory provider of advice and advocacy for domestic and microbusiness energy consumers in Great Britain. We use research and evidence from the people who contact our advice service every day to understand the problems facing energy consumers in Great Britain. Our vision for the energy market is one that facilitates and encourages innovation, is accessible by all and treats everyone fairly, regardless of their circumstances.

There are significant consumer protection gaps in the demand-side response market, as highlighted by our recently updated risk register for domestic demand-side response (DSR), jointly published between Citizens Advice, the Association for Decentralised Energy and Energy UK.<sup>1</sup> For several risks, the current protection level remains rated as limited or no protection. The regulatory framework must be designed to close these gaps.

We welcome the government's proposals to legislate for powers to introduce regulations for organisations with a role in load control, but in the next stages of consultation we need to see a sharper focus on the powerful role of consumers in this market. To reach a mass market, industry depends on consumers feeling confident and being able to participate. We'd like to challenge the government to be more ambitious in two broad areas: **improving consumer confidence** and **removing barriers**.

## Improving consumer confidence

Earlier this year we used a mix of qualitative and quantitative research, with both consumers and industry, to identify what a regulatory framework the domestic DSR market should cover.<sup>2</sup> We identified 3 outcomes that consumers need to see to improve their confidence in this market.

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<sup>1</sup> Citizens Advice, ADE and Energy UK (2022) [Demanding attention: Managing risks with demand-side response, to improve consumer experience tomorrow](#)

<sup>2</sup> Citizens Advice (2022) [Smartening up: How to improve people's confidence in smart home technology](#)

Consumers need to:

1. Feel confident about the contracts they sign up to
2. Know where to go for help
3. Have control over their data.

We know that, for most smart energy services, only around half of people feel confident that they understand them - and fewer people feel that they would actually be likely to use such services.<sup>3</sup> When we ran comprehension tests with people after they'd read information about smart energy services, 40% got something wrong in the tests.<sup>4</sup>

Several of the proposals speak to the 3 consumer needs we identified and have the potential to improve consumer confidence, such as opening up access to time-of-use tariff data and setting minimum cybersecurity requirements for domestic-scale ESAs. However there must be greater and more intentional focus on the role of consumer confidence if the full benefits of reaching a mass market are to be realised.

## Removing barriers

Consumers have told us that the top 3 barriers that would hold them back from smart home technology are data privacy concerns, cost concerns and difficulty understanding offers.<sup>5</sup> And we know that there are particular groups who are more likely to face more barriers and worse outcomes in the energy market.<sup>6</sup> Participating in the smart energy market, as it stands, is likely to be easier for consumers on higher incomes, who own their home, are able to be flexible with their energy usage and are confident with technology and digital services.

It follows that there are groups that are more likely to find participating difficult, for example lower income households, private renters, families with young

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<sup>3</sup> Citizens Advice (2022) [Smartening up: How to improve people's confidence in smart home technology](#)

<sup>4</sup> Citizens Advice (2020) [Powering up or facing resistance? How people understand the benefits of smart appliances](#)

<sup>5</sup> Citizens Advice (2021) [Smartening up: How to improve people's confidence in smart home technology](#)

<sup>6</sup> Citizens Advice (2019) [Future for all: Making a future retail energy market work for everyone](#)

children and people who are digitally excluded or neurodiverse. People in these groups are more likely to be from marginalised communities, for example disabled or ethnically marginalised people are more likely to be part of lower income or private rented households, digitally excluded people are more likely to be older and families with young children are more likely to include single mothers.

A more targeted effort to remove barriers has the twin benefits of reaching a mass market and enabling more equitable outcomes.

In addition, the regulations must be clear and accountable, by providing a steer to companies about what is expected from the government and being backed up by a straightforward and effective compliance and enforcement process. They must also be adaptable to this relatively nascent and changing market.

# Answers to consultation questions

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## Introduction

### **1. What are your views on the overarching timings of implementation of these proposals, including the proposed approach to phasing?**

We are pleased to see that the majority of the policy proposals in the implementation approach are expected to be in place by the mid-2020s, but we would challenge the government to go further and bring the regulations in by 2025 at the latest. In 2021, the government stated in the Smart Systems and Flexibility Plan that adequate protections must be implemented by 2025 to avoid detriment.<sup>7</sup>

This timeline would align with other regulatory changes such as the Future Homes Standard, the goal of at least 80% penetration of smart meters and the start of half hourly settlement for domestic energy consumption.

## Cyber security proposals for protecting the energy system

### **2. Do you agree with the Government's proposal to make certain load controllers subject to the obligations in the NIS Regulations? Please explain your answer.**

We agree. There is a need for high cybersecurity standards if consumers are to feel confident in the growing market for products such as batteries and heat pumps.

