THE ASSOCIATION FOR RENEWABLE ENERGY & CLEAN TECHNOLOGY

Smart Charging Legislation workshop

Ironing out the detail on the path to a smart, flexible electricity system

- *19th March 2021*
- *9:30am to 10:30am*

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www.r-e-a.net

What Government is Proposing

Smart chargepoint function:

- The 2019 smart charging consultation proposed the following definition for smart functionality:

  "Smart functionality" means the ability of a charge point to—
  (a) send and receive information and;
  (b) respond to messages by adjusting the rate of electricity flowing through the charge point.
- Based on consultation responses and the approach taken in PAS 1878, it is likely the definition will incorporate minor changes:

  "Smart functionality" means the ability of a charge point to—
  (a) send and receive information and;
  (b) respond to external signals by modulating the rate of electricity flowing through the charge point;
- In line with the consultation, we also propose that all smart chargepoints must include a metering system, whereby on each occasion the charge point is used, it monitors and records the electricity it has consumed and the amount of time for which the charge point is consuming electricity. This information must be in a format accessible by the consumer.

What Government is Proposing

- In line with the consultation, we propose:
  - The legislation will apply to all private chargepoints, which will be defined in legislation to include all workplace and domestic installations.
  - A charging cable which happens to be smart will also be required to comply with the legislation.
  - All rapid chargepoints will be exempt, with rapid to be defined in legislation.

Default smart charging

- There are different options for delivering a default setting:
  - **Static default settings** - EVs would default to charging outside of the peak period (eg 21:00-06:00). These periods would be pre-defined and static.
  - **Dynamic default settings** - EV chargepoints default settings that could vary by location and over time, to reflect local network conditions at that time.
  - ***Personalised default settings*** - *Consumers choose their own default charging settings. This could be an optional setting for consumers, or be a required choice at the point of installation.*

What Government is Proposing

Interoperability

- The 2019 **smart charging consultation** proposed that CPOs should be interoperable, i.e. that "*the chargepoint is capable of retaining smart functionality if the CPO is changed without the need for a visit to the premises*".
- **PAS 1878** aims to set out a technical architecture for delivering **interoperability** of the **Demand Side Response Service Provider (DSRSP)** - a function that could be delivered by the CPO or by another third party (e.g. an aggregator).

Options

- We have explored three options for our approach to DSRSP interoperability in our regulations. These are:
  1. Mandate compliance with **PAS 1878**
  2. Mandate **the use of (or ability to use) OCPP** between chargepoints and the DSRSP
  3. **Do nothing**
- We are currently minded to **do nothing** on DSRSP interoperability at this stage, given the nascent nature of the market and the limitations of our device-level powers.
- We may consider including an **outcome-based requirement** for all chargepoints to work with **any energy supplier**.

What Government is Proposing

1. Randomised Delay Function

The consultation proposed introducing a randomised delay function (similar to SMETS) to avoid grid instability issues from multiple chargepoints turning on/off at the same time (e.g. in response to a drop in price).

No final decision on a randomised delay function has been made. If one is included, our approach and requirements could mirror that described in the draft version of PAS 1878 (section 5.5.4.5, Incorporating randomized offsets in power profiles):

- To avoid large simultaneous unwanted switches in load on the electricity network, the smart chargepoint shall be developed with functionality to offer randomized offsets of up to 30 minutes.
- The chargepoint shall incorporate randomized offsets, if these are not already included (e.g. included in ToU tariffs with built-in randomized offsets). The randomized offset shall be between 0 and 10 minutes.
- The consumer override function specified shall be able to override the randomized offset, if activated by the consumer.
- The chargepoint shall not incorporate randomized offsets when providing fast-responding DSR services.

What Government is Proposing

1. Failsafe Mode

A failsafe mode was not explicitly included in the smart charging consultation. However, the consultation did note that the BSI standard would consider grid stability as a key principle.

PAS 1878 defines a “Mode 4” which is a failsafe mode which would be applied in “exception conditions” such as where there is a loss of power.

