Energy Networks Innovation Process

Project Closedown Report Document

The voice of the networks

Date of Submission: 26/07/2023

Project Closedown Report Document

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Project Title (*This cannot be changed once registered*)	Project Reference
Skyline	**NIA_SSEN_0048**

Funding Licensee(s)	Project Start Date
Southern Electric Power Distribution, Scottish Hydro Electric Power Distribution, London Power Networks plc, South Eastern Power Networks plc, Eastern Power Networks plc	September 2020

Project Duration	Year
21 Months	2023

Nominated Project Contact(s)
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1. Scope

The project consisted of the following three stages:

Stage 1 – Define data requirements, identify, and engage with stakeholders

- Identify all available sources of information and agree the significant factors.
- Engage with stakeholders (EV charge point operators, installers, and dealers, as well as EV suppliers).
- Identify barriers to collaboration and data sharing, including compatibility with DNO systems / requirements Creation of a draft contract template agreement for data sharing.
- Agree system ownership, usage, and commercial arrangements.
- Early notification of housing development design and testing.

Stage 2 – EV database development and data partner readiness

- Develop the EV database.
- Sign up data sources from the identified stakeholders.
- Customise database and create API / data interface for sources. Test with existing data sources.
- System test and sign off for trials.
- EV API development.

Stage 3 – Trial and report

- Launch and trial of the system, bringing on selected data sources.
- Test EV API to enable provision of Meter Point Administration Number (MPAN) level data to streamline charge point installation process.
- Trial evaluation and validation of results.
- Dissemination of project learnings and attendance at events.

2. Objective(s)

The project objectives were:

- Identification of data requirements, targeting and engagement with key third-party data source companies for early visibility of EV charging connections.
- Address barriers and sign agreements with Data Source Companies.
- Create a database that will link to the data sources and provide the DNOs with the required EV data.
- Conduct a six-month trial of the system.
- Develop proof of concept ready to scale to Business-As-Usual .

3. Success Criteria

The project will be deemed successful if it meets the following criteria:

- Acceptable commercial arrangements with data source owners and improved visibility of EV activities.
- Development of an EV charging database and API.
- System trial undertaken with supporting knowledge capture report.

4. Performance compared to the original project aims, objectives and success criteria

Details of how the Project is investigating/solving the issue described in the NIA Project Registration Pro-forma. Details of how the Project is performing/performed relative to its aims, objectives and success criteria.

Project background

Across GB, the number of electric vehicles (EVs) is rising rapidly and Distribution Network Operators (DNOs) must ensure their networks are able to meet both the aggregated and localised growth in demand through the use of local flexibility solutions and investment in electrical network infrastructure.

Currently, the charge point installers are encouraged to notify the respective DNOs within 28 days of installation and commission of an EV charger that does not require an electricity supply upgrade or new connection. At this point, it is too late for DNOs to consider the network capacity and a potential need for network reinforcement, especially when the EV uptake increases. This project aims to trial the sharing of data on potential EV uptake in a more timely and proactive method with DNOs.

There is currently no system for early notification of enquiries or orders for EV chargers or for EVs themselves. Early visibility will allow DNOs to use the lead times to better plan for the required network investments or to make alternative solutions to support the uptake of EVs where they will most likely connect.

Project Performance

The project made progress and generated valuable learning against the objectives and success criteria listed below:

Identification of data requirements, targeting and engagement with key third-party data source companies for early visibility of EV charging connections

The data requirements were identified by the project team. These include geolocation data such as MPANs and address details, as well as technical data on the type of EV charge point installation, supply voltage level of customers' premises, etc.

The project utilised the project partners' industry contacts and stakeholder knowledge to identify key third-party data source companies (DSCs). These DSCs were the main target of the engagement process as they hold the information required for the project system. 12 DSCs were initially engaged and presented with the project overview, with nine progressing to the second round of engagement after agreeing that they would be interested in exploring the data sharing concept further. The DSCs included EV dealers, charge point installers, car sale websites, car leasing companies and car manufacturers.

