



HEAT PUMP ASSOCIATION - a FETA association

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Foreword

Since we have very specific areas of interest and expertise we have specifically only responded to those questions which we feel applicable and for brevity have not included those where we feel it is not appropriate for us to comment.

'Smart' energy and in particular a 'smart' electricity grid presents a step change capability in trying to balance the often conflicting demands of generating load and also in providing cost effective, high quality, low carbon heat to end users. Electrically Heat pumps can play an important role in providing both. The controllability of electrically driven heat pumps means they are ideal as they can be controlled remotely with more ease than some other renewable heat forms. In addition many HP's already have sophisticated controls and hence can be easily adapted to perform ever more increasing complex algorithms with minimal user interface required.

We therefore feel that engagement with this sector of the heat industry and in particular the Heat Pump Association (HPA) is vital so that the benefits and full potential can be best brought to reality whilst the potential negative consequences addressed and mitigated.

Q 28. Do you agree with the 4 principles for smart appliances set out above (interoperability, data privacy, grid security, energy consumption)?

☒ Yes

☐ No (please explain)

However grid security will be mediated by

i) random delay start function available on ALL HP's (a random generated start from say 5 seconds to 2 minutes from signal time)- this reduces the relatively starting currents (circa 1/3rd of a second) occurring at exactly the same time

ii) potentially the different price triggers set by the user

iii) varying thermal responses of different buildings resulting in varying required 'heat by' times and hence varying heat up periods and therefore different thermostats on times.

- Q 29. What evidence do you have in favour of or against any of the options set out to incentivise/ensure that these principles are followed? Please select below which options you would like to submit evidence for, specify if these relate to a particular sector(s), and use the text box/attachments to provide your evidence.
- ☐ Option A: Smart appliance labelling
 - ☐ Option B: Regulate smart appliances
 - ☐ Option C: Require appliances to be smart
 - ☒ Other/none of the above (please explain why)

We have responded “Other” because in the case of heat pumps (many of which are manufactured ‘off shore’) we would suggest discussions with manufacturers around the adoption of two of the options (B & C) in tandem as we do not see them as mutually exclusive. We suggest that the protocols and communication mechanisms needs to be common and then it could be mandated to have the facility on all devices at some reasonable time in the future.

We would propose an early indication of a move toward legislation (Option C) should this be generally accepted, but with plenty of time (5-10 years?) to implement into research and development programmes, whilst in the interim appliances are regulated to receive and handle common information. With potential refrigerant changes requiring model changes a reasonable time period could be determined for implementation

Option A: Products are already energy labelled. There is evidence that consumers are already partly confused and partly disinterested in the Energy Labels and there is the risk that additional/extended labelling will cause information overload and the result is that all the information on the product becomes somewhat obscured.

- Q 30. Do you have any evidence to support actions focused on any particular category of appliance? Please select below which category or categories of appliances you would like to submit evidence for, and use the text box/attachments to provide your evidence:
- ☐ Wet appliances (dishwashers, washing machines, washer-dryers, tumble dryers)
 - ☐ Cold appliances (refrigeration units, freezers)
 - ☒ **Heating, ventilation and air conditioning**
 - ☐ Battery storage systems
 - ☐ Others (please specify)

HEAT PUMPS

Clearly as the Heat Pump Association we have interest in Heat Pumps. The ‘intelligent’ controls required for heat pumps is potentially greater for heat pumps than other devices (including ‘air conditioning’ where temperature rise may not be as critical as temperature fall) as follows:

A dishwasher, washing machine or tumble drier may have a defined ‘timed’ programme- i.e. it is possible to work out the latest time it’s start can be delayed.

Fridges and Freezers can possibly also have a preset time based on assumptions around degradation of temperature, likelihood of being opened etc.

Heating systems need a greater degree of information in order to make a 'decision'. How long should they be held 'off' before the temperature has declined excessively? Is it possible that the tariff later when they are operating is actually potentially more expensive?

Hence they will need to make some sort of judgment as to the likely temperature degradation of the building (some devices already have the facility for this intelligence) but more importantly they will require some forward estimate of the supply tariff over the coming hours. Hence this information needs to be available in a common 'language' and hence devices need to be able to 'read' this common language.

Q 31. Are there any other barriers or risks to the uptake of smart appliances in addition to those already identified?

Manufacturers will need to give consideration to the balance between sophistication of equipment capabilities and ease of use. Installers will take on an increasing role in set up and operation and the industry already has concerns over the skill level within the industry. Training at present (Jan 2017) is over complicate confusing and out-of-date. This is primarily due to lack of adequate oversight but also lack of demand for courses which makes updating courses financially burdensome on the few who seeking training and the even fewer who provide it.

Q 32. Are there any other options that we should be considering with regards to mitigating potential risks, in particular with relation to vulnerable consumers?

Heating is a vital need and more so with the elderly, sick or otherwise vulnerable. Hence controls or overrides need to provide for this i.e. be simple. Therefore it may be that different protocols are available for different users or different levels of user intervention. Heating systems have always recognised that a 'User Override' function is extremely beneficial i.e. the user can elect to pay the higher tariff. We have muted a traffic light system where a user may decide to override an 'thermo-off suggestion' during say an 'Amber' level. However this human intervention may be less possible and/or less desirable amongst the 'vulnerable'.

It has often been suggested that the user could set their own tariff price thresholds. How would these change as energy costs rise, which could potentially trigger thermos off periods more frequently and/or in appropriate levels ? How would vulnerable customers be able to 'adjust' these triggers to prevent unwanted and/or premature 'intelligent' thermo-off periods?

Careful consideration needs to be given to the vulnerable, as consumer protection in this area is very important. There is wide acceptance that this sector of industry suffers from mal-practice just as all others but in acknowledging that heat is a vital need and that larger than anticipated bills can have

significant detrimental effects on users, the need for some form of protection is possibly more important.

At present we see issues over how to identify those vulnerable and then how to protect them without effectively and potentially 'baring' them from the benefits. This needs to be considered further with the involvement of industry 'experts'. The HPA would welcome further engagement on this subject and others as identified above.