In partnership with Baringa
Brighter together

Shift Smart Charging Trials

Expression of Interest

March 2019

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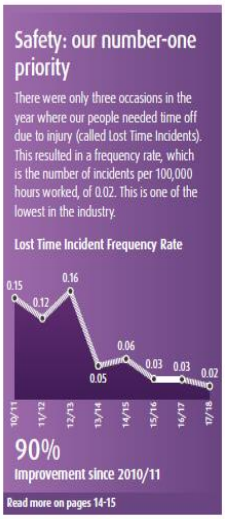
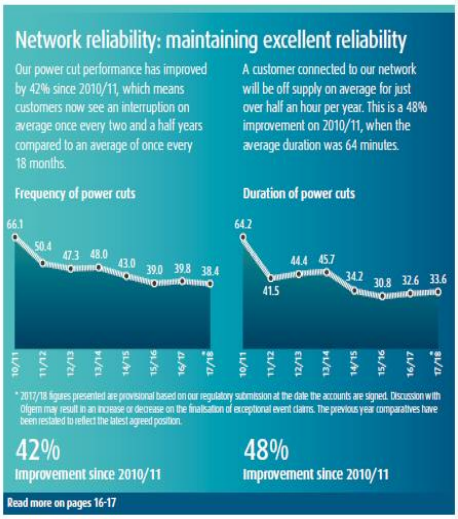
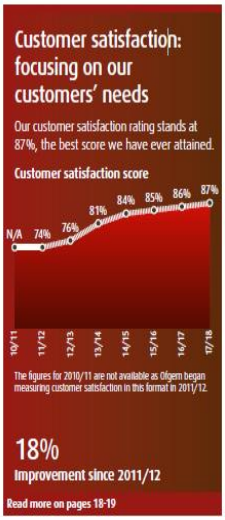
1. Company Overview

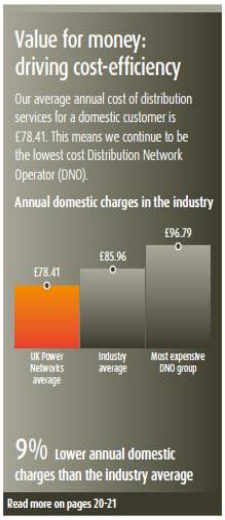
UK Power Networks provides power to approximately a quarter of the UK's population via its three regulated electricity distribution networks, which are owned by, London Power Networks plc, Eastern Power Networks plc and South Eastern Power Networks plc.

We are proud of our achievements since 2010 and the progress we have made in our performance, as can be seen below[1]:









UK Power Networks is committed to:

- Ensuring that we remain the lowest priced, most reliable and innovative DNO group throughout the RIIO-ED1 period (2015 – 2023, see section 2 for further details)
- Build further on our good safety record and continue with innovative internal safety programmes, achieving at least one year with no lost time incidents for employees and contractors and the public
- Maintaining a safe, secure and sustainable power supply to eight million homes and businesses in London, the South East and the East of England
- Improve reliability, reducing Customer Minutes Lost (CMLs) by more than 19% in SPN and EPN and more than 8% in LPN, getting the lights back on for 90% of HV power cuts within 2 hours (2015 – 2023)
- Developing what is already one of Britain's biggest electricity networks – which includes 187,992 kilometres of power lines
- Strengthening links with the local communities we serve and building on the skills base of the 6,000 people who work for us across the network.
- Giving our customers the best possible service and maintaining operational efficiency across our networks will be at the heart of what we do

To find out more great information about our business go to: www.ukpowernetworks.co.uk

[1] https://www.ukpowernetworks.co.uk/internet/en/about-us/UKPNAR2017-18.pdf

2. Executive Summary

UK Power Networks is taking innovative steps to create the country's first smart charging market for electric vehicle (EV) drivers. Following on from our SmartCAR project[2], we are now launching trials that will test and develop different approaches to EV smart charging as part of an innovation project called "*Shift*"[3] focussed on domestic smart charging.

In this project we will seek to stimulate the market-led development of smart charging solutions – working with market participants to develop, enable and trial customer propositions for electric vehicles; develop processes, proof-of-concept systems and commercial arrangements to enable these propositions; and ultimately seek to understand customer response to these propositions and the associated network impacts in a controlled environment.