Address barriers and sign agreements with Data Source Companies

A number of barriers were identified during the process of engaging the DSCs and attempting to get the agreements signed. These were:

- DSC resource was significantly impacted by the COVID-19 Pandemic, leading to businesses having less availability therefore engagement with some DSCs was difficult to maintain;
- The Pandemic also made it more difficult to build relationships without having in-person meetings;
- There were limited networking opportunities as events were cancelled due to the Pandemic, which hampered the ability to extend engagement beyond project partners' existing network of stakeholders;
- The ability to share DNO data back to potential DSCs (an incentive several were keen on) was more complex than anticipated.

The DSCs were not keen on the use of a heat map to present the location of enquiries/orders of EVs and charge points as they felt that it would give the competition an advantage, e.g. if this was shared with all participants they would see areas where interest was high and could target potential customers in that area with marketing campaigns. Therefore, it was decided not to go ahead with the development of heat maps as part of the system.

Regarding sharing DNO data back to DSCs, the DSCs were very interested to engage with DNOs to help create a smoother customer experience. As a result, they advised that having DNOs provide MPAN or other such data (such as cut-out ratings or looped service status) which could help smooth the customer experience, would be sufficient incentive to encourage more DSCs to provide enquiry/order data to DNOs. It should be noted that a significant number of DSCs were not interested in providing data without some type of incentive. Yet due to MPAN being classified as personal data the project was unable to establish this process which made it challenging to sign up a number of DSCs. It is worth noting since that both ElectraLink (with a view to following up Skyline with a further project) and other DNOs (working with the ENA on the Digitalisation of Connections initiative) are trying to establish such concepts, or ways around sharing MPAN information, i.e. an address lookup feature, which would remove errors and time during customer engagement. In the end, the DSCs which were signed up did so out of goodwill because they could understand the aims of the project.

Two draft data sharing agreements (DSA) were prepared: one between CrowdCharge and the DSCs; and one between CrowdCharge and ElectraLink. The project created a better understanding of data responsibilities, especially around the roles of a data controller and processor. A legitimate interests assessment enabled the partners to focus on the wider implications of the project, i.e. enabling people to easily convert to low carbon technologies, overcoming data protection (GDPR) concerns.

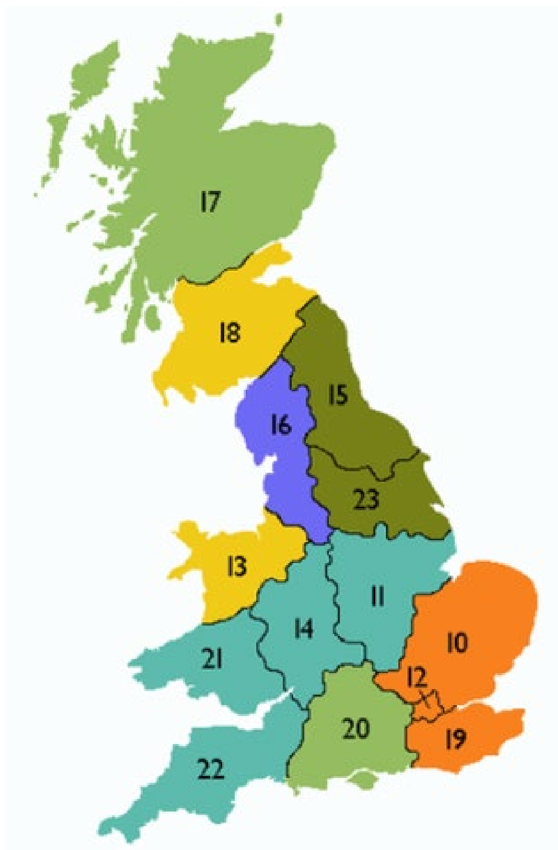
It was found that the ElectraLink DSA is not geared up for smaller companies, as they cannot afford to take on the risk of the high liabilities and indemnities, which could affect the type of DSC involved in any future use of the Skyline system.

Eventually all legal and GDPR related barriers were addressed, and five DSCs formally signed DSAs with the project group, in order to share any data applicable to the above data requirements. In addition, separate data sharing agreements were put in place among the internal project parties to ensure proper data handling and full adherence to GDPR.

