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Comments to RFI - Laura Schade (BEIS)

Additional submitted attachment is included below.

Request for Information RFI for Flexible Demand Appliance Standards – comments

Intro:

I work at the UK Department of Business, Energy and Industrial Strategy (BEIS) as a technical advisor and I am involved in the work around next steps for regulating DSR. As part of this we are looking at technical options including PAS 1878 and 1879 (recently published by the British Standards Institution) as well as GB smart metering technical standards. The following comments are the result of a joint effort between colleagues in my team.

Comments:

Q 1/2

There is a suggestion to include appliances in scope of the Smart Appliances Consultation Response found at the following: <https://www.gov.uk/government/consultations/proposals-regarding-setting-standards-for-smart-appliances>

See also the impact assessment document which includes analysis of labelling scheme, relevant to later questions in the RFI.

Q4

There is a suggestion to include as a flexible demand approach the standards PAS 1878:2021 and PAS 1879:2021 free to download at the following: <https://www.bsigroup.com/en-GB/about-bsi/uk-national-standards-body/about-standards/Innovation/energy-smart-appliances-programme/> with a 15 minute introduction video found here <https://youtu.be/iSf259SP6ls?t=198>

The PASs are suitable candidates as they deliver a minimum standard for functionality and an operation framework to enable flexible operation of domestic appliances, underpinned by the principles of interoperability, data privacy, grid stability and cyber security. The PASs are internationally compatible standards as they align with the Smart Grid Architecture Model (SGAM) framework, ongoing standardisation activities in CEN/CENELEC and require OpenADR to be implemented. International alignment is an important consideration as it can help to lower costs to consumers of mass-manufactured global products.

There is also a suggestion to consider other international standards within scope of IEC SyC SE https://www.iec.ch/dyn/www/f?p=103:7:513214930337317:::FSP_ORG_ID,FSP_LANG_ID:11825,25

There is a suggestion that the first 2 approaches, delay and scheduling, seem somewhat limiting as consumer interaction is unlikely to be suitable for future mass market flexibility. It is suggested that more sophisticated approaches, e.g. PAS 1878 and OpenADR, are used to provide a technical operating framework for flexible operation, which includes functionality such as baselining and operational reporting.

The GB smart metering technical regulations, notified under WTO and EU rules as a technical standard, include provision for Auxiliary Proportional Control. This functionality can be used to modulate energy transfer to and from a device through a variety of parameters (for example power, energy, temperature). The technical specifications can be found here: <https://smartenergycodecompany.co.uk/the-smart-energy-code-2/> (SEC Schedule 9, November 2020 Release)

Table 3

There is a suggestion to consider cost changes based on the size of the market and learning over time as more products are produced. It is possible that costs could be lowered by using international standards as market sizes and production volumes will be larger.

The impact assessment at the following link considers market size analysis and learning rates <https://www.gov.uk/government/consultations/proposals-regarding-setting-standards-for-smart-appliances>

Q12

The approach appears to consider two important aspects to flexible operation, (1) “Routine Mode” as in PAS 1878/79 e.g. in advance shifting based on optional incentives and (2) “Response Mode” in PAS 1878/79 e.g. real time modulation based on firm requests. It is worth noting that Response Mode may be more economically valuable, given that requests are in real-time and so more necessary to be acted on and hence higher value.

It is suggested that the “Emergency event” could be split into (a) an initial “Response Mode” where in real-time load is shifted and consumer wishes are still fully met and (b) a subsequent “Emergency event” (if this is indeed required) where if a blackout would happen anyway some load shifting without consumer wishes being met could possibly be implemented.

It is suggested to consider the various purposes of shifting demand at the different time horizons, in advance this could be due to forecast cost/carbon/(?)congestion and in real-time it could be due to system-operation (maintaining frequency, voltage etc)/network-constraint/imbalance-actions.

It is suggested to see the modelling in the 2021 Smart Systems and Flexibility Plan, found here: <https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021>. Flexible demand can give benefits of reducing the need for distribution network upgrades in the short-term and reducing the need to overbuild renewable generation capacity in long term, both of these can substantially lower whole system costs.

Q21/22

There is support for the proposal of PAS 1878/79 as these standards provide a minimum standard for cyber security, including compliance with EN 303 645 and OpenADR security provisions. Please note, it was published by BSI but it is an internationally compatible standard not a “british standard”. PAS 1878/79 are free to download at: <https://www.bsigroup.com/en-GB/about-bsi/uk-national-standards-body/about-standards/Innovation/energy-smart-appliances-programme/>

There is support for the proposal of ETSI standards <https://www.etsi.org/technologies/consumer-iot-security>, both EN 303 645 (standard containing baseline requirements) and additionally a suggestion of TS 103 701 (conformance assessment specification against EN 303 645).

For reference, some UK-based cyber security guidance may be helpful. These are aimed towards organisations operating the assets, rather than the assets themselves:

- the Energy Networks Association (ENA)’s [DER cyber security connections guidance](#)
- National Centre For Cyber Security (NCSC) [Cyber Essentials](#)

For reference, GB smart metering equipment is assured using the NCSC (GB authority on cyber security) Commercial Product Assurance scheme, which assures the security of the product and its

supply chain. Further details can be found here: <https://www.ncsc.gov.uk/information/commercial-product-assurance-cpa-security-characteristics>

Q24/27

PAS 1878 is suggested as best practice, as PAS 1878 requires the input of user preferences and sets out an operational hierarchy [Routine Mode, Response Mode, Consumer Manual Override, Failsafe] to ensure consumer wishes are always respected (automatically included in both Routine and Response Modes) and safety paramount.

Q28

Suggestion to see the report: Participation of low income and vulnerable consumers in a smart energy system. Project InvoLVE aims to identify how future innovation could enable low income and vulnerable consumers to increasingly benefit from a smart energy system.

<https://www.gov.uk/government/publications/participation-of-low-income-and-vulnerable-consumers-in-a-smart-energy-system>