With this request for "expressions of interest" we are seeking innovative market participants who can work with us to develop and test customer propositions. To put forward your participation in these trials you will need to either:

- Be an energy service provider for domestic consumers (e.g. energy supplier, aggregator, charge point operator, OEM) – either with existing EV customers enabled with smart chargers, or have the ability to recruit or convert existing customers to smart chargers; or
- Be an associated organisation with a proposal to deliver key parts of the smart charging value chain as part of a broader consortium

In this document we set out:

- An overview of the scope of the Shift trials and key use cases we will be testing
- Our requirements from trials participants in terms of capabilities, customers and delivery timescales, and
- A short template to complete to express interest in participating in the Shift trials.

Following receipt of responses we will assess which best fit the project requirements and select a number of participants to take part in delivery of the trials. We are not running this as a formal procurement process, but more an opportunity to understand what participants may have to offer in order to best meet the trials objectives.

As a Network Innovation Allowance funded project we will not be funding participants for their participation in the trials, and are seeking participants who are prepared to invest time and effort in return for the opportunity to take a market-leading role in the development of capabilities to support the future market.

We look forward to your responses!

Ian Cameron

Head of Innovation

[2] http://www.smarternetworks.org/project/nia_ukpn0034/documents - please navigate to the Reports section to find the "UKPN Smart Charging Architecture Roadmap Final Report"

[3] https://www.ukpowernetworks.co.uk/internet/en/news-and-press/press-releases/UKs-first-smart-charging-market-for-electric-vehicle-drivers.html#art-top

3. Background

The electricity system is going through a period of unprecedented change. Through the past decade we have seen a rapid deployment of renewable generation on our networks. More recently, we are also seeing the emergence of new distributed energy resources (DER) such as storage and EVs, and changing electricity usage patterns of our customers. These fundamental system changes are challenging both how we maintain and operate our network today, as well as creating opportunities for us to do so more efficiently in the future.

Our DSO Strategy

To manage the changing electricity system we are transitioning from being a Distribution Network Operator (DNO) to a Distribution System Operator (DSO). In our Future Smart[4] strategy, we described how as a DSO we will increasingly use flexibility from DER to deliver more energy with less network infrastructure, thus helping to keep costs down for our customers. Within this strategy we have committed to a "Flexibility First" approach and will market-test all new load related investment. In our Flexibility Roadmap[5] we have communicated our future flexibility needs to the market, allowing potential providers to assess the commercial opportunity, and setting out how we will contract for flexibility services and work with providers. We are in the process of running flexibility tenders for the EHV/HV network[6] along with additional projects within the UKPN Flexibility Programme.

Our Smart Charging Architecture Roadmap (SmartCAR) project

We know that EV uptake is set to surge, and to enable this we must either reinforce the network, or will need customers to be flexible about when they charge their cars. In our SmartCAR project we conducted independent research into possible smart charging approaches, including investigating the longer-term market-led approaches for smart charging.

Our research pointed toward a hierarchy of possible smart charging mechanisms, ranging from "DNO intervention" to "market freedom", with different mechanisms potentially more suited to different customer types and different areas of the network. One of the key conclusions was that a wide range of stakeholders prefer a market led approach and believe that trials would provide relevant input into a future strategy. We expect that the industry approach will evolve over time, and a range of approaches may be employed as we drive toward price-driven market mechanisms. Our strategy is to support maximum market freedom, pursuing a market based "interim pricing solution" before resorting to any "DNO unilateral load management" option.

To learn more about the SmartCAR project, refer to the project report[7] on the smarter networks portal.

Learning through doing – new trials – Project Shift

The SmartCAR project developed feasible designs for market-led smart charging, and we now need to engage the market to demonstrate how they would work commercially in reality, that they have the desired outcome, and to understand what technical solutions are suitable and feasible. We are therefore launching these trials in order to test our short-list of possible approaches, and inform a viable and scalable solution that can be deployed to enable the required pace of EV uptake.

[4] http://futuresmart.ukpowernetworks.co.uk/wp-content/themes/ukpnfuturesmart/assets/pdf/FutureSmart-Consultation-Report.pdf

[5] http://futuresmart.ukpowernetworks.co.uk/wp-content/themes/ukpnfuturesmart/assets/pdf/futuresmart-flexibility-roadmap.pdf

[6] https://www.ukpowernetworks.co.uk/internet/en/have-your-say/documents/Invitation%20to%20Tender%20-%20PE1-0074-2018%20Flexibility%20Services_v1_1.pdf

[7] http://www.smarternetworks.org/project/nia_ukpn0034/documents - please navigate to the Reports section to find the "UKPN Smart Charging Architecture Roadmap Final Report"

Informing Policy

Ofgem are engaged in a formal review of network access and charging arrangements[8] in order to address some of the challenges posed by the changing use of networks, and in particular the potential for electrification of heat and transport to increase peak demands on the system. The Shift trials will provide an opportunity to test alternative arrangements for access to the networks and elements of network charging, and to understand consumer behaviour in response to these arrangements. The insight generated through these trials could provide evidence for Ofgem to inform their review, and as such we will seek to ensure that the data gathered is robust enough to inform policy decisions.