Our research has repeatedly found that people care strongly about data security and privacy. In recent polling, nearly a quarter of people (23%) said that concerns about companies accessing their data is their biggest barrier to using smart energy services.<sup>8</sup>

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<sup>7</sup> BEIS (2021) [Transitioning to a net zero energy system: smart systems and flexibility plan 2021](#)

<sup>8</sup> Citizens Advice (2021) [Smartening up: How to improve people's confidence in smart home technology](#)

**3. Do you agree with the Government's proposal of setting a threshold requirement of 300MW of remote load control for a load controller to be considered an operator of an essential service under the NIS Regulations? Please explain your answer, and provide supporting evidence.**

The 300MW threshold seems proportionate and sensible, but should be kept under review. A fixed 300MW threshold may become less fit for purpose as the market becomes larger and more fragmented. If there are multiple large remote controllers just below the threshold, then the vulnerability to system security could increase significantly.

We recommend a sliding scale of thresholds, for example at 100 and 200MW, for the purpose of enabling the regulator to monitor the number of organisations approaching the 300MW threshold, assess the cumulative scale of load management and forecast cybersecurity risk. The requirements on organisations reaching these lower thresholds should include providing the regulator the information needed to contribute to their assessment of cumulative load management.

**4. Are there any other threshold metrics that should be considered, for instance if organisations have more than a certain number of customers/appliances connected?**

We agree that remote load control is the most appropriate threshold metric to use in the first instance.

However, ideally, the criteria for reaching the threshold would consider regional concentration of load in addition to total remote load control. Remote load concentrated in lower voltage parts of the grid is likely to create a greater risk to grid stability than remote load distributed more widely across different parts of the grid. We would welcome any further thinking on how regional concentration of load could be considered as part of the threshold criteria.

**5. Do you agree with the Government's proposal of using the Cyber Assessment Framework (CAF) to support the implementation of the NIS requirements for load controllers? Please explain your answer.**

Not answered

## Energy smart appliances: Outcomes

### **6. Do you agree with our proposed outcomes for interoperability? Please explain your answer.**

We support the proposed outcomes, but we would like to see more ambition in terms of scope. We disagree with the proposal to omit the interoperability of Home Energy Management Systems and different devices in the home from the scope of the ESA standards. While we support the need for ESAs to work with all tariffs they will increasingly need to also work with each other. For consumers, the two issues will be inextricably linked.

In the future, the smart home is likely to become increasingly complex. Consumers will look to smart products and services such as Home Energy Management Systems (HEMS) to ensure that they are able to take advantage of - and indeed not lose out on - new tariffs that require appliances to operate at different times of day and in different modes, potentially at short notice.

Ensuring that ESAs are able to work with each other and with Home Energy Management Systems will be vital to ensure that the market for such products remains open and competitive. If proprietary “walled garden” models are allowed to thrive in the early stages, we will see consumers effectively locked into specific product ecosystems due to the costs of replacing all connected equipment and the inconvenience of doing so. It is likely that many consumers will find themselves having to use whatever system was purchased and installed by the previous occupant or their landlord.

Ensuring that all systems interoperate seamlessly and, for example, any HEMS can work with any appliance will allow for continued innovation and new entrants to enter this growing market. To do otherwise risks the biggest players building an immediate monopoly in consumer homes to the detriment of consumers and their ability to get the most out of net zero enabling equipment.

If this risk is not addressed and mitigated for in the early stages it will become far more difficult to unpick and address in the future once appliances are established in consumer homes. It will also risk a loss of consumer trust in these

products and services. Consumers could choose (or have chosen for them) a system which is either sub-optimal or ceases working after support is removed. They could then be unable to purchase and use equipment from other providers without replacing all equipment in their homes.

## **7. What are your views on the initial proposed outcomes for cyber security of Energy Smart Appliances? Is there anything missing or not relevant?**

We support these outcomes but feel that more could be added to reassure consumers, as it is not clear how consumer consent will be handled.

There should be greater consideration given to how consumers can see and understand what data they are sharing, with whom and for what purposes. If consumers are to trust new products and services they will need to know that clear means of transparency, choice, accountability and redress are in place. These should be considered and 'baked in' now to avoid problems with trying to add them later. For example, the Data Communications Company (DCC) has no built-in consent check mechanism, instead relying on post facto audits to catch any mis-use. Adoption of a simple open source consent check mechanism during the design phase would have significantly improved consumer messaging and reassurance, and eliminated the risk of a company improperly collecting data without consent.

In addition, we would like to see a definition of "mis-use by authorised entities." It's important that mis-use covers non-consensual use of consumer data.

## **8. Do you agree with Government's proposed data privacy outcomes for ESAs?**

We would like to see the outcomes refocused to prioritise consumer transparency and control over their data.