Create a database that will link to the data sources and provide the DNOs with the required EV data

The project successfully established the data pipelines between the DSCs and project database, enabling the data to be collected and then distributed to the appropriate DNO based on the locational data being shared. However, as anticipated, it was learned that DSCs have varying levels of technical resource and varied structures to how their data is stored and processed, which will always lead to a varied approach and need for additional effort in establishing data pipelines so that the data is in a useable format when collated and passed to DNOs. In addition, due to a number of issues, although five DSCs were contracted only three actively provided data to the project. Despite this, technical data pipelines and databases were successfully developed and tested – resulting in over 27,000 data events (enquiries, orders, etc.) being processed and issued to SSEN and UKPN. Data was actually gathered from the DSCs for nearly all DNOs, the licence area split of which can be seen below:

DNO ID	Trial Participant?	Participant Name	Number of Events	% of Total Events
10	Yes	UKPN	4493	16.22%
11	No	WPD	2545	9.19%
12	Yes	UKPN	2099	7.58%
13	No	SPEN	1100	3.97%
14	No	WPD	1693	6.11%
15	No	NPg	882	3.18%
16	No	ENWL	1760	6.35%



17	Yes	SSEN	1316	4.75%
18	No	SPEN	1219	4.40%
19	Yes	UKPN	2791	10.08%
20	Yes	SSEN	4420	15.96%
21	No	WPD	553	2.00%
22	No	WPD	1398	5.05%
23	No	NPg	1429	5.16%
Total			27698	100.00%

Data events covered the following types of events:

- Enquiry
- Quote
- Contract
- Install booked
- Delivery
- Installed

New analytics were also developed to facilitate new forecast fields in the standard payload to DNOs. This supported DNO use of the data so that an estimation can be viewed of the likely time until the data event leads to an EV or EV charger being delivered/installed. This is important when considering the overall aim of the project, which is to enable investment in networks ahead of demand actually connecting and thereby minimising customer interruptions – knowing how many weeks there typically are between an enquiry and installation of an EV charger will enable DNOs to plan accordingly working back from that end date.

It should be noted that data interfaces were developed for each of the partners and DSCs, with all partners electing to share data via SFTP (Secure File Transfer Protocol), although APIs were later used to transmit data to UKPN.

Despite the success of the system (approximately 80-88% of the events were successfully sent to SSEN and UKPN), 12-20% of data sharing events failed. It appeared that approximately 87-93% of the errors were down to an issue with the request structure and/or validation. As data is passed between four entities (DSCs > CrowdCharge > ElectraLink > DNOs), it is important to ensure events remain auditable in both directions should it be necessary to investigate data issues. The project resolved some of these issues, and the opportunity was taken in April 2022 to test and implement improvements to the architecture, including developing additional validation and error codes to enable detailed analysis of the data pipeline performance.

This will need to be investigated further should a future phase or transition into business as usual be desired.

5. Required modifications to the planned approach during the course of the project

The Network Licensee should state any changes to its planned methodology and describe why the planned approach proved to be inappropriate. Please confirm if no changes were required

SSEN chose to implement the Secure File Transfer Protocol (SFTP) method to receive data from the notification system, instead of the previously agreed API connection (which UKPN were able to successfully test). This was due to the additional time that would be required by SSEN's IT team to create and maintain an API connection with an external party.

6. Lessons learnt for future projects

Describe how the project (methodology, stakeholder engagement etc.) changed, or provided opportunities, from your expectation at the start of the project and therefore could be useful for a future project. In addition, please discuss the effectiveness of the research development or demonstration undertaken.

During the ongoing engagement with the DSCs, it was established that data sharing between different parties is still immature from both a legal and a sharing process point of view. Prior to committing to share data with the project group, most engaged companies have had to internally investigate various elements of data sharing, such as legal processes, compliance with GDPR and IT-related feasibility of a continuous data sharing process during and after the project completion. Only a few companies engaged in the project already have such practises in place that allow data sharing on an ad-hoc basis. This will likely continue to hinder scaling the concept to incorporate many DSCs.

In addition, in order to scale the system, it would be important to establish automated and consistent processes for the DSCs to follow in providing data, as in some cases the more manual process resulted in delayed and intermittent data transmission.

