

## **Future of Distributed Flexibility- Consultation Response**

### **Context**

myenergi is a manufacturer of energy smart technology targeted at the domestic sector. Our mission is to promote energy independence through a range of innovative, eco smart products, all manufactured and designed in the UK.

myenergi has more than 50,000 connected EV charge points installed in UK homes, with an estimated total capacity of at least 350MW. As a manufacturer of energy smart technology targeted at the domestic sector, and aligned with our investment in Orange Power, a grid asset aggregator, we are predominantly interested in the opportunity for demand side response services from residential customers (with devices defined as CER in the call for input). myenergi also operates internationally, with over 500,000 devices shipped globally, and exports accounting for around one third of our total sales to date. Any bespoke market requirements will add complexity to product development for any companies selling their technology internationally and will likely slow down or limit innovation if there are different requirements in every different market with no global standardisation.

### **Section 1**

#### **1. What do you think distributed flexibility could contribute to the energy system?**

myenergi believes that distributed flexibility will have a huge role to play in the energy system as the number of connected assets grow in the UK. The switch to electric vehicles and electric heating is going to require a lot more electricity to be delivered through people's homes and through the surrounding energy distribution networks. The government's ambition to reach net zero means that the UK will be running mainly from renewable energy, and flexibility is the only logical way of achieving this goal successfully.

We think that rather than going entirely 'off-grid', homes will become increasingly important parts of the distributed energy landscape. This is the difference between energy 'independence' and energy 'interdependence.' Future interactions with the network will not be mono-directional, they will need to be increasingly bi-directional and participatory, not the 'passive' interaction with the system we have historically had.

Smart devices are the vehicle to make this transition seamless, rather than a chore. By having connected devices, including electric vehicles, smart heating and home batteries, homes will play a role in helping the grid to balance - either when there is not enough energy being generated, and it needs people to consume less (turn down events); or when there is too much energy being generated, and it needs people to consume more (turn up events). Historically, balancing the grid has been a very binary process of either spinning up generators to meet demand - often coal-fired power plants - or shutting off generation at times of lower demand - often renewable energy sources, for which we end up paying significant constraint payments to compensate the operators. Flexible energy assets flip the paradigm of demand, with a much more dynamic approach to grid balancing, where we can modulate supply and demand much more intelligently and efficiently.

We have already experienced the huge benefits and contributions flexibility can provide to the energy grid through flexibility trials. The most recent Demand Flexibility Service ran by

National Grid ESO allowed myenergi to support the grid with more than 13MW of non-commercial aggregated flexibility capacity. While this represented a relatively small proportion of our total connected customer base, we were essentially engaging in the DFS as a trial, without incentivising customers, which would likely have increased the participation rate. These tests and live events proved that far from being a hindrance on the electricity system, electric vehicles are ready to delivery huge benefits in terms of the flexible capacity when they shift charging demand to avoid grid constraints. Ultimately, we agree with Ofgem's assessment that the shift to flexible energy assets could save customers several billion pounds in aggregate compared to the alternative of retaining fossil fuel-powered energy infrastructure.

## **2. Will a focus on CER flexibility also help enable other forms of flexibility, especially distributed flexibility?**

myenergi agrees that industry needs to continue to explore the ways in which the domestic flexibility (CER) sector can be a source of commercially viable flexibility for the market and complement the existing focus on industrial and commercial-scale flexibility (DER). Focusing on unlocking the barriers to domestic flexibility will help drive the overall performance of flexibility within the electricity and balancing markets.

## **Section 2**

## **3. Is there a 'case for change' and a need for a common vision for distributed flexibility?**

While myenergi agrees that a common vision and some collaboration is needed to leverage the potential of distributed flexibility, we are concerned that if Ofgem intervenes too early or too heavily in the market, this could have a negative impact on innovation and create new barriers for smaller flexibility service providers wanting to participate in flexibility. For example, while there were challenges with and issues arising from the recent National Grid ESO Demand Flexibility Service, it fundamentally demonstrated the potential of CER without the imposition of additional regulation.