In order to improve consumer confidence, it's important that consumers can see how their data is being protected and understand how they can control what companies access. Data privacy in and of itself is unlikely to improve consumer confidence unless consumers understand their rights and have control over their data. In polling, we found that 89% of people feel that having the ability to



opt out of data-sharing is important to them (even if in practice people often do not choose to opt out).<sup>9</sup>

As with existing data protection principles, it's important to make the distinction between different levels of granularity. The sharing of aggregated data can be helpful for industry and is less likely to cause data privacy concerns among consumers, while disaggregated data is likely to be more concerning.

We would also like to see coordination between these proposed data privacy requirements and other work streams such as the Smart Meter Energy Data Repository Programme and ongoing work to further examine development of a consumer consent dashboard.<sup>10</sup>

## **9. Do you agree with the risks to grid stability and proposed outcomes Government has identified? Is there anything missing or not relevant?**

We agree with the risks and outcomes, and would like to propose 2 additional risks / outcomes. Consumers, and their action or inaction, are a central part of a distributed energy system and need to be considered as such.

Additional risk 1: Consumers not being able or willing to engage with demand flexibility

Additional outcome 1: Consumers face limited barriers and receive sufficient incentives to engaging with demand flexibility

Consumers not being able or willing to engage with demand flexibility is a key risk that is not explicitly covered. We know from our research that consumers' main barriers to engaging with smart products and services are concerns about data privacy, concerns about cost and difficulty understanding offers.<sup>11</sup> Targeted support to remove such barriers and help people engage in demand flexibility are likely to mitigate stability risks and facilitate balancing capability.

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<sup>9</sup> Citizens Advice (2019) [Clear and in control: Energy consumers' views on data sharing and smart devices](#)

<sup>10</sup> See the [Smart Meter Energy Data Repository Programme](#) and the [joint response by BEIS, Ofgem and Innovate UK to the Energy Digitalisation Taskforce's final report](#)

<sup>11</sup> Citizens Advice (2021) [Smartening up: How to improve people's confidence in smart home technology](#)

Otherwise it is likely that other risks will be exacerbated, in particular “Unexpected step-changes or ramps in energy usage at scale, in a short space of time” and “Inability to provide the flexibility necessary to the energy system, when depended on.” Correcting failures in trust and engagement over time will cost suppliers and consumers, similar to correcting mechanical and technical faults.

Additional risk 2: ESAs and consumers not being able or willing to support effective restarting

Additional outcome 2: Effective restart of electricity supply on the local network after a power cut is enabled and incentivised

The government must ensure that both ESAs have the ability and consumers have the incentives to support effective restart of local distribution and transmission networks. In addition to the technical ability of ESAs themselves, consumers will play an important role in “protect[ing] against unintended synchronised changes in load” and “enabl[ing] effective restart of electricity supply on the local network after a power cut.” Consumers’ ability and will to contribute to the ESO distributed restart programme should be prioritised and consumers should be rewarded for providing distributed stability to the grid.

## **Energy smart appliances: Technical frameworks**

### **10. Do you agree with Government’s proposals to make time-of-use tariff data openly available in a common format for Energy Smart Appliances?**

We agree that time-of-use tariff data should be openly available in a common format, as this has the potential to benefit many user groups including consumers. We have concerns about the proposed arrangements for enabling this access.

At a minimum, tariff information must be openly available to the following user groups: appliance manufacturers and providers, DNOs, aggregators, energy suppliers, price comparison websites, consumer groups and consumers. The common format must be user-friendly and more than a basic spreadsheet or list of information. We would expect comprehensive user testing to ensure that the common format is clear, accessible and meets the needs of all user groups.

The government acknowledges the value of “consumers’ ability to compare service offerings, specifications, or charges,” proposing that the future licensing framework for DSR service providers should consider this. Ensuring that tariff information is clear, accessible and meets the needs of consumers is an important precursor to any further requirements within a future licensing framework.

We know that one of people’s main barriers to participating in smart energy services is not understanding and being able to compare offers. When we asked consumers to read information about smart energy services and then complete comprehension tests to check their understanding, 40% got something wrong in the tests.<sup>12</sup> In recent consumer polling, 1 in 10 of people told us their biggest barrier to using smart energy services was not knowing whether offers would be right for them or finding the offers difficult to understand.

Following a desk review in 2020 of energy supplier websites and price comparison websites, we concluded that many of the larger price comparison sites do not allow consumers to compare EV tariffs.<sup>13</sup> Some smaller price comparison sites do, but it is not always clear how they get their data or what assumptions are made within the comparison. Many price comparison websites do not provide a full market view, and don’t show all of the tariff options available to consumers.



Kavita buys an EV but is unsure whether to change her tariff to an EV specific one. She also has solar PV installed at home. On an online forum other members agree that it’s confusing: one member suggests that she uses a spreadsheet to make comparisons. Somebody suggests that Kavita may be better off exporting her surplus PV usage, rather than diverting it to her car.