Glossary of Terms

We have outlined our definitions of a number of terms that we will use throughout the remainder of the document.

Term	Definition
Participant(s)	The individual party(ies) that will be selected to partake in the Shift trials (e.g. energy supplier, aggregator, charge point operator, OEM, technology provider). Each participant should have: • Access to a pool of domestic customers with EVs and smart charging capability, or • A proposition that fulfils a piece of the smart charging value chain
Customer(s)	The domestic EV customer (e.g. Energy Supplier's domestic customers)
DER Asset(s)	The EV smart charger (e.g. the smart chargers that customers use to charge their EV)
Smart Charger	A smart charger should meet the below criteria: • The ability to respond to signals to match charging demand with network capacity; • The ability to exchange static and dynamic charge point data; and • The ability to communicate with relevant parties to enable the exchange of data.

[8] https://www.ofgem.gov.uk/electricity/transmission-networks/charging/reform-network-access-and-forward-looking-charges

4. Trials Scope

We believe there may be an opportunity to deploy smart charging to offset reinforcement needs in the RIIO-ED1 timeframe (i.e. prior to 2023). In addition, we believe that longer-term industry reform may need to be enacted in 2023 as part of RIIO-ED2, and so are anticipating a need to deploy an "interim solution" ahead of 2023. We intend for this to be a market-based interim solution, and to enable this in the timeframe we would need a viable and proven solution, and as such we intend to run these trials for the 2019-20 period to learn by doing.

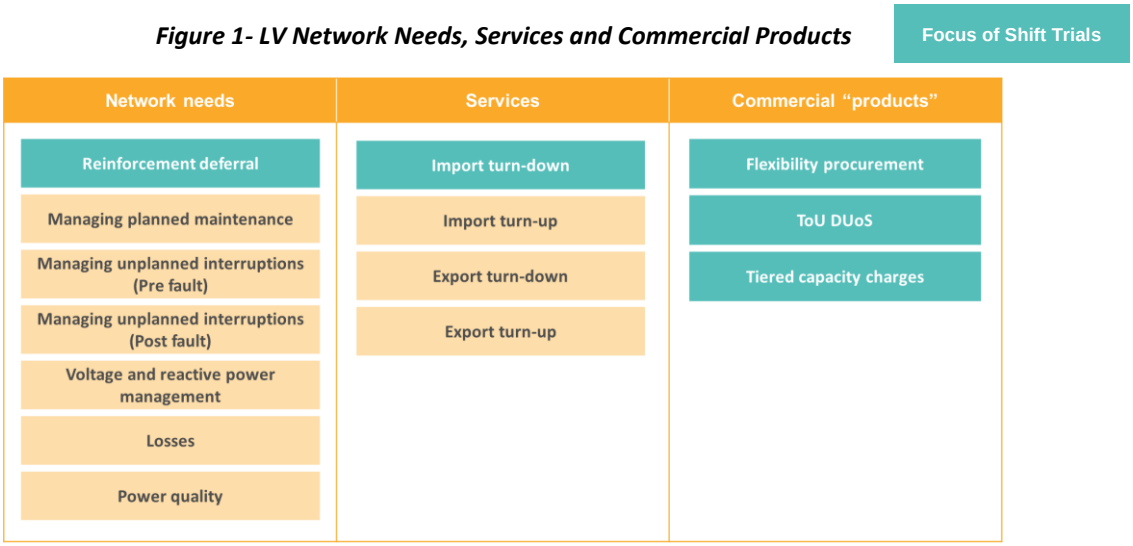
The objectives and target outcomes of the trials are to:

- Stimulate the development of market-led smart charging solutions, working with market participants to develop, enable and trial customer propositions
- Develop and test processes, systems components and commercial arrangements to enable these propositions
- Understand customer response to these propositions and network impacts in a controlled environment
- Develop a scalable solution that can be expanded to a larger volume of customers and drive reinforcement deferral ahead of broader industry smart charging reform
- Inform Ofgem's longer-term access and network charging reform
- Prepare the capabilities required for smart charging longer-term

4.1 Network needs and services

In our Flexibility Roadmap we have published the network needs, flexibility services, and commercial products on the Extra High Voltage (EHV) and High Voltage (HV) electricity distribution networks (6.6kV and above). As a part of the Shift project we are exploring what the network needs and services are at the Low Voltage (LV) level of the network. The table below outlines the high level network needs to be addressed and the services and commercial products we will be testing as a part of the Shift trials.

