

The Future of Distributed Flexibility – Call for input questions

Section 1

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

The document lays out the potential for distributed flexibility which is clearly possible, however as the document highlights there are significant barriers. Thinking about this from a consumer perspective the majority of consumers with CER assets believe flexibility is turning off CER assets manually at certain peak usage time. Such an approach would severely limit the capacity to engage domestic flexibility. The Heat Pump Federation contends that the vast majority of domestic consumers will need to abdicate their “flexibility” controls to third-party providers. This will necessitate significant contractual and security development. This will take time, but the sooner we start, the sooner we will see results.

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

Simple answer is “Yes”, re distributed flexibility.

The Heat pump Federation agrees with OFGEM’s analysis of market failures.

An increasing number of consumers have invested in CER assets, not just to reduce energy costs, but for environmental reasons. As the paper highlights these include heat pumps, solar PV, storage batteries and electric vehicles. However, to date, CER consolidation control systems are generally not available to operate heat pumps or manage charging and discharging of batteries, not just from PV, but also to, and from, the grid. Even the more professional suppliers of such assets are not yet adding the financial advantage of flexibility to the list of benefits. Neither do they appear to have an understanding of the limited control systems and aggregation systems currently available.

The Heat Pump Federation undertakes many heat pump focused consumer education and engagement events and it is clear that there is increasing interest in Distributed Flexibility from those early adopters who have either invested in CER assets or are considering doing so.

There is an untapped revenue stream / energy cost reduction both for those with CER assets and those considering investing.

A focus will help inform and develop the CER asset industry who generally, to date, are not engaged.

While the focus of this call for input is CER assets and distributed flexibility, there is additional potential with small commercial, charity owned and social assets such as schools, etc. (state and independent). While there are limited flexibility packages available for CERs and consumers, there appears to be almost nil available with this type of DER asset.

To give an example the Heat Pump Federation is aware of a charity owned boarding school with 2.2MW of heat pumps with either flexibility consolidation controls installed or planned for installation. To date the organisation has been unable to access any flexibility benefits. The DNO has capacity in the area and so has no interest in flexibility, and supplier’s arrangements have not been available. The school’s energy broker has a blank expression when flexibility is mentioned. We highlight this example as an increased focus on CER will help in the smaller DER category where there is also big aggregate potential.

Section 2

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

Clearly, yes

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

Looking at this question from a consumer perspective there are a number of elements which need to be considered, most of which are mentioned in the paper however the key points appear to be:

- A) A standardised data exchange and aggregation system. It goes without saying that the required flexibility will not be achieved by consumers manually turning CES assets on or off at certain time. The solution has to be a common platform for CES aggregation and control with a simple consumer interface.
- B) A common aggregation system needs to be able to control CES devices in advance of potential peak demand events before they occur, and to control devices accordingly. For example, charging batteries prior to a peak demand or not allowing batteries to be discharged prior to a peak demand event.
- C) Distributed flexibility is a developing element of a competitive energy market, however some degree of consistency in the structure of packages offered to the consumer would be helpful, and is probably essential, at least to build understanding and engagement amongst consumers.
- D) Transparency of data and cost. Energy costs are not always transparent and historic data is not always easy to access. This point is made very well in the document, but it is a key element in consumer understanding, modelling, and investment. One simple example would be that the energy price cap always used the term "average household". While this is helpful, those consumers who are, or may be, interested in CER assets do understand kWhs and the cost per unit, but have to dig into back up information in order to find out what these averages mean to them.
- E) Some form of consumer or industry driven consumer education / programme at a point when there is a simple message (but not too simple, as per the energy price cap).

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

Simply Yes. An end vision leading to a clear message with tangible consumer cost benefits will undoubtedly accelerate enabling work, consumer interest and take up.

Experience for the Heat Pump Federations consumer engagement highlights that clarity in the energy market is already resulting in a barrier to electrification of heat. While government heat pump installations targets are published, many consumers believe that hydrogen will replace natural gas and heat pumps are therefore not relevant to them. While green hydrogen has its place, the confusion is still a major barrier to heat pump installation. The same argument is true of the continuation of installation of gas boilers in new build housing developments.

While the above are general points, clarity will enable CER systems to be designed with distribution flexibility in mind. For example:

Heat pump installations can be designed to extend flexibility shut down periods through thermal storage buffers or preheating building systems but these need to be designed into the system. While there remains no clear vision, heat pump installation designs are unlikely to consider flexibility within their designs. In some cases, there are additional capital costs to design in the ability to make the most of distribution flexibility. Consumers will only be willing to pay additional costs if the benefits are also clear.

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

Agree with the OFGEM approach in the paper. CER Flexibility is likely to struggle to make major inroads into the potential until there is some form of digital energy infrastructure in place, the sooner work starts the sooner significant results can be achieved.

Section 3

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

The Heat Pump Federation has limited experience or knowledge in this area other than that of Architecture 1 “Business as usual”. Architecture 1 is not effective, based on our limited experience. Architecture 3 “Medium” or 4 “Think” is likely to be able to provide a clear, effective, transparent, flexibility infrastructure and market place.

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

No relevant point to make on this question.

Section 4

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

The Heat Pump Federation has limited experience or knowledge in this area. However, time frames are important. A complex IT project such as this is likely to take years and distribution flexibility would make restricted progress during a design and build process of a new system. The definition of a “standardised data exchange communication system” to allow the control of CER devices seems critical to allow flexibility in a compromise market to continue while a full digital energy infrastructure is built.

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

While the Heat Pump Federation has limited experience or knowledge in this area, short term capacity anticipation and planning is important to allow CER devices to operate in a pre-shut down mode (such as pre-heating for heat pumps)

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

The HPF is not qualified to comment on this point.