- EV forum post

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<sup>12</sup> Citizens Advice (2021) [Powering up or facing resistance? How people understand the benefits of smart appliances](#)

<sup>13</sup> Citizens Advice (2021) [Innovation in the tariff market: Discussion paper on how new tariffs can work better for people](#)

Consumers' ability to confidently engage in the smart energy market will be greatly aided by easily accessible digital information on their own tariff. This will support their ability to compare, cost and seek targeted advice on their energy services. It should also facilitate their ability to engage with demand-side response by enabling their devices to access tariff information.

We have concerns about the proposal for access to time-of-use tariff information. The current proposals for a repository (similar to meter information on the Smart Energy Code website) will significantly hold back interoperability of demand-side response and the ease of consumer engagement. Our favoured, more accessible and usable approach would be consistent with the Energy Digitalisation Taskforce (EDiT) recommendations to give consumers control over their digital energy information through a consent dashboard, something BEIS and Ofgem have committed and begun to consider<sup>14</sup> and for which Citizens Advice has already built some early proofs of concept.<sup>15</sup>

**11. Do you agree that the Smart Energy Code could provide the appropriate governance for development of common data standards? Please explain your answer.**

It makes sense to use a well-established governance route such as the Smart Energy Code (SEC) that has a route for consumer representation. However, there are a number of issues with this route given the current SEC model.

The lack of a clear strategy for transitional governance, as set out by the Stage Gate Assessment Review of the SMIP Programme undertaken by the Strategic Projects Authority, is concerning. There are significant forthcoming developments that the Smart Energy Code would need to navigate including transitioning away from 2G and 3G networks and recontracting of DCC contracts. Further clarity is needed on transitional governance and we fully support the review of the Transitional Governance Regime to provide better clarity on how governance is intended to operate.

We favour a clear unified approach to the development of a stable structure for smart energy governance that incorporates common data standards. This is vital

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<sup>14</sup> BEIS, Ofgem and Innovate UK (2022) [Energy Digitalisation Taskforce report: joint response](#)

<sup>15</sup> Citizens Advice (2018) [The smart meter data dashboard](#)

for avoiding duplicative and inefficient reform. There must also be a simplified approach towards engagement between all industry codes and the DCC.

The extension of the dual governance approach with BEIS and industry has previously led to engagement issues for the Smart Energy Code panel and the DCC. The lack of a complete view on a number of issues impinges the panel's ability to oversee governance, meaning that it has proved difficult for Ofgem and the industry led market-wide half hourly settlement (MHHS) programme to engage with the panel effectively. There has been a lack of strategic alignment between MP162 and the favoured target operating model with current DCC service operation has been a problem. We have previously proposed some mitigations to address these challenges.<sup>16</sup>

The mitigations we proposed apply here too. In particular, it's important that the expected ways of cross-code working are efficient and clearly set out. Cost benefit assessments should be coordinated across codes and should reflect whole-system outcomes for consumers.

It's important that the approach considers the wider changing context of the energy market and the ongoing review of electricity market arrangements (REMA). We anticipate that the funding approach for DCC would not be fit for a post-supplier hub model.

## **12. How should Government ensure that Energy Smart Appliances integrate with time-of-use tariffs, beyond providing interoperability with tariff data?**

Given the importance of consumer demand management to bill affordability and grid stability, it is vital that consumers, their intermediaries and their devices can easily engage with the demand management market. BEIS's current proposal to make tariff data available in a common format somewhere online will not effectively help consumers engage with their tariff data.

We recommend that government sets out a longer-term solution to enable access to personal tariff data by third parties. Consumers themselves need to be able to easily access and share their tariff information from their supplier. There

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<sup>16</sup> Citizens Advice (2021) [Citizens Advice response to Ofgem's Implementation and Governance Arrangements for Market-Wide Half-Hourly Settlement Consultation](#)

needs to be an authentication process between a supplier and a consumer's trusted third party. This should enable the sharing of dynamic data sharing which will become increasingly common with time-of-use tariffs and active demand management.

The concerns set out in our answer to Question 10 about the current proposals for a repository (similar to meter information on the Smart Energy Code website) apply here too. Our favoured, more accessible and usable approach would be consistent with the Energy Digitalisation Taskforce (EDiT) recommendations to give consumers control over their digital energy information through a consent dashboard, something BEIS and Ofgem have committed and begun to consider.<sup>17</sup>

**13. Should government consider standardisation of other types of 'incentive data' used by ESAs for DSR? Please consider what types of data and how they could be standardised.**

Not answered

**14. Do you agree that Government should establish regulatory requirements to promote adoption of ESA standards, and what would be your preferred approach? Please consider the advantages and disadvantages of an 'approved standards' (Option 1) vs. 'mandated' (Option 2) approach.**

Not answered

**15. Do you agree that a standard based on PAS 1878 should be used in the future regulation of ESAs?**

Yes, we agree, for the reasons outlined by government: PAS 1878 is closely aligned to the government's policy objectives and to emerging international standards, and was developed by a working group of experts including industry representatives.