Figure 1- LV Network Needs, Services and Commercial Products



Our view is that the majority of the network needs at the LV level could be addressed through flexibility in the longer term. In the near term, we believe that the primary value from smart charging will be in offering an import turn-down (i.e. demand turn-down) service, focussed on mitigating constraints at peak times and thus enabling reinforcement deferral. During this project we will conduct a value assessment of the needs and services, and may add other services to the trials if shown to be of value.

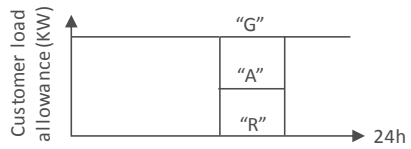
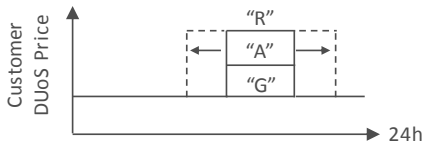
The Shift trials will therefore primarily focus on **"import turn-down"** as a service, which is a simple service to deliver through smart charging by moving demand peaks into alternate time periods, or load limiting charging rates.

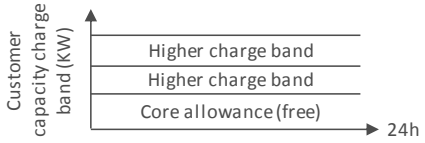
4.2 Commercial products and incentive structures

Following on from the SmartCAR project, with the Shift trials we are setting out to test market-based approaches to EV smart charging – specifically through flexibility procurement through 3rd party service providers (these could potentially be similar to our current EHV/HV products) or through the introduction of new network price signals (such as a time-of-use DUoS charge or alternative forms of capacity charging) to incentivise customer propositions that minimise exposure to higher charges.

Each of these approaches can be used to either procure or incentivise a demand turn-down service, and the primary goal of the trials is to explore each method to understand the effectiveness of the method via customer behaviour change and the associated network impact.

The table below sets out the three broad scope areas for the trials, some potential variants of each approach, and some key questions and considerations to be investigated. Note that this is a high-level illustration, and further scoping of the commercial approaches will be conducted once participants are on board, and we have further insight regarding both what is technically possible in the timescales, and what is commercially viable for all parties.

Product	Brief description of process	Illustration of commercial product and variants	Example trials considerations to investigate
Flexibility procurement	The DSO contracts for locational flexibility ahead of time from service providers DSO sends a call-off instruction for a volume of turn-down (kWh) at a specific place and time period The service provider manages customer charging profiles to deliver response	 Customers would be subject to the potential for the DSO to call-off flexibility at given times of the day, which may include e.g. an "amber" level setting a load-limit, and a "red" level curtailing the charging session This call-off instruction could be in-day, day-ahead or perhaps set in advance The commercial structure could be based on "availability" payments or "utilisation" payments, or a combination of the two	What level of incentive will customers accept to sign up to such an arrangement? Are utilisation payments open to gaming – i.e. customers switching on to be paid off? What firmness of response is generated from call-off signals, when e.g. customer opt-outs or signal failure take place? Can simple/static approaches deliver the required response, or do they lead to excessive levels of unnecessary curtailment?
ToU DUoS	The DSO publishes a time-of-use DUoS price The service provider manages the customer's charging profile, balancing their mobility needs and cost preferences against the price	 A ToU DUoS would be similar to the amber and red bands currently in use at higher voltage levels of the network The volumetric charge (i.e. per kWh) would vary in specific time blocks in the day A simple version might include a static price profile which is higher at peak times Dynamic variants might include day-ahead or in-day publication of "amber" and "red" days where the price increment is higher (or "green" for zero), and/or could include price increments in different time blocks	What level of customer response is generated from different price increments? Does a sharp price increment lead to the generation of a new peak at a different time block? Can prices separate the customer population based on price sensitivity and avoid new generation of peaks? What alignment is there between network constraints and the wholesale market price, and can this generate a higher incentive for customers?