Whilst the DSAs were signed by some DSCs, it is clear that a means of providing data back to DSCs to support their customers' experience will be key to securing involvement moving forward – therefore the DSAs will need to be revisited and redesigned for any roll out or scaling up of the Skyline concept. Data protection issues over MPANs mean that there will need to be effort placed on implementing appropriate GDPR compliant methods before attempting to progress further, however as noted, DNOs and ENA are working to find methods to overcome this as part of the Digitalisation of Connections initiative which could resolve this challenge.

Data transfer still presents a number of challenges, and so investigations will be required into exactly what caused the issues with the API to UKPN (approximately 15% of data events which the database attempted to send to UKPN resulted in an error, with approximately 95% of those having a "Bad Request" status).

7. The outcomes of the project

When available, comprehensive details of the Project's outcomes are to be reported. Where quantitative data is available to describe these outcomes it should be included in the report. Wherever possible, the performance improvement attributable to the Project should be described. If the TRL of the Method has changed as a result of the Project this should be reported. The Network Licensee should highlight any opportunities for future Projects to develop learning further.

The project has positively demonstrated the following:

- The full list of data requirements (from must-have to nice-to-have) that DNOs would require to enable a smooth service upgrade and proactive network planning;
- The type of external parties that are typically in possession of such information;
- Potential barriers to sharing key data identified from the engagement, including:
  - Lack of experience in drafting bespoke data sharing agreements;
  - Need for further investigation on how to share data externally while remaining compliant with GDPR;
  - Sharing of data from DNOs to DSCs would act as necessary incentive for signing up to a DSA.
- Signing of Data Sharing Agreements with a range of DSCs;
- Creation of a database that receives data from DSCs and pushes the required data to DNOs;
- Trialling data transfer over a period of time which allowed over 27,000 data events to be shared via both SFTP and API; and
- A successful system ready to be scaled to perform a service in business as usual.

8. Data Access & Quality Details

A description of how any network or consumption data (anonymised where necessary) gathered in the course of the Project can be requested by interested parties. Please include a link to the publicly available data policy.

Aggregated data such as that presented in the table in Section 4 can be made available to understand the volumes of data processed in the project.

For information how to request data gathered in the course of this project, see Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) Data Sharing Procedure at https://ssen-innovation.co.uk/innovation-strategy/.

9. Foreground IPR

A description of any foreground IPR that have been developed by the project and how this will be owned.

N/A

10. Planned implementation, recommendations or next steps

Please describe the next steps to implement this innovation project. What policies and standards need to be updated or created as part of this implementation.

Whilst the project met its objectives, and the data sharing platform and overall concept are ready to be scaled up for implementation, further steps are required. Most notably the bi-directional data sharing (i.e. DNO info on cut-out and an MPAN lookup feature) to secure the engagement and sharing of data by DSCs. As noted however, this type of capability is being developed under the ENA's Digitalisation of Connections initiative during 2023.

The project partners have been buoyed by the success of the project and the useability of the data, particularly as DNOs are being encouraged in the RIIO-ED2 price control period to invest strategically to prevent issues from materialising, which this concept of early visibility suits particularly well.

As a result, the recommendation is to seek support from other DNOs to scale up the system and put in place a plan to grow the service with new data providers, DNOs and industry participants, through delivery of a scalable industry grade service. The project partners will look to establish the requirements for building this proposal in 2023 and aim to make a decision on next steps before 2024.

11. Other comments

The project has demonstrated the capabilities which can be unlocked through data sharing, and how data protection concerns and technical inexperience will hamper the implementation of the digital strategy which the energy industry hopes to progress.

In addition, the granularity with which data is shared with DNOs will have implications on the effectiveness of using the concept to facilitate strategic investment at local levels – some organisations where only prepared/able to share postcode or regional data, which could support investment planning on HV networks, yet the desire is for full address or MPAN-level data which would enable planning at the most granular levels, i.e. LV networks.

12. Standards Documents

Identify any industry standards that may require updating due to the outcomes or understanding developed from this innovation project. If no standards will need to be updated, please state - not applicable

N/A