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<sup>17</sup> BEIS, Ofgem and Innovate UK (2022) [Energy Digitalisation Taskforce report: joint response](#)

**16. Do you agree that Government proposals for ESA standards should apply to domestic scale ESAs with the highest potential for flexibility, including private EV charge points, batteries, heat pumps, storage heaters and heat batteries? Please consider whether any other types of ESA should be in scope.**

We agree with the approach of implementing standards covering those appliances with the highest potential for flexibility. This should be subject to a review process whereby other appliances could be considered in future.

**17. What is your preferred option for developing and maintaining ESA standards in the future? Are there other options we should be considering? Please explain how you would expect your preferred option working in practice.**

We don't have a strong view on which approach is more suitable. To ensure organisations are accountable and that there are routes to redress, it's important that formal governance arrangements are in place. A working group should include representatives from each of the relevant industry sectors, as well as a consumer organisation such as Citizens Advice.

**18. Should Government mandate a randomised delay for ESAs, including heat pumps, storage heaters, heat batteries and batteries, to mitigate against risks to grid stability, in advance of longer-term ESA standards? Views are welcome on how a randomised delay could operate and on alternative mitigations.**

We don't have a strong view on whether this will be necessary for ESAs. If it is deemed that there is enough of a risk of causing detriment to consumers, then we would support the development of last-resort solutions that mandate a randomised delay.

In a similar vein, an industry working group (coordinated by Energy Systems Catapult as part of the Electric Vehicle Energy Taskforce) has developed solutions to provide protection against unintended synchronised change caused

by EV home charging. This work has now been handed over to ENA for the implementation stage. We recommend that the government ensures a joined-up approach here and refers to that work as a starting point.

**19. Should minimum device-level cyber security requirements be implemented for heat pumps, storage heaters, heat batteries and batteries, prior to implementation of enduring ESA standards? Should any other ESAs be considered?**

We agree with the approach of implementing standards covering those appliances with the highest potential for flexibility. This should be subject to a review process whereby other appliances could be considered in future.

**20. Is ETSI 303 645 an appropriate standard for minimum device-level cyber security requirements for ESAs?**

We agree. Aligning with or building on a recognised international standard seems sensible.

**21. Do you agree that common systems could be required to mitigate system-wide risks? What issues will need to be considered in the design of such systems?**

No answer

**22. What issues will Government need to consider when reaching a decision on delivery approach for common systems?**

No answer

## **Energy smart appliances: Delivery frameworks**

**23. What are the key considerations for design of governance during the development, transition and delivery phases of implementation?**



No answer

**24. Are there any considerations Government has not mentioned above that should be factored into future policy on assurance? Please consider assurance for devices and associated systems, such as 'cloud' platforms.**

No answer

**25. What is your preferred approach for assurance for ESAs, and why? Please provide any evidence on the relative impacts, costs, and benefits of different approaches.**

No answer

**26. Do you think a labelling scheme for ESAs could help promote consumer uptake in DSR from ESAs? If yes, what type and form of labelling would be most beneficial?**

It is important that consumers can easily find and understand information about an ESA's features, including its capacity of providing DSR services. Any approach to labelling should be tested with consumers to ensure the messaging is clear and meaningful.

We don't have a strong view on the form that labelling should take, but the approach must consider the context of other labelling schemes (such as those within the Energy Related Products (ERP) framework) and avoid information overload for consumers.

**27. What factors should government take account of when considering how the costs of delivering these arrangements should be distributed and recovered?**

We support a greater use of residual network charges for electricity and gas in the financing of digital infrastructure that facilitates demand optimisation to

support net zero. Suppliers should not be the only contributors to enabling level playing field options in the energy system.

## Smart electric heating

**28. Do you agree that the smart mandate should initially apply only to hydronic heat pumps, electric storage heaters and heat batteries? Please explain your answer.**

We agree with the approach of implementing standards covering those appliances with the highest potential for flexibility. This should be subject to a review process whereby other appliances could be considered in future.

**29. Do you have a view, and supporting evidence, on which appliances the mandate should be extended to include in the future, and by when?**

We don't hold a view on this as our expertise is not in specific technologies. We would expect government to monitor the need for applying a smart mandate to other appliances and communicate with industry and consumers about any planned extensions.

We'd like to flag that it's important that early-adopter consumers are not unfairly penalised for investing in low-carbon heat appliances that are not smart. We would like to see the government set out plans to facilitate the retrofit of existing, non-smart appliances to make them smart.

**30. Do you have a view, and supporting evidence, on the impact that the proposed mandate may have on different consumer groups, for example low income and vulnerable consumers, in terms of upfront costs, running costs or otherwise? What further action is needed to ensure all groups can benefit from smart heating?**

Overall, the extension of smart functionality to heating is crucial and the long-term benefits are likely to outweigh any costs. Looking at the big picture,

inaction now would lead to a less smart and secure energy system in the future and the costs of an inefficient energy system would likely fall to consumers.