The flexibility market should be allowed to evolve organically and dynamically, with the thinnest level of intervention, to ensure that there is competition and innovation, which will benefit both the industry and consumers. However, if there becomes risk of market centralisation, customer lock-in and consumer detriment, then the case for more stringent regulation can be made. It is critical that a fledgling industry is not overburdened.

## **4. What is your vision for how to accelerate the delivery of accessible, coordinated and trusted markets for distributed flexibility?**

By 2030, there could be around 8 million home charging points like the myenergi zappi installed in the UK, and if one million of these were opted in to demand side response services, that could equate to 7GW of potential capacity – more than twice as much as the capacity of the Hinkley Point C nuclear power station.

Our vision is to enter the flexibility market without the barriers currently in place hindering our ability to do so, including the difficulty in accessing boundary level meter data for our customers. For the market to be truly open and dynamic, we believe that contracting for residential flexibility must become easier. Procurement will need to recognise the less guaranteed nature of domestic DSR capacity, with the need for consumers to remain free to opt out of or override demand side response services.

Home energy will become increasingly automated, and part of the idea of demand side response services is that these 'events' happen in a way that consumers probably won't even notice, but for which they may be rewarded or incentivised. Our vision of domestic DSR is that it will mostly be delivered as an automated service in the background, reducing the need for 'facility management' in homes and the need for direct customer administration or intervention, which will help to maximise responsiveness and engagement of the devices and reduce consumer disruption.

We envisage the market evolving organically, with little intervention from regulators in order not to hinder innovation. Demand side response needs to be viewed differently to the energy retail market, and any standards and regulations put in place should not automatically advantage the incumbent energy suppliers, which is what myenergi fears may happen if standards are imposed on industry too early.

Of the proposed archetypes in the Call for Input, the 'thicker' proposals would necessarily require a significant amount of investment and resourcing from market participants to ensure full regulatory compliance. This level of regulatory infrastructure would undoubtedly be easier for large-scale incumbent energy industry operators to navigate, since they already have significant resources dedicated to managing their compliance with existing energy industry legislation. Smaller and newer suppliers would inevitably be disadvantaged, since the level of investment and resourcing required to do the required level of integration of their systems and platforms could be prohibitive – potentially forcing them out of the market altogether. As a result, the desired objective of achieving a dynamic and competitive landscape for flexibility could not be achieved.

There is arguably a level of hubris in assuming that the UK could deploy a new uniform digital energy platform at the required pace and precision proposed in the call for input. The UK does not have an especially enviable record of deploying such structures, with the smart metering rollout being a very good example. Metering is broadly consistent, the data transfer process and systems have been defined for decades - and metering is generally consistent in 'what it does' - yet the rollout of smart metering and adoption of the DCC is delayed by many years, is operating at significant cost, and continues to suffer from technical challenges. The flexibility market is a much broader spectrum and based on the nature of different service types, response types and system requirements (including for different types of devices), it would - in our view – be impossible to standardise at this stage.

Although this Call for Input does not address specific market barriers to entry, we felt it important to raise the point that it is currently the technical barriers that are preventing smaller flexibility service providers from participating within the flexibility market, which is very much set up to cater for much larger, industrial and commercial-scale operators. Our vision for accelerating the delivery of accessible, coordinated and trusted markets involves lifting these technical barriers and improving market access to create a level playing field

for all participants. Some of the technical barriers we have experienced are related to operational metering, baselining and accessing smart meter data through the DCC Other User links. In our view, these represent a significantly more important and immediate challenge than the creation of a common digital energy infrastructure.

#### **5. Will certainty of an end vision help accelerate enabling work and make it cohesive?**

While an end vision may be helpful in focusing investment and innovation, we believe that it would potentially be more helpful to set out the desired outcomes rather than necessarily specifying a particular structure for the market. This would ensure that participants are focused on the ultimate outcome in terms of how the future flexibility market needs to perform, rather than on conforming to a set of specific parameters that would be introduced as part of one archetype being selected.

However, if one archetype is selected, then an end vision would ensure that market participants are aware of the ultimate destination, so that if they choose to invest and integrate with the required common energy infrastructure, this will not be in vain and that the 'goal posts' will not be moved, since the end vision will have already been defined.

