Independent, not-for-profit, low emission vehicle and energy for transport experts

PROJECT

# REPORT

## National Chargepoint Registry UK

*Stakeholder Consultation: "Help Shape the Future of the NCR": Findings and Conclusions*

**January 2018**

Prepared for:

Rowland Bareham
Office for Low Emission Vehicles,
Great Minster House
33 Horseferry Road
London
SW1P 4DR

Rowland.Bareham@Olev.gsi.gov.uk

***Prepared by:***

Jane Pepper (Apetrel Systems)
Adrian Vinsome (Cenex)

***Approved by:***

Adrian Vinsome (Cenex)

***Company Details***

Cenex
Advanced Tecnology Innovation Centre
Oakwood Drive
Loughborough
Leicestershire
LE11 3QF

Registered in England No. 5371158
VAT Registered No: 933596983

Tel: 01509 635 750
Fax: 01509 635 751
Email: info@cenex.co.uk

Twitter: @CenexLCFC
Website: www.cenex.co.uk

Disclaimer



***Document Revisions***

| No. | Details | Date |
|---|---|---|
| **1** | First public release | 22/02/2018 |
| | | |
| | | |
| | | |

# National Chargepoint Registry UK

## *Stakeholder Consultation: "Help Shape the Future of the NCR": Findings and Conclusions*

Event Details:

Monday 11th December 2017, 10.00-15.30 GMT

The Advanced Propulsion Centre, Loughborough University in London, Queen Elizabeth Olympic Park, Stratford, London.

Table of Contents


1 Introduction to National Chargepoint Registry (NCR) ..... 6

2 Purpose of the NCR Consultation Event ..... 6

3 Event Format ..... 6

*3.1.1 Introduction ..... 6*

*3.1.2 Background to the National Chargepoint Registry ..... 6*

*3.1.3 Technical Context of the NCR ..... 7*

*3.1.4 Workshop Discussion ..... 7*

*3.1.5 Summary Session ..... 7*

*3.1.6 Post-workshop ..... 7*

4 Executive summary of results ..... 8

5 Questions posed: summary of responses ..... 9

5.1 Data providers (morning session) ..... 9

5.2 Data users (afternoon session) ..... 10

6 Questions posed: detail of responses ..... 11

6.1 Question 1: *How do you believe that the UK should meet its obligation to provide open and non-discriminatory access to chargepoint information for EV motorists?* ..... 11

*6.1.1 Data Providers at Event ..... 11*

*6.1.2 Data Provider Post-workshop additions: ..... 12*

*6.1.3 Online Survey Responses: ..... 12*

6.2 Question 2: *What would be the preferred architecture for a private upload API?* ..... 13

*6.2.1 Data Providers at Event ..... 13*

*6.2.1 Data Provider Post-workshop additions: ..... 13*

*6.2.1 Online Survey Responses: ..... 14*

6.3 Question 3: *Would there be value in providing dynamic data such as availability and reservation?* ..... 15

*6.3.1 Data Providers at Event ..... 15*

*6.3.1 Data Provider Post-workshop additions: ..... 15*

*6.3.2 Data Users at Event: ..... 16*

*6.3.3 Data User Post-workshop Additions: ..... 16*

*6.3.4 Online Survey Responses: ..... 16*

*6.4* Question 4: *Do you think the NCR should provide a hand-off service to participants' back offices for payments and value-added services?* ..... 18

*6.4.1 Data Providers at Event: ..... 18*

*6.4.2 Data Provider Post-workshop additions: ..... 19*

*6.4.3 Online Survey Responses: ..... 19*

6.5 Question 5: *What are the key requirements of the data in the NCR to ensure it is useful to data users?* ..... 20
*6.5.1 Data Users at Event:* ..... 20
*6.5.2 Data User Post-workshop Additions:* ..... 20
*6.5.3 Online Survey Responses:* ..... 21
6.6 Question 6: *Is the existing interface adequate? Are there specific queries on the data that would be required?* ..... 22
*6.6.1 Data Users at Event:* ..... 22
*6.6.2 Data User Post-workshop Additions:* ..... 22
*6.6.3 Online Survey Responses:* ..... 22
*6.7* Question 7: *How frequently do you think the data needs to be refreshed to remain valuable?* ..... 24
*6.7.1 Data Users at Event:* ..... 24
*6.7.2 Data Users Post-Workshop Additions:* ..... 24
*6.7.3 Online Survey Responses:* ..... 24
7 Appendix 1: Attendees ..... 26
8 Appendix 2: Summary of Recent Support Queries to NCR ..... 27
9 Appendix 3: Pictures and images ..... 30