Assuming that industry passes on the cost of making heating appliances smart to consumers, there is of course the potential that smart heating is more costly at least in the short term. This could make smart heating even less accessible, especially for those in low income and vulnerable groups. To mitigate the impact of this, we would expect government to explore funding to support these groups to participate in smart energy, for example through grants.

**31. Do you agree with the proposed definition and approach to delivering smart functionality for electric heating appliances? Please explain your answer. If proposing additional requirements to include in the definition, please provide evidence on the costs and benefits of such requirements.**

The definition and approach should focus on the load-controlling aspect of appliances. They should be as future-proof as possible, to reduce the risk of further innovation rendering the definition and approach outdated.

**32. Do you agree with the proposal to implement the smart heating mandate from 2025? Please explain your answer.**

We agree. As set out in our answer to Question 1, we are pleased to see that the majority of the policy proposals in the implementation approach are expected to be in place by the mid-2020s, but we would challenge the government to go further and bring the regulations in by 2025 at the latest. In 2021, the government stated in the Smart Systems and Flexibility Plan that adequate protections must be implemented by 2025 to avoid detriment.

This timeline would align with other regulatory changes such as the Future Homes Standard, the completion of the smart meter roll-out and the start of half hourly settlement for domestic energy consumption.

**33. Do you have a view on what other measures could be taken, in addition to the proposals in this consultation, to ensure heat pumps can provide this flexibility, for example a minimum level of thermal storage?**

Any flexibility requirement must consider the thermal comfort of households. Consumers must have the right to set their heating appliances to operate flexibly within set parameters, for example within 1 degree of the household's preferred temperature.

**34. Should Government consider introducing a 'smart mandate' for domestic-scale battery systems or any other appliances? If so, what appliances and why?**

We don't hold a view on this as our expertise is not in specific technologies. We would expect the government to monitor the need for applying a smart mandate to other appliances and communicate with industry and consumers about any planned extensions.

Introducing a smart mandate for domestic-scale battery systems certainly has the potential to deliver significant benefits for consumers by widening participation in vehicle-to-grid flexibility. Our research has found that consumers would be more likely to use vehicle-to-grid services if they had an energy storage system (i.e. a battery) or alternative supply (e.g. solar panels) in their homes.<sup>18</sup> The wider the smart functionality across technologies within a home, the more the household is able to participate in and benefit from a smart energy system.

## **Regulation of organisations**

**35. Do you agree that licensing should initially focus on organisations providing DSR for domestic and small non-domestic consumers? Should there be any exemptions to these requirements? If so, why?**

We support the initial focus of licensing organisations providing DSR for domestic and small non-domestic consumers.

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<sup>18</sup> Citizens Advice (2019) [Smart EV charging: What do drivers and businesses find acceptable?](#)

We know that microbusiness consumers already face significant detriment due to protection gaps in the regulation of energy suppliers. We have found that microbusinesses face problems for which they have relatively few protections, such as problems around debt, which can ultimately result in disconnection from their energy supply, contract issues and problems caused by a minority of third party intermediaries - particularly brokers - using aggressive tactics to misrepresent and mis-sell.<sup>19</sup> Ofgem's decision to modify the supply licence conditions to award microbusinesses more protections is a positive step.<sup>20</sup>

To avoid the need for similar remedial action in the smart energy market in the future, we are pleased that the proposed licensing framework will cover both domestic and small non-domestic consumers.

**36. Do you have initial views on how a licensing scheme should be implemented – for instance, should it be linked to providers of services relating to specific products, linked to the size of the consumer, or some other approach?**

Licensing should reduce the risk to grid stability and the potential for consumer detriment, so an ideal implementation approach would consider both the size of remote load and the number of customers.

It seems sensible that the licensing scheme should apply to all organisations contracting with or actively controlling a certain volume of load. This threshold should be based on an assessment of the volume that is enough to create a significant risk to grid stability or cause consumer detriment.

Some fundamental licence conditions should be universal, while others could be scaled depending on the risk to grid stability and the potential for consumer detriment.

There must be an expectation that organisations are ready to meet all the regulatory requirements in advance of obtaining a licence or passing a qualifying

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<sup>19</sup> Citizens Advice (2021) [Closing the protection gap: Problems in the microbusiness energy market and how to fix them](#)

<sup>20</sup> Ofgem (2022) [Microbusiness Strategic Review: Decision to modify the SLCs of all gas and electricity supply licences](#)

threshold. This must be backed up by comprehensive compliance and enforcement activity.

**37. What design principles do you agree or disagree with? What principles would you like to be added?**

We agree that the design of this framework should be informed by the proposed principles.