#### **6. When should a common digital energy infrastructure be in place? And therefore, when should development begin?**

As stated previously, there is a risk that intervention at this stage might significantly disrupt or dissuade early market innovation.

Whatever level of intervention Ofgem decides to move forward with when developing the common digital energy infrastructure needs to consider the time it will take for flexibility service providers to integrate with any common systems. The time to, investment in and complexity of integrating with a new digital energy architecture could lead to reduced consumer choice, as companies that would be innovating to deliver it would instead be spending their time on integrating and complying with a new market framework, potentially instead of developing new products, services and business models for their customers. The changes required should move at the pace of the flexibility service providers, where sufficient time is given for the necessary levels of integration, but that the changes are not so drawn-out as to have the effect of creating uncertainty by or stifling innovation by putting the sector in a 'holding pattern'. If Ofgem does introduce one of the thicker archetypes, then it must adequately cater for CER flexibility and flexibility service providers, not just energy retailers, ensuring that the changes required can be delivered at an affordable cost for smaller market participants.

myenergi also believes that Ofgem needs to consider the outcome of current studies/consultations that may impact the development of the common digital energy infrastructure, or even question the need for it. These include the planned future consultations on REMA, the introduction of Market Wide Half-Hourly Settlement and the study currently being undertaken into the feasibility of the digital spine.

**7. What should a common energy digital infrastructure look like, and why? Please consider the archetypes or develop your own proposition.**

myenergi are concerned that the implementation of a common energy digital infrastructure that encompasses all activity within the flexibility market will hinder innovation and create further barriers for flexibility service providers to enter the flexibility market. For this reason, we believe that the thinnest layer of intervention possible is required for the common digital infrastructure.

As flexibility services are still relatively nascent, we see a wide variety of contracting and procurement processes among the DNOs and ESO. While we do not expect these journeys to be fully standardised or made universal, we do agree that the market would likely benefit from more commonality in technical parameters, delivering requirements, commercial structures and contract award procedures. However, the market should be allowed to evolve organically to create these systems, without intervention from Ofgem. It is likely that some level of standardisation will emerge that supports a broad range of market participants, whereas introducing mandatory standardisation at too early a stage could disadvantage smaller market players and disproportionately benefit incumbent operators.

To maximise the potential of flexibility services, access to data and connectivity between systems needs to be improved. For example, the links between retail energy providers and flexibility service providers, including aggregators and virtual power plants, must be better established. We understand that there are currently studies into a Digital Spine that will create a 'thin layer of interaction and interoperability across all players which enables a minimal layer of operational critical data to be ingested, standardised and shared in near real time.' We feel that the outcomes of this study will align with the level of standardisation that the flexibility industry will benefit from.

Ofgem have committed to learning from these projects if there is mandate for change, therefore, at this stage we do not feel that there is a requirement for any deeper level of regulation or standardisation for flexibility service providers, until the outcomes of this project are in place.

We do agree that certain types of incentive data should be standardised. For example, time-of-use tariffs and grid carbon intensity data should be made as openly available as possible, including any regional variations, as this is often only provided at the national level. This would help consumers wishing to use their energy smart appliances when electricity being supplied is at its cheapest or lowest level of carbon intensity.

**8. What is your view on the desirability and feasibility of the archetypes or your own alternative proposition?**

myenergi's biggest concern with the common digital infrastructure is the commercial viability of implementing the 'medium' and 'thick' archetypes. The cost of complying and resourcing with this level of regulation is likely to stop smaller flexibility service providers from operating in the market. If Ofgem decides to proceed with a high level of standardisation, such as the thick archetype, the financial viability of companies like myenergi participating in this market with such a high cost to comply is not practical. If the burden of cost falls entirely on the device and DSR operators (which may be the same entity in many cases), then international businesses may focus on markets with lower levels of regulatory intervention. The thicker the archetype - the larger the cost, the bigger the financial impact and the less attractive the UK will become for investment.

myenergi are also concerned about the financial impact a medium or thick level of standardisation will have on consumers. Ofgem's mission is to prevent consumer harm within the energy markets, however, have stated that there is a 'greater good argument around having a common digital energy infrastructure with socialised costs.' It seems unwise to socialise the costs of any common energy infrastructure by placing the costs on energy supplier, which are already overburdened, as it would simply add cost to already very high energy bills. In addition, we need to see electricity costs fall in line with proposals being made in the Review of Electricity Market Arrangements, in order for the electrification of heat to stack up financially. If electricity costs remain high, the 'business case' for electrifying heat is weakened. On the other hand, we also believe that burdening energy smart appliance manufacturers or operators with the costs of the common energy infrastructure would be equally bad, as it would make market access disproportionately costly and create barriers to entry, reducing the competitiveness of the market.