We are considering if a failsafe is required for smart chargepoints, and if so, what that failsafe mode should be. For example, when power is restored after a loss of power, all chargepoints could be required to resume in an “off” state, or could have to use the randomised delay function before restarting. This setting could be beneficial for network operators, but could also cause confusion for consumers (e.g. a short powercut overnight could leave a car uncharged in the morning).

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What Government is Proposing

Cyber Security

- We have explored three options for our approach to cybersecurity in our regulations. These are:
  1. Mandate compliance with PAS 1878
  2. Mandate compliance with ETSI EN 303 645
  3. Mandate the consultation outcomes only
- We are currently minded to mandate full compliance with **ETSI EN 303 645**, as an outcomes-based approach which would embed good cyber hygiene, provide a strong minimum level of cyber mitigations and enable data privacy at the device level. Compliance with EN 303 645 is required in PAS 1878.
- Per their 2020 Call for Views, DCMS intend to mandate compliance with three specific provisions in EN 303 645 for IoT devices. However, we are currently minded to require compliance with the full standard given the increased cyber risk posed by smart chargepoints, as described in our consultation.
- We are also minded to include additional requirements for chargepoints to include physical protections and security logging, which are not included in the ETSI. We are likely to use similar language to that which is used on these protections in PAS 1878 (paragraphs 7.12 and 6.12.1 respectively).
- **This position is subject to NCSC views and feedback.**

What Government is Proposing

Safety

Background

- The 2019 smart charging consultation proposed that smart chargepoints should be required to be safe, **with due regard to the existing safety framework**, and sought evidence on any additional safety requirements that may be needed. No safety requirement was included in the draft legislation, published alongside the consultation.
- The consultation set out the existing safety laws and requirements related to smart chargepoints (see page 30 of the consultation document).

Proposal

- Given the breadth of safety legislation that chargepoints must already comply with, we are not proposing to introduce any new requirements or duplicate existing legislative requirements within our smart charging legislation.
- We are however considering mandating a high-level outcome on smart safety, in line with the safety proposal in PAS 1878. For example, "*The chargepoint shall be configured such that safety aspects take priority over energy flexibility related behaviour at all times*."

What Government is Proposing

Testing

- For cyber and data sections within the consultation proposed an **independent testing and assurance scheme before the point of sale and installation.**
- The consultation stated that having a **security testing assurance** process will provide confidence that the security outcome-based requirements have been met, and the benefits of smart charging don't turn into a vulnerability for the electricity system.
- For enforcement, the consultation proposed that the Office for Product Safety and Standards should be the regulator and that there should be 12 months between the legislation being "made" and coming into force.

1. Elements of assurance –
    a. Testing – should we require that all/some requirements undergo testing, or just ask a regulator to test a sample of devices? What would be helpful to enable testing of smart chargepoints – a route to conformance guide? Testing specification?
    b. Certification – how should industry prove compliance? Should we require certification or are there other means we should consider? (E.g. requiring industry to keep certain documentation/evidence in case of audit).
    c. Further guidance – in addition to the requirements set out in legislation, what other support would industry need from Government to complying with these regulations?

1. Degree of third-party involvement –
    a. Do you have views on Government requiring independent testing and/or third-party certification for these requirements?
    b. Would you utilise independent testing houses anyway or do you have the facilities to undertake testing in house?
    c. If you think third party certification isn't needed now, could it be required at a later date (given these regulations are part 1 of a longer piece of work)?

Key areas for REA to weigh in

Key questions to be addressed today:

- Are we happy with the smart charging definition and definition of ‘private’?
- Are we agreed that Government’s definition of ‘interface’ should include an app?
- Do you agree with 10 minute randomised delay function?
- Do you agree with default smart charging?
- Do you agree with us pushing back against ‘failsafe mode’?
- Do you agree that ETSI cyber security standard should be left until a more holistic perspective can be taken?
- Do you agree with our view against mandating compliance with PAS1878 at this stage, and against interventions around charge point operator / DSRSP switching?
- Do you agree with industry-led testing?
- Do you agree with the energy supplier and safety statements?