We propose the addition of 2 further design principles:

- Consumer-centred - requirements must primarily focus on building confidence in the smart energy market and removing barriers to participation
- Embed accountability and access to redress - there must be comprehensive compliance and enforcement activity and clear routes for consumers to achieve redress

**38. How should proportionality be delivered in a future licensing framework?**

As stated in answer to Question 36, some fundamental licence conditions should be universal, while others could be scaled depending on the risk to grid stability and potential for consumer detriment.

There must be an expectation that organisations are ready to meet all the regulatory requirements in advance of obtaining a licence or passing a qualifying threshold. This must be backed up by robust compliance and enforcement activity including regular audits.

**39. What additional protections for consumers could be required from a future licensing framework beyond those contained in existing consumer protection law?**

We support the list of proposed protections and expect several of them to mitigate some of the risks set out in our DSR risk register.<sup>21</sup> There are some risks, however, that would still persist without action. We would like to see specific protections in the licensing framework that aim to mitigate the following risks.

9. Poor installation and unclear maintenance obligations of assets such as batteries

There are no regulations around installation and maintenance, only voluntary standards and consumer codes.

17. Insurance against issues with assets as a result of DSR actions

As things stand, this would need to be set out under contract terms and conditions and would be specific to the kind of business model.

In addition, we recommend that the framework uses the terminology “consumers in vulnerable circumstances”, in alignment with Ofgem’s definition of vulnerability. There are various transient circumstances that could lead to consumer inability to participate in demand flexibility, such as digital exclusion, unavoidable inflexibility of electricity use and living in the private rented sector. It’s important that protections encompass these consumer groups and circumstances.

#### **40. Are additional data privacy protections required for DSR beyond those existing in law through the General Data Protection Regulation? If so, what additional measures should be introduced and why?**

While GDPR provides a reasonable baseline for protections it would seem prudent to ensure other rules and protections are in place, particularly as GDPR is currently under review with the potential to change significantly.<sup>22</sup> The approach to data in the smart meter rollout is likely to be informative here - the decision was made to create the Smart Meter Data Access and Privacy Framework which was enshrined in law and specifically addressed smart meter data. This gives consumers significantly more clarity on their rights and choices while making clearer to the energy industry what is expected of them.

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<sup>21</sup> Citizens Advice, ADE and Energy UK (2022) [Demanding attention: Managing risks with demand-side response, to improve consumer experience tomorrow](#)

<sup>22</sup> DCMS (2021) [Data: A new direction](#)

GDPR and recourse to the ICO should be considered a back-stop safety net rather than a first port-of-call. Understanding whether data rights have been breached and indeed referring a suspected breach to the ICO are not simple tasks for consumers and make achieving redress or even identifying who is accountable prohibitively difficult for consumers.

Ultimately consumers will need both transparency of where their data is being shared and for what purposes, so that they can be informed enough to understand its usage, and a clear and simple route of accountability and redress for when things go wrong. GDPR alone will not deliver this.

**41. Do you think that licensing requirements could be appropriate to manage cyber security risk in future, alongside the device level and (for the largest load controllers) NIS measures outlined elsewhere in this consultation? Please explain your answer.**

Not answered

**42. Do you agree that licences should contain conditions to ensure that organisations are not able to use their market position to hinder consumer switching or undermine delivery of Government's objectives for interoperable energy smart appliances?**

Our answer to Question 6 explains our views on the benefits of a competitive and interoperable market. Licence conditions could be one way of achieving this.

**43. Do you agree that licence conditions may be a useful tool to help mitigate risks to grid stability alongside the measures outlined elsewhere in this consultation? What licence conditions may be necessary to achieve this?**

Not answered



**44. Are there other risks to grid stability or cyber security from other forms of load control that are not covered by the proposals in this consultation? If so, how significant are these and how should they be mitigated?**

Not answered

# Answers to analytical annex questions

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## Overarching

### **1. Do you agree with the case for intervention and the market failures we have identified. Are there any points we have missed?**

We agree with the case for intervention. The government must use its unique position to take action in areas where industry lacks the incentives and encourage a healthy growing flexibility market.

We agree with the risks and market failures likely to materialise without intervention. In addition to consumer detriment and wider energy system disruption, a further risk of not intervening is the loss of trust in the market. Consumer trust is a highly valuable lever for the growth of this market and would likely be challenging to reinstate if damaged.