Any changes to the market have to respect social economic imbalances, and at this stage, only domestic customers with flexible assets such as heat pumps or smart electric vehicle chargers will benefit from the changes that Ofgem are proposing. It needs to be ensured that any changes to the infrastructure are fair for all end-consumers, and do not discriminate against the most vulnerable in society, or consumers who are on low income who are unable to participate in within the flexibility market, but still have increased energy bills due to recuperating the costs of implementing a common digital energy infrastructure.

It is worth considering the inherent diversity offered by different energy smart appliances. For example, a heat pump may be running almost constantly, albeit consuming variable amounts of power, whereas an EV charge point is likely to be used much less frequently, especially when drawing power from the grid. The assumption that all devices are scheduled a day ahead is a fallacy, and we are also concerned with potential interference in terms of product warranties (for example relating to cycling or depth of discharge limitations on smart home batteries), or system health and safety (i.e legionella risks with a heat pump). In addition, any third party interference with a heat pump schedule is likely to impact the Coefficient of Performance (CoP), which is a critical factor in the electrification of heating. If the CoP falls significantly, it will ultimately lead to higher energy bills for consumers and will see energy used in a less efficient way. As so much data is product specific, trying to create a common system for all data flows from all CER assets would be totally impractical.

There are alternative options to the common digital energy infrastructure that should be considered, that will achieve the same outcomes, but in a way that requires less intervention in the market, allowing room for innovation to develop and for small market players to participate.

All manufacturers over a certain revenue could sign up to a code of conduct if they choose to participate in the flexibility market. In general, we favour outcome-based regulatory requirements, as we believe that these tend to ensure that the greatest potential to innovate remains available. The code of conduct should have a set of outcomes that need to be achieved by larger players to participate, however, the processes and systems needed to achieve these outcomes should be determined by each FSP. Any intervention should be based on clear evidence of customer detriment, rather than merely hypothesised outcomes.

## **Section 4**

### **9. Should a common digital energy infrastructure be new-build, or should it buildout from existing infrastructure?**

myenergi believe that a common digital energy infrastructure should be a buildout from existing infrastructure. Industry should be able to migrate across using existing standards, and as there have already been 'pockets of excellence' within the flexibility markets, industry should build upon these. Cost, scalability and change control must be managed in a way that works for the whole industry, rather than only the largest, incumbent operators. Overcomplicated, inflexible and slow processes will not be compatible with meeting the needs of the future energy system.

### **10. What are the important areas for consideration when designing institutional delivery models for a common digital energy infrastructure?**

Ofgem should consider the nascency of the market and the obligations that would fall upon suppliers in terms of compliance and costs. The level of skill and cost needed to implement these standards that Ofgem are suggesting is not practical.

While there is some level of integration with a common platform within the retail energy market, for example the Data Transfer Network, it is worth highlighting that energy retail is homogenous in operating off kW and kWh data flows. Flexibility is significantly more complex, as it requires operational understanding of the commercial aspects of the energy system (e.g. not just flows of energy) and requires product-specific interactions. It is several orders of magnitude more sophisticated, and therefore any common platform would be several orders of magnitude more difficult to deliver.

### **11. What are the important areas for consideration when designing financial delivery models for a common digital energy infrastructure?**

Cost and complexity are important considerations. If vast centralised systems are set up, these costs will need to be recouped- ultimately from the consumer- so it is important that whatever systems are introduced are nimble and sufficiently flexible; and that cost control and change control are made priorities.

Ofgem should endeavour to ensure that the additional costs of any proposed regulations are as low as possible.