Rising block capacity charge	DSO publishes rising block capacity price Service provider manages customer charging profile, balancing mobility needs vs. cost preferences	 A rising block capacity charge could allocate customers a core capacity allowance (free) with rising tiers of charges for higher kW draw, applied either to the standing charge or applied to the kWh A simple static version might be "always on", or dynamic versions might include a day ahead or in-day publication of "amber/red day" and activation of charges increments A potential hybrid between this mechanism and ToU DUoS might include a rising block capacity charge applied at specific time blocks only	What level of response is generated from different price increments? Does the "flat" profile of the incentive serve to mitigate new peak formation? Can simple/static approaches deliver the required response, or do they lead to excessive levels of unnecessary curtailment?

4.3 Customer propositions

Each approach could be packaged for the customer in various ways. Another objective of Shift will be to explore these propositions with participants to ensure smart charging can deliver against the customer's need for choice and mobility. We will work in support of participants to develop the potential customer propositions and tailor them to the commercial products we are trialling.

Below are a few examples of customer propositions we could explore:

1. A lower energy price, or "free gift" such as a smart charger or other incentives
2. A means to capture customer preferences in terms of price and mobility, to optimise against prices
3. An agreement that the service provider can modify customer charging patterns at times in return for customer benefits
4. The ability for customers to opt-out of individual load limiting or curtailment events due to exceptional needs

Through the trials it will be the responsibility of participants to develop these customer propositions and sign their customers up to take part in the trials. UK Power Networks will work alongside participants to advise on the network needs and required response parameters, to assist in developing propositions that can deliver against those needs.

4.4 Required work

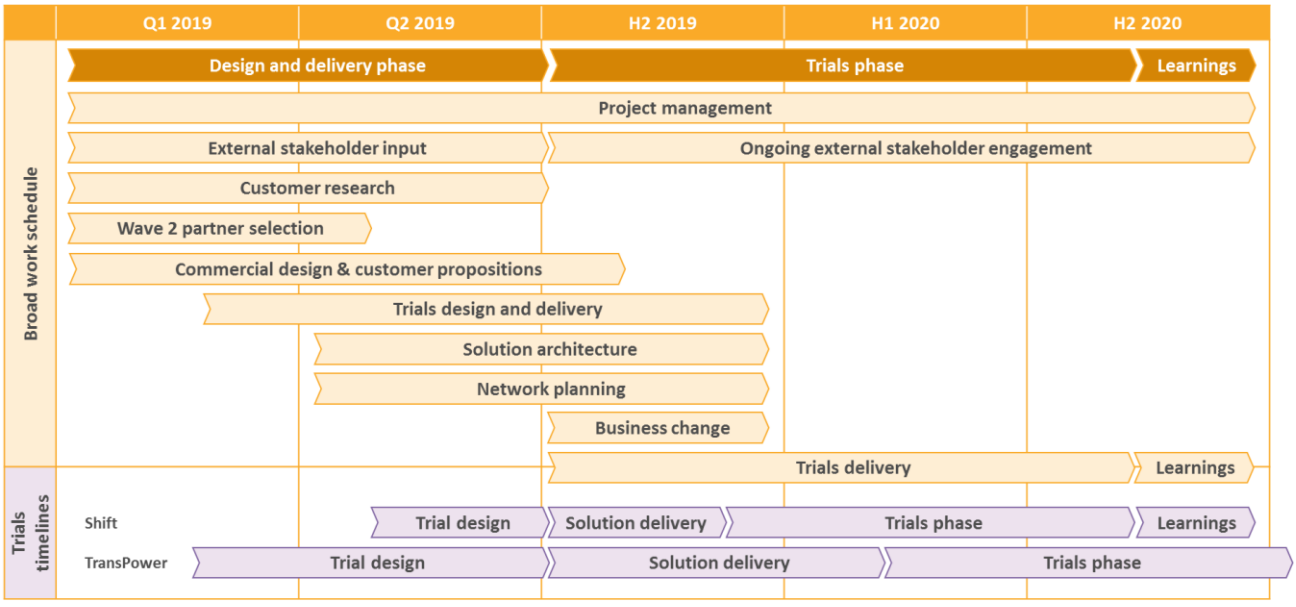
The following table outlines the areas of work within the Shift project, and highlights those that the trials participants will need to contribute to.