# 1 Introduction to National Chargepoint Registry (NCR)

The National Chargepoint Registry (NCR) was established by the UK Government in 2011 to provide a database of publicly accessible chargepoints across the UK. The aim of the NCR is to provide freely accessible reliable data that can be used to help electric vehicle users find and use electric vehicle chargepoints in support of the Government's objective to promote the use and sales of Ultra Low Emission vehicles (ULEVs) in the UK.

The NCR database has recently been taken over by Cenex, in partnership with Apetrel Systems. See http://www.cenex.co.uk/

# 2 Purpose of the NCR Consultation Event

The recently published Alternative Fuels Infrastructure Regulations 2017 and the Automated and Electric Vehicle Bill both seek to improve the quality of data available to the public to encourage increased use of ultra-low emission vehicles.

The NCR Stakeholder consultation event was requested by OLEV, and delivered in partnership with Cenex and Apetrel Systems, to gather input from significant stakeholders as to their needs and expectations for the direction of development of the NCR.

# 3 Event Format

The Consultation event was supported by OLEV, and delivered in partnership with Cenex and Apetrel Systems, as a morning session for ***data providers*** who are typically network operators, and an afternoon session for ***data users***, e.g. researchers, car manufacturers and commercial web or mobile app providers. There was a networking lunch for all attendees.

Invitations were sent using the NCR website, Twitter, and mailing lists.

The morning session (10.30am-12.30pm) was targeted at ***data providers***, and looked at the mechanisms required to gather data from external sources such as back offices and third-party databases, and considered the data that could be made available to the NCR.

The afternoon session (1.30pm-3.30pm) was targeted at ***data users*** (particularly developers using the data in their applications and products), and considered data retrieval mechanisms and the formats in which the data should be delivered, in addition to the content that would be most desirable.

The workshops overlapped over lunch to provide a networking opportunity between the two stakeholder groups. The list of attendees is available in ***Appendix 1***.
The agenda for both sessions was as follows:

### *3.1.1 Introduction*

*Presenter: Adrian Vinsome, Head of Energy Systems, Cenex*

### *3.1.2 Background to the National Chargepoint Registry*

*Presenters: Bob Moran and Rosalind Marshall, OLEV*

Here a representative from OLEV - Bob Moran (Deputy Director) explained the background and purpose of the National Chargepoint Registry, and gave an update on the current status of policy related to the NCR. The OLEV aspirations for the workshop were also explained.

### 3.1.3 Technical Context of the NCR

*Presenters: Andrew Davies/Paul Pepper, Apetrel*

Here Apetrel provided a system description, and gave a detailed overview of the existing data format and data quality available in the NCR. They also discussed the web portal and private upload API facilities, and looked at the options for future development.

### 3.1.4 Workshop Discussion

*Lead: Cenex*

The delegates were split into smaller groups of around 6 people, and a series of key questions and discussion topics were presented for discussion. Tables were hosted by OLEV and Cenex/Apetrel personnel. Groups were asked to suggest answers and provide comments on the key research questions. Feedback was facilitated and shared to a screen using the Slido application.

### 3.1.5 Summary Session

*Chair: Adrian Vinsome*

Group spokespersons (not the hosts) presented a short summary and feedback on their group's discussions. The session chair then summed up with the key points and highlighted some of the possible next steps for the NCR.

### 3.1.6 Post-workshop

People registered for the event were able to submit post-workshop feedback through the Slido tool, and that feedback is also included in the detailed results below.

Subsequently an *open online consultation* was run using Survey Monkey. This was advertised using mailing lists and Twitter. This is logged below as **Online Survey Responses**. These comments are given less weight in the result summaries.

Finally, ***Appendix 2*** gives an analysis of support calls into NCR over recent months, and is included to allow a comparison for whether the views expressed in the consultation match experience of requests made by the two classes of users over a period of time.