We propose there is a strong case for intervention *at pace*. Several of the likely market failures are already beginning to materialise, with companies already investing in non-interoperable system architecture and consumers already finding difficulties understanding information about DSR products and services.<sup>23</sup>

### **2. What is your assessment of the current state of the DSR and ESA markets? What firms are operating in these markets, what products and services are being offered, and for example, to what extent are firms in the electric heating market already offering smart options?**

Not answered

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<sup>23</sup> As referenced previously, when we asked consumers to read information about smart energy services and then complete comprehension tests to check their understanding, 40% got something wrong in the tests. See Citizens Advice (2020) [Powering up or facing resistance? How people understand the benefits of smart appliances](#)

### **3. How do stakeholders anticipate the DSR and ESA markets will grow to 2050? We would be interested in views on changes in types of firms in the market, their sizes and business models, and speed of market growth.**

In terms of firms in the market and business models, without regulation we would expect monopolies to develop, business models to become increasingly complex for consumers to navigate and compare, and consumer choice to be restricted due to contract or provider lock-in. Addressing these issues in the future, once appliances are established in consumer homes, is likely to be difficult and could penalise early adopters.

More broadly, reforms under consideration by the government through the Review of Electricity Market Arrangements (REMA), such as moving to locational pricing, are likely to add to the demand for flexibility products and services.

### **4. Do you agree with the benefits of DSR we've identified and how do you see these changing over time?**

We agree with the overarching benefits of DSR set out by the government: reducing the overall cost of energy to all consumers, enabling the power sector to decarbonise more cost effectively and rewarding individual consumers for providing value to the energy system.

Reducing the overall cost of energy to all consumers has never been more important. The increase in bills to the £2,500 price cap could see half of the population spending 9% of their disposable income on energy bills, with those in the bottom 30% of earners spending 13%.<sup>24</sup> The prospect of lower energy bills is likely to be highly instrumental for consumer confidence in this market, so there must be clarity and reassurance from the government on how savings will be passed on.

### **5. Given the challenges of measuring the benefits of cyber security, due to under reporting breaches, uncertainty of scale, and far-reaching impacts,**

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<sup>24</sup> Citizens Advice analysis of: ONS, [The effects of taxes and benefits on household income, disposable income estimate](#), 28 March 2022. Disposable income for the year 2021/22 is estimated to have increased 2% from year end 2020/21.

**as discussed in the 2018 NIS impact assessment, how do we best quantify the benefits of additional cyber security?**

Not answered

## **ESA manufacturers**

**6. Are the costs and benefits identified for ESA manufacturers (e.g., smart heat pumps or smart white goods) accurately specified? Are there any we've missed, or not accurately specified?**

Not answered

## **Load controllers**

**7. For firms in scope of the licence proposals, what type of costs and benefits might be incurred from these proposals?**

Not answered

**8. For larger load controllers, in scope of the NIS extension proposal, are the costs and benefits identified appropriate? Are there any we have missed, or not accurately specified? For example, what is your current level of cyber security spending, and what additional spending would you anticipate in using the CAF to comply with NIS? Are you able to separate costs into categories, such as familiarisation, compliance reporting and incident reporting, or any others?**

Not answered

**9. For all load controllers, how much do organisations consider the risk from a cyber-attack on their activities of impact to the wider energy system?**

Not answered

## Energy suppliers

**10. Are the costs and benefits identified for energy suppliers appropriate? Are there any we have missed, or not accurately specified?**

Not answered

## Consumers

**11. Are the costs and benefits identified for consumers appropriate? Are there any we have missed, or not accurately specified?**

We agree with the costs and benefits for consumers as set out in the annex. Considering the costs and benefits for both those consumers who are able to participate and those consumers who face significant barriers to participating in the smart energy market.

We expect the benefit of bill savings, through market participation or a more cost-efficient grid, to far outweigh the potential cost of organisations passing on the costs of meeting regulatory requirements to consumers, though it is right to consider and monitor this.

Similarly we expect the benefit of consumer choice, brought about by interoperability and improving ability for consumers to compare tariffs, to outweigh the potential cost of reducing consumer choice as non-smart products are removed from the market. The longer the market is left to grow without clear regulation and direction from the government, the more non-smart products will be produced and the higher the number of consumers left with potentially unsupported or suboptimal products. Pace is key to enhancing rather than limiting consumer choice.

## Distributional Impacts

**12. Do you have a view, and supporting evidence, on the impact of the proposals on different consumer groups, for example low income and vulnerable consumers? What further action is needed to ensure all groups can benefit?**

We know that there are particular groups who are more likely to face more barriers and worse outcomes in the energy market.<sup>25</sup> In addition to a household's financial situation, factors such as housing tenure, motivation to engage and digital confidence also impact the ability to get the best from the energy market.

Citizens Advice is conducting exploratory qualitative research to increase understanding of the barriers different consumer groups may face to participating in smart energy technology, with findings expected in Spring 2023. The research will focus on the usability of technologies, rather than upfront financial barriers, and will hear from groups such as disabled people, people who are digitally excluded, people with learning difficulties which impact literacy and people who speak English as an additional language.

We would be happy to share emerging findings with the government in advance of publication to support future stages of consultation.

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<sup>25</sup> Citizens Advice (2019) [Future for all: Making a future retail energy market work for everyone](#)

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