Work area	Description	Roles
External Stakeholder Engagement	Engage with a group of stakeholders to gain input to trials designs and to build alignment around the recommendations. This will include Ofgem, OLEV and BEIS as well as a group of wider industry stakeholders such as industry groups (e.g. SMMT, BEAMA, Energy UK, ENA), suppliers, aggregators and OEMs.	Led by UKPN
Trials Participant Selection	Select trials participants through this "expressions of interest" process.	Led by UKPN
Customer Research	Conduct direct customer research to help inform the development of customer propositions. We will also seek to engage with trials customers following the trials period to gather feedback regarding the customer experience.	UKPN will conduct research to inform our position; final feedback could be led by trials participants

Trials Design & Delivery	Engage with participants to agree the detailed trials scope, strategy and phases design. We will need to co-design the customer proposition, select target customer groups, develop and deliver solution architecture, run the trials and gather learnings	Jointly delivered by UKPN and trials participants; Stakeholders will be consulted
Commercial Design	Develop research into the potential for LV flexibility products, understanding conflicts of service with wider markets, and select appropriate products to trial. We will then develop service specifications, conduct a cost-benefit assessment to understand the value of services, investigate commercial requirements such as contracts and settlement, and recommend required changes to regulatory frameworks to implement each solution	Primarily led by UKPN in consultation with stakeholders and trials participants
Systems Architecture Design and Delivery	Develop a technical design for systems changes and/or offline temporary "proof-of-concept" solution components, and deliver the required components, data formats and interfaces, working with participants. We will also conduct a cyber-security review and develop any required engineering and asset standards	Jointly delivered by UKPN and trials participants
Network Visibility & Planning	Carry out network modelling to support the identification of service opportunities, assessment of network risks, and analysis of trials outcomes	Led by UKPN
Business Change	Identify internal operational change required to support the trials and develop and implement any processes required	Parallel activity required by both UKPN and trials participants

The below table outlines the indicative project timelines that we are working toward as a part of Shift.

Figure 2 - High Level Indicative Project Timelines



5. Requirements

We have outlined and committed to a plan and timelines with the below high level milestones:

- **Spring 2019 - Participant selection** – Following the publication of the expression of interest, the selection process will take approximately six weeks. In this time we will receive responses, review submissions and conduct follow up sessions where necessary. . Participants should submit their responses, participate in discussions as a part of the participant selection process, and be ready to mobilise as soon as the participants are announced.
- **Summer 2019 - Trials design and mobilisation** – Upon selection of the trials participants we will immediately start the design phase, kick off customer recruitment and prepare for trials mobilisation.
- **Autumn 2019-Autumn 2020 – Trials execution** – The trials will run for a year from the end of summer 2019 until 2020.

Through the duration of the trials UKPN will work closely and collaboratively with each of the participants and support them in the trials strategy, design and commercial structures. Participants are expected to take responsibility for technology development, customer proposition development, customer recruitment and execution of the trials.

Forming Consortiums

Time is short for this EOI so we don't expect entities to be able to form joint ventures and partnerships in the time available to best meet our requirements. However if you believe you could bring something innovative to these trials please respond listing the capabilities that you can deliver, and we will look to put companies in contact who could potentially form consortiums.

Our requirements are outlined below.

1. **Technical Requirements – Functional**

1.1. *Market Participant - Acquire & maintain customers* **–** The ability to offer a current eligible customer base or demonstrate the ability to acquire customers – by either recruiting new, or engaging existing customers to take part in the trials; the ability to define the customer proposition that passes through the commercial incentive – this should include capturing customer preferences in order to balance preferences vs. changing price levels; Potential ability to allow for different groupings in order to be able to test different pricing structures vs. a control group

1.2. *Market Participant - DER monitoring & forecasting* – The ability to monitor charge states both to enact any required dispatch operations and also to be able to evidence customer response

1.3. *Market Participant - Market interaction* - Potential ability to optimise across markets to help understand service conflicts; The ability to interface with the DSO and accept ahead or dynamic in-day signals (either incentive signals or procured flexibility response call-off signals); the ability to maintain a regular data exchange with a DSO

1.4. *Market Participant - Asset optimisation* - The ability to calculate the optimal deployment schedule for assets based on price signals, or flexibility response call-off signals, for all markets, location and customer preferences, and dispatch of assets to deliver the schedule

1.5. *DER Asset - Register user settings* **-** The ability to capture and store data relating to customer preferences regarding their EV charging patterns, mobility needs and sensitivity to incentive levels