# 4 Executive summary of results

The day was widely accepted to be well attended, even-handed and delivered with a positive and constructive ethos. The benefit of having a government mandated & funded repository of information on public charge points was very widely accepted. The need for it to be demonstrably accurate, complete and up-to-date was stressed.

The types of data which are potentially more commercial or even proprietary were under debate. Location, connector type, network, power and maintenance status were near universally acknowledged as proper for inclusion in the NCR. In-use status was widely seen as appropriate to NCR. Pricing and reservation status were rather less widely seen as appropriate to NCR but views did vary on this.

User needs identified that stand out are:

- Dynamic data on chargepoint status
- Demonstrably accurate, complete and up-to-date data
- Push API to a modern standard to allow data providers easily to update data into NCR. Using a well defined and accessible data model.
- Search and display tools to allow a variety of users, e.g. researchers, intelligently to query the data.

# 5 Questions posed: summary of responses

## 5.1 Data providers (morning session)

**Question 1:**
*How do you believe that the UK should meet its obligation to provide open and non-discriminatory access to chargepoint information for EV motorists?*

There was no questioning of the need or relevance of a government funded, national chargepoint registry as a consolidated source of data to commercial and retail users. The importance of the data being up to date and complete was highlighted, and the need for improvement in these areas flagged. Advantages recognised of having a national registry included having an element of compulsion for data to be submitted, based on grants received, and potentially further secondary legislation.

There was mention of the need for availability of dynamic data on chargepoint status.

**Question 2:**

*What would be the preferred architecture for a private upload API?*

Most popular technical suggestions for an upload API (push data into NCR) were the use of JSON and REST.

A single, standards-based API to push data into NCR had clear backing, with some discussion around the extent and detail of the data to be included, and how permission and authority over data would be managed.

**Question 3:**

*Would there be value in providing dynamic data such as availability and reservation?*

Group 1 summarized this well as: *[There is] consensus on the value of availability data, but there is debate about "reservations".*

"Availability" was discussed and included the following statuses: *in-service*, *undergoing maintenance, in use/not in use*.

**Question 4:**

*Do you think the NCR should provide a hand-off service to participants' back offices for payments and value-added services?*

Whilst delegates expressed the desire for an integrated way to pay for (or enable payment for) chargepoint use, and that this would be a desirable UK outcome, most (on the day) did not see this as a valid thing for government (through the NCR) to be directly involved in. This is summed up by the comment *"A distinction will need to be drawn on commercially sensitive/valuable information that is best kept with the CPO and that which is of benefit to the generic national picture"*

It should be noted that much of the discussion focussed on whether NCR should be "involved" in payments services, rather than "handing off" or providing a vector to the chargepoint operators service which was the intent of the question. There was little specific comment on "handing off" services. Post-workshop feedback was more mixed.

## 5.2 Data users (afternoon session)

**Question 1:**
*What are the key requirements of the data in the NCR to ensure it is useful to data users?*

Accurate, complete, up to date and audited data was the top requirement raised. Other specific requirements mentioned were:

- Interoperable data access interface
- Search facility
- Dynamic data e.g. state of charger, availability and current power availability, as well as connector type, power and location
- Cover all networks
- Pricing was mentioned
- Consistent counting and categorization of connectors.

**Question 2:**

*Is the existing interface adequate? Are there specific queries on the data that would be required?*

Comments include:

- Ability to select all records changed since a timestamp would reduce the need for pulling the full dataset
- Dynamic data wanted (presume this means operational state of charger)
- Analysis of users could inform provision of more complex searching
- Easier to use
- Request for an App to access data
- Create a National Chargepoint Data Exchange format

**Question 3:**

*Would there be value in providing dynamic data such as availability and reservation?*

The consensus was that availability data should be an important part of NCR; “Availability” was again taken to include *in-service*, *undergoing maintenance*, and *in use/not in use*, with some comments also referring to power availability.

The consensus on the day was the “reservation” was not an appropriate service for NCR, though a minority appeared to see benefit in NCR involvement. There was more support in the post-workshop comments for NCR involvement in “reservation”.

**Question 4:**

*How frequently do you think the data needs to be refreshed to remain valuable?*

Consensus was updates at 5 to 10 minute intervals. This seems to be assuming the presence of dynamic data.

