

EIP043

Is randomised delay from smart chargers a long-term solution?

Problem Statement Details

Currently the solution to managing grid instability from use of smart chargers is randomised delay over a 10-minute period. However, when charging demand is higher (in the future), we will need another (innovative) solution which ensures:

- i) the demand to the grid is smoothed out,
- ii) the consumer experience is not hampered.

A potential policy and markets solution may be to align to half hourly pricing.

Key Stakeholders

Suppliers, Networks, ChargePoint owners & operators.

Enablers and Constraints

Enablers – Australia use a dynamic operating envelope, wherein the vehicle is plugged in and the capacity available dynamically on the network is then made available for vehicle charging.

Constraints – Multiple signals to different assets; giving users price signals creates a cliff edge effects because it expects users to respond; a centrally dispatched balancing mechanism by ESO/DSO is required to decide who switches off when; a manual override function is available to the consumer, which creates a new problem if several consumers override simultaneously.

Target Market

DNOs, chargepoint owners & operators.

Scalability & Target Implementation Date

The scalability pathway should align to National Grid's FES 2022 (or appropriate DFES) for projected increase in EV uptake.

Seed Question

Do we know how consumer charging behaviours will respond to various candidate solutions for replacing randomised delay?

Innovation Strategy Target Areas

Innovation Theme	Target Area	Primary or Secondary
Data and Digitalisation	<p>The shift to data-driven, digitally-enabled networks is critical as we move towards Net Zero.</p> <p>We need your help to drive standardisation, interoperability, security and digital skills whilst accelerating our transformation to data-driven networks by the mid 2030s.</p>	
Flexibility and Market Evolution	<p>Energy networks must quickly and efficiently respond to the rapidly evolving needs of the energy system transition. We need your support to eliminate barriers to new market entrants, deploy novel commercial and network management solutions whilst ensuring fair participation and eliminating regulatory barriers within the RII0-2 price control periods.</p>	Primary
Net zero and the energy system transition	<p>In order to meet the UK net zero targets of 2050 we must start converting our networks to deliver low carbon fuels today. We want to work with you to develop the role of our gas networks into the future by investigating, trialling, implementing and delivering safe, low carbon alternatives to natural gas such as Hydrogen.</p> <p>Net Zero requires connection of more low and zero carbon sources of energy generation, storage and demand to both the transmission and distribution networks. We need your innovative methods for effective network management and accessing flexibility to improve visibility, forecasting and modelling of low carbon technologies.</p>	
Optimised assets and practices	<p>Innovation has a key role to play in ensuring our networks continue to remain reliable, safe, secure and resilient to our changing climate. We are constantly looking to improve and welcome support to identify methods to prevent interruptions, ensure resilience, reduce climate impact and future-proof our networks.</p>	
Supporting Consumers in Vulnerable Situations	<p>Equality and fairness are the foundations of a just transition to Net Zero. We hope you can provide insight into the transient and situational nature of vulnerability and how we can overcome the impact the energy system has on consumers, building strong relationships for the future.</p>	
Whole Energy System Transition	<p>The energy system must consider the full range of opportunities, risks and interdependencies that exist across the energy networks to integrate and optimise them in a way that best serves the consumer. We are looking for ways to improve visibility of the networks and transitional options, co-ordinate approaches and collaborate across the UK.</p>	