1.6. *DER Asset -Receive instructions* - The ability to maintain network connectivity and receipt of smart charging instructions

1.7. *DER Asset - Manage charge state* - The ability to monitor charge state and alteration of charge/discharge states based on the smart charging instruction, including potential load-limiting (i.e. restricting charge rates to a level below maximum)

1.8. *DER Asset - Data visualisation* - The ability to store and manage data related to smart charging, and the ability to display data locally to the consumer

1.9. *DER Asset - Metering* - The ability for an asset (smart charger) to meter ToU consumption and load levels at the EV smart charger with high resolution (i.e. minute/sub-minute frequency)

2. Technical Requirements – Non-Functional

2.1. *Scalability and ease of market transition* – The ability to scale and transition a technical solution to the mass market

3. Customer Requirements – Customer Pool

3.1. *Customer base* – The ability to demonstrate a customer pool of residential, domestic, smart charging customers that are as representative of the mass market as possible

3.2. *Number of customers* – The ability to provide an adequate number of customers to inform the trials[9]

3.3. *Customer recruitment* – The ability to recruit an adequate number of smart charging customers in time for the trials.[10]

3.4. *Customer smart chargers* – Customers with smart chargers that have:

3.4.1. The ability to respond to signals to match charging demand with network capacity;

3.4.2. The ability to exchange static and dynamic charge point data; and

3.4.3. The ability to communicate with relevant parties to enable the exchange of data.

4. Customer Requirements – Customer Locations

We have a set of preferences that we would ideally like participants to meet with their customer pools. These are not hard requirements, but will be factored into selection as "nice to haves" if participants can provide a customer pool that meet the below criteria.

4.1. *UKPN Area* - Customers within the wider UKPN area

4.2. *Distribution of Customers* - Customers spread across the UKPN areas (LPN, SPN, EPN)

4.3. *Constrained Sites* - Customers near to sites/locations that we have identified as having emerging constraints in the near future

5. Delivery Requirements

5.1. *Technical delivery* – The ability to demonstrate a robust internal technical delivery capability and take ownership of any technical delivery required to enable trials outcomes; the ability to work in an agile mind-set, participating in innovative, iterative design and delivery.

5.2. *Architecture Delivery* – The ability to demonstrate an internal capability that can deliver the technical architecture that supports the requirements outlined in requirement section 1 – Technical Requirements - Functional

[9] We will consider the ability of participants to offer a large enough customer pool to provide statistically significant results. The number of customers that each participant could provide will be factored into the selection of final participants for the trial.

[10] If a participant does not currently have a significant number of customers but will be able to 1) recruit customers in time for the trials at the end of summer 2019 and 2) provide confidence in recruitment outcomes to start we will consider it as a factor in selection.

6. Conditions for Participation

There are a number of legal and commercial conditions that must be acceptable in order to participate in the Shift trials, due to the fact that these trials are being funded under the Electricity Network Innovation Allowance[11] administered by Ofgem.

Funding

As the NIA is funded by energy customer money, we cannot fund participants' development and implementation work associated with the trials. Participants would be expected to invest in taking part of the trials for their own reputational benefit, the benefit to their customers, and the benefit of being "first movers". We do have some funds available to create customer incentives, and should we look to trial at sites with real constraints we will be able to mobilise the benefits of avoided reinforcement, via suitable contract structures.

Intellectual Property and Knowledge Transfer

The learnings, data and results generated during the trials will be subject to the knowledge transfer and intellectual property arrangements set out in the NIA Governance Document[12]. Partners will retain all rights in and to their existing intellectual property. Each party will own any new intellectual property it independently creates in the course of the trials. Where new intellectual property is created jointly by UKPN and a partner in the course of the trials, it will be owned in shares that are in proportion to the funding and work done in its creation.

UKPN will need to release all learnings that we develop from the trials to the market. Whilst this will require release of items such as the trial outcome data, high-level architecture designs and potentially detail regarding the data format published by the DSO, you will of course be entitled to protect any specific IP relating to how your solution works in detail. We can work through specifics of IP requirements at the outset.

The outcomes of the trials are dependent on a successful working relationship with each individual trial participant. In the event that the outcomes of the trials are not informative or do not meet the original objectives at the fault of the partner, UKPN will communicate the cause of the failure to industry stakeholders with transparency and honesty.