Showing forthcoming chargers as “coming soon” was also suggested.

# 6 Questions posed: detail of responses

## 6.1 Question 1: *How do you believe that the UK should meet its obligation to provide open and non-discriminatory access to chargepoint information for EV motorists?*

### *6.1.1 Data Providers at Event*

Group 1 (Five members) responses:

- API provided to NCR is easiest way from operator perspective, with live availability provided within say 5 minutes (any more frequent could be challenging from data perspective)
- Question also depends on what NCR is ultimately trying to 'be' or do - what is vision for what NCR should provide?
- Availability (dynamic usage) can be provided, but access (e.g. bookings/reservations) may not be possible to do
- Difficult information to provide includes pricing and access, as these models vary greatly and will continue to do so (unless gov't legislates CPs into Weights & Measures Act or similar)
- Easy information to provide includes where the CPs are, what rating (power) they are, what network(s) they are on and who operates them etc.
- Information needs to be accessible to anyone and as up-to-date as possible to show recent charge points etc.
- Information definitely needs to be made available online

Group 2 (Five members) responses:

- What is the incentive to the network providers? And should we incentivise it?
- Dynamic chargepoint availability is crucial, but at what intervals should data be updated?

Group 3 (Five members) responses:

- Real time data required on all CPs, to make it relevant and usable to drivers of EVs.
- Local Authorities who provide locations and licenses, should be able to capture data on CP locations.
- DNO's who provide point of connection or power supply, should be able to capture data on CP locations.
- Need to educate current and future operators of CPs, of their obligations, with training and comms packages.
- NCR data should be live and available also from within the vehicles (i.e. POI)
- Need AFIR to mandate all existing charge points are loaded onto the database with the latest levels of agreed information, not just applicable to new cps.

Group 4 (Five members) responses:

- Pricing should be captured, where applicable (increasing over time, most likely).
- Ensure that (for publicly-funded CPs) that data upload *and ongoing updates* are mandated and enforced, especially once the move to ‘live’ is made.
- The data should be accurate and up-to-date (as near ‘live’ as possible) to ensure user trust in the data.

### 6.1.2 Data Provider Post-workshop additions:

- Ensure that all providers of charging infrastructure for use by the general public are required to publish data to the NCR.
- By having an accurate, reliable database managed and operated by OLEV as a public organization offering real time information.

### 6.1.3 Online Survey Responses:

Responses to Survey Monkey Question: *What do you think is the best way for the UK to meet its obligation to provide open and non-discriminatory access to chargepoint information for EV motorists and application developers?*

Data Providers (one responder)

- Use open standards for charging. Public charging needs to be fast to encourage fast adoption and convenience compared to conventional fuel reloading. Payment systems that are both subscription and pay as you go.

Data Users (12 responders)

- A publicly funded service
- Open source live feed information
- Single RFID card for all charge outlets
- Lamp posts
- Make data freely available to all.
- Via public sources such as NCR
- Have a government website.
- Have it so installers have to add points to the registry.
- Have a limited set of data publicly facing.
- Have the full set of data require a login for app developers, with an API key for their apps.
- To have a national database which accurately represents the charging options available to the public and their availability. All of this information should be freely usable by developers. This must be legally enforced as network providers have been slow to provide crucial information for drivers which would make the experience of driving an EV far easier.
- Grants for charge infrastructure only to compliant data sharing networks.
- A model like cashpoint Link where a body overseen by the industry collates data and oversees clearing of transactions.
- Users opt to join linked providers.
- Govt initially sponsor and then regulate, off-charge?
- To post automatically all new chargers to PlugShare App & Zap-Map as the two main Apps used by UK Drivers. It is on the latter but we really need it adding to PlugShare App
- Clear info, map and pinpoint info, integrated with zap map.
- It is good as it is now. But the database should be maintained better.

## 6.2 Question 2: *What would be the preferred architecture for a private upload API?*

### *6.2.1 Data Providers at Event*

Group 1 (Five members) responses:

- API in JSON format, but also depends on whether NCR only wants to be a database, or whether it ultimately wants to be a roaming platform
- JSON!

Group 2 responses:

- Is there an existing international standard to adhere to?
- Do we need to register the domestic charger data
- Will the data remain in data.gov.uk?
- NCR could expose Rest API similar to Companies House API
- JSON over REST or SOAP

Group 3 responses:

- In terms of user interaction, interoperability of data among different charging infrastructure is key. Could NCR be the connection point between different charging networks?
- Is it possible for CPs to report directly to NCR or at least via CPO backend, to update on all the metrics, up-time, power delivery, etc.
- Does NCR need to be a register of the true performance of the CPs, up time, power delivery, etc - how do we have an architecture that can cover all this, flexible and adaptable.
- If you have change of ownership of location of CPs, who is responsible to update the database the new operator or the old operators, needs to be ease and clearly defined.
- Open source
- Two way interaction, to allow drivers to upload data to the database, to feedback on issues, location, similar to features on ZAP-MAP, PLUGSHARE, etc
- Simple, easy to understand for non technical users.

Group 4 responses:

- Send a ‘status query’ endpoint along with CP details. That can be retrieved by end user (e.g. mapping) and it’s up to them to query the CP owner for live status etc.
- Should NCR be the central data source for live status, maintenance modes etc.?
- Full data push, or incremental updates? Varied opinions so far...
- Single data model, single push.
- How to manage authority to change?
- Fully RESTful: GET, POST, PUT, DELETE etc

### *6.2.1 Data Provider Post-workshop additions:*

- a RESTful POST API for providers to push changes to chargepoints (inserts / updates / deletions)
- See attached for the current architecture of our API. I will send it by separate message..

### 6.2.1 Online Survey Responses:

Responses to Survey Monkey Question: *What would be the preferred architecture for a private upload API to be used by data providers into the NCR database?*

Data Providers (one responder)

- Any standard-based architecture

Data Users (12 responders)

- Don't mind
- Holistic
- Upload to Google
- If I were building this, I'd use SIP
- Don’t know (8 responders)

## 6.3 Question 3: *Would there be value in providing dynamic data such as availability and reservation?*

### *6.3.1 Data Providers at Event*

Group 1 responses:

- Some points are actually those that you would not want reservations on...
- Reservation potentially more suited to standard charge points, rather than rapid chargers
- Playing Devil's Advocate, does the ability to reserve CPs imply that there aren't enough?
- Reservation already possible on Source London points and has proven popular and of value to customers
- Consensus on value of availability data, but debate about reservations...
- Can you reserve petrol pumps?
- Availability (relatively live - e.g. 5 mins) already provided by many providers

Group 2 responses:

- Availability should also include bay availability and not just chargepoint availability. Issue of being ICE'd
- For the benefit of the uptake of EVs - yes. But will it be necessary in 5/10 years time?

Group 3 responses:

- Not only availability and reservation should be as easy as possible, and easily available to users, but the identification/authorization/transaction should ideally be processed automatically (e.g. reg plate recognition, PLC communication upon connection, etc)
- Whilst just what the user needs, the operator, can see real time data on usage, etc, allowing them to manage power needs, growth plans etc. They can see get real time feedback from their users, they can assess satisfaction of users, etc. Do users turn up for reservations, are CPs blocked when users have reserved then? Possible to blacklist persistent no show users .....
- yes!

Group 4 responses:

- Improved (and trustworthy) availability is always helpful!
- Reservation creates a two-tier class system: those who can pay for a reservation and those who don't/can't.
- Reservations is fixing the wrong problem. More chargepoints fixed this one.
- Yes

### *6.3.1 Data Provider Post-workshop additions:*

- Availability - specifically out-of-service, undergoing maintenance, available, in use will help drivers locate. It would be useful if providers could publish a timestamp when the last known successful charge from the device was made.
- sure it is essential to have dynamic data on availability of charge points.
- Any standard

### 6.3.2 Data Users at Event:

Group 1 responses:

- Availability important for Local Authorities with publicly funded points
- Reservations not the use case for the NCR, server issues for live data
- Reserve charging by planning journey in the car? If there is enough infrastructure you should not need to
- Yes, want to know is that charge point available now

Group 2 responses:

- Yes as it helps the end user for informed choice.

Group 3 responses:

- Does the need to reserve spaces sound like the industry saying that the level infrastructure is insufficient
- Dynamic data on availability is mandatory, reservation is preferable for some. The value to the user differs depending on variables such as level of infrastructure and competition for spaces. The NCR must be careful to not overstep its duties and start to police inappropriate parking or unused reservations.