Additional Caveats and Conditions

- Given the trials are at the risk of UKPN to run and spend innovation funding, UKPN reserves the right to select the participants they find best-suited in order to best inform the scope of the trials and have no obligation to pick particular participants for any given reason.
- Given the iterative and informal nature of the EOI and approach to participant selection for these trials there will be no formal procurement process to share scoring or feedback from the process. We will however need to publish the outcomes of participant selection
- While the information in this document is believed to be correct at the time of issue, UK Power Networks does not accept any liability for its accuracy, adequacy or completeness. No express or implied warranties are given.
- Neither the issue of this document or any of the information it contains should be regarded as a commitment or representation by UK Power Networks to enter into a contractual arrangement.
- This document is made available to prospective partners on the condition that its contents (including the fact that the prospective partners received this Expression of Interest) is kept confidential and is not copied in any way or distributed to any other person, except to enable prospective partners to submit a response.
- No publicity of this expression of interest is permitted unless UK Power Networks have given express written authorization. Prospective partners are responsible for ensuring that no conflicts of interest exist between themselves and its advisors, and UK Power Networks and its advisors.
- UK Power Networks will not be liable for any costs or expenditure incurred by prospective partners in connection with this document, including in the event that the resulting Project does not proceed or is amended by UK Power Networks.
- This expression of interest shall not be deemed to create any contractual or quasi-contractual rights or obligations that are enforceable against UK Power Networks.

[11] https://www.ofgem.gov.uk/network-regulation-riio-model/network-innovation/electricity-network-innovation-allowance

[12] https://www.ofgem.gov.uk/publications-and-updates/version-30-network-innovation-allowance-governance-documents

7. Invitation to Respond

7.1 Our Questions

Please submit your high level responses to the below questions. Please ensure that your responses address the scope, requirements and conditions outlined in this document. Please limit your responses to 2-3 pages.

Q#	Category	Question	Relevant Section in Document
Q1	Target Use Cases	Please identify which target use case(s) you aim to fulfil and describe your approach for delivery.	Section 4.2 – Commercial products and incentive structures
Q2	The Plan and Your Role	Please explain how your organisation would meet the plan, timelines and ways of working requirements.	Section 4.4 – Required work
Q3	Technical Requirements	Please describe how you would meet the technical requirements as a market participant in the trials. Please refer to Section 5 – Our Requirements and outline how you would meet each of these requirements. *We encourage responses from parties that can meet these requirements in part or in full (i.e. if you don't have customers but fulfil another element of the value chain). We will evaluate responses as a part of the picture as a whole and suggest consortiums where we see opportunity to best meet trials requirements.*	Section 5 – Our requirements
Q4	Customer Requirements	Please describe the ways in which your organisation meets the customer requirements. In particular please answer at minimum the following questions: • *How many EV-owning, smart-charging customers do you currently have?* • *How many customers can you recruit by the end of summer 2019?* • *If your organisation does not have a direct relationship with customers, how do you plan to recruit customers to participate in the trials?* • *Where are your customers?* • *Are your customers within the UKPN area?* • *What is the distribution of your customers within/outside of the UKPN area?* • *What data would you be able to provide to demonstrate where your customers are (e.g. postcode)? How quickly would you be able to provide this data?*	Section 5 – Our requirements
Q5	Delivery Requirements	Please describe the capability within your organisation that would enable you to meet the	Section 5 – Our requirements

		delivery requirements, both technical and architectural.	
Q6	Legal & Commercial Conditions	Please describe how you would comply with the legal and commercial conditions.	Section 6 – Conditions for participation
Q7	Forming Consortiums	If your organisation is fit to deliver a piece of the smart charging value chain as a part of a potential consortium, please use this section to describe your proposition.	Section 5 – Our requirements
Q8	Additional Comments	Please provide any additional comments that you believe would support your case for trials selection.	N/A

7.2 Response Format

Please submit your response in a 2-3 page Word Document format by sending an email addressed to Shift.Project@ukpowernetworks.co.uk with the header "Shift Trials – Expression of Interest Response – [Organisation Name]"

7.3 Next Steps and Contact Information

Register your Expression of Interest

There is a two week window from **13 March 2019 to 27 March 2019** to complete and submit your high level responses to our questions. We will be accepting responses up to and including **27 March 2019**.

Upon closure of the submission window we will open a two to three week discussion period to analyse responses and have discussions with potential participants to enable us to better understand each of the submissions. We are not treating this as a formal procurement exercise, and will not be providing a formal scored response to each submission.

Contact Information

For any queries or questions please reach out to Shift.Project@ukpowernetworks.co.uk .