Group 4 responses:

- Question - what do we mean by dynamic data - cost of the power, network implication to power providers, driving higher cost or lower power / charge rates .....
- Question is how can you ensure the actual dynamic data is provided by the operators.
- available should show working as well as free .....
- reservations will be useful with correct controls, so arrival time to allow early access, time after planned arrival booking cancelled for no show drivers.
- more so for showing availability, as this is key.

Group 5 responses:

- Availability: In use | Availability | Faulty
- Reservations more suited to EV hubs, than, say, Sainsbury's charger?
- "Selling the benefits" of wider, deeper, data amongst CPOs
- NCR has a job here in *encouraging* data sharing amongst CPOs to end users: a catalyst for better data.
- Yes, for availability. The case for "reservation" is yet to be proven!

### 6.3.3 Data User Post-workshop Additions:

- Yes. Reservation may prove technically challenging from an authentication perspective to avoid it being abused. (e.g. no-show penalties or a financial deposit to reserve a charge point; else a competitor's business might block book all of their chargepoints).
- Yes, this is essential for users, availability, reservation is added value feature for a better Customer experience.

### 6.3.4 Online Survey Responses:

Responses to Survey Monkey Question: *Would there be value in providing dynamic data into the NCR database, such as availability and reservation of chargepoints?*

Data Providers (one responder)

- Dynamic data would be extremely valuable. EVs require a certain amount of planning that make this data essential

Data Users (12 responders)

- Availability yes. Reservation no.
- Yes (7)
- Yes - ability to reserve as well
- Absolutely. Static information is of no use. Drivers (and developers) must know whether they will be able to receive a charge when they arrive at a charge point. Without dynamic data, the information could still result in drivers being stranded.
- Absolutely demand serviceability and availability data. Reservation would be a service provider mechanism for providers to differentiate their services.
- perhaps in a different system. for the EVs themselves

### *6.4 Question 4: Do you think the NCR should provide a hand-off service to participants' back offices for payments and value-added services?*

#### *6.4.1 Data Providers at Event:*

Group 1 responses:

- Again, depends on what NCR is ultimately trying to 'be' or 'do - does NCR (or government) ultimately want control of all of UK's public charging points?
- As Dr. Ian Malcolm famously said in Jurassic Park: "they were so preoccupied with whether or not they could, they didn't stop to think if they should"
- Danger of trying to commoditise EV charging in the same way as petrol or diesel. Very difficult to port A.N.Other business model onto charging, as it is a variable proposition
- Payments don't just go to the CPO, but also in some cases to a site host or other third party. How would NCR reconcile all of these?
- If charging infrastructure becomes critical infrastructure, there is surely an inherent security issue of one platform having backdoor access to the entire national critical infrastructure

Group 2 responses:

- Will they be free?
- We would see NCR as more of a data regulator rather than the intermediary. We would like NCR to provide a rich data so that users can make an informed choice.
- will it become the single portal for payments? Would it affect competition and innovation?

Group 3 responses:

- As long as there is the possibility to the user to access one single portal/app/service and from there access all charging infrastructures (complete interoperability), it does not need to be the NCR.
- Yes, as long as it was seamless and value added, no extra cost to the EV driver for the service provided. Do not need another person having their cut and passing the cost on to the EV driver.

Group 4 responses:

- This is hardly needed? It (the NCR) is not a public-facing product! It's for back-office provision of data to third-party providers.
- There does seem to be an appetite for a common, well-built, and *resilient* central place for this.
- A distinction will need to be drawn on commercially sensitive/valuable information that is best kept with the CPO and that which is of benefit to the generic national picture.

### 6.4.2 Data Provider Post-workshop additions:

- If providers wish to make available a standard one-off method of payment, then a link to the providers payment systems would be helpful; but the NCR is not an authentication or payment clearing house for charging sessions, though such a system would be a sensible requirement to aid in charging networks meeting the non-discriminatory aspects of the AFID - to allow drivers who hold billing accounts with one network to be able to use chargepoints operated by a different operator; which means that drivers wouldn't need to maintain multiple billing accounts, multiple prepayment accounts, multiple mobile phone applications, or carry multiple RFID cards.
- potentially yes

### 6.4.3 Online Survey Responses:

Responses to Survey Monkey Question: *Do you think the NCR should provide a hand-off service e.g a link, to chargepoint providers' back offices for payments and value-added services?*

Data Providers (one responder)

- Yes

Data Users (12 responders)

- Sounds a good idea…
- Yes (4)
- Yes, to all.
- Yes, simpler for the user the better.
- No
- Yes! This way we can build a single UK government chargepoint app.
- Not necessarily the role of NCR. However, roaming agreements must be made available to drivers of different networks. It shouldn't be necessary to have multiple apps/RFIDs. The Europeans seem able to organise such services and I'm unclear why we can't do the same.
- Yes, makes sense
- Don't know
- NCR via link membership would demand each provider to allow others to post transactions. This could be via one or more aggregators, but not NCR.

## 6.5 Question 5: *What are the key requirements of the data in the NCR to ensure it is useful to data users?*

### *6.5.1 Data Users at Event:*

Group 1 responses:

- A common data set. It's public. It's accessible anonymously.
- Consistency & interoperability
- Token of data user, kept private, to verify that user for "premium" access, i.e. not rate limited for data access/download?
- Easily accessible, possibly visual, depending on the "consumer" requirements
- check data provision is reliable/valid
- Get a better handle on the users of the system to get an image of who is consuming the data (and why?)
- Auditable data? Data providers able to check what's in the registry works with and is valid in their systems
- (Up to date data, valuable to users

Group 2 responses:

- Extended data items such as Bay availability should be made available
- Dynamic data availability such as current state of the charger, how much energy is being delivered etc.
- Pricing data should be made available

Group 3 responses:

- To stay relevant, the NCR must firstly catch up with the network, then manage to stay ahead of it with accuracy
- Accurate power output for the chargepoint - not just the maximum output.
- Complete and correct data sets

Group 4 responses:

- data format on download or access database to be at connector level / unique ID level, not at a chargepoint grouping level
- needs to be dynamic quality data, including pricing policy and power available, up time data.
- Data has to be searchable and readily available for all to access and search using various formats and search engines.
- easily accessible to all who need it. Needs to cover all networks and charge points in public accessible areas.
- accurate, up to date, real time , live data.

Group 5 responses:

- Location (incl. access restrictions), availability, type of connector, rating, pricing, number of connectors.
- Types of user: mapping providers, route-planning, sat-nav, Apps, vehicle manufacturers, town planners, national grid, DNO, energy retailers
- Trustworthy source

### *6.5.2 Data User Post-workshop Additions:*

- Accuracy of the data. Never direct a driver to chargepoints that are known to be out of commission, not yet commissioned, or decommissioned. Standard tariffs in a human readable form for ad-hoc charging sessions would be useful; though that doesn't imply that networks aren't able to

offer bulk discounts for regular users wishing to pay membership fees. Petrol filling stations have pricing information displayed on massive signs; it's currently very rare for EV charging stations to even display the costs before dispensing a charge, and the prices vary by orders of magnitude between operators, and between individual sites.

- technical aspect - I can put you in touch with Brieuc
- Key data: Connector, power, location, status

### *6.5.3 Online Survey Responses:*

Responses to Survey Monkey Question: *What is the key data that the NCR need to make available to ensure it is useful to data users?*

Data Providers (one responder)

- Usage data. Analysis of potential problems.

Data Users (12 responders)

- Connector, power, location, status
- Availability and price
- Don't know
- Location, speed, availability
- Location, charger speed, network, cost, availability
- Location, operator, price.
- Street address, connectors, connector speeds, real time use data, costs, accessibility and access
- Accurate... location data, connector types, status, network provider.
- Location, connections, method of authorisation, serviceability and near live status.
- Address, charger network, cost to use, availability
- Charger type, power, cost to use, number of points, availability, whether in use, average time spent per charge.
- rated power of each charger connector

## 6.6 Question 6: *Is the existing interface adequate? Are there specific queries on the data that would be required?*

### *6.6.1 Data Users at Event:*

Group 1 responses:

- Ability to select all records changed since a timestamp would reduce the need for pulling the full dataset to maintain a replicate database, important for scalability.

Group 2 responses:

- OEMs / SAT NAV providers should be able to use the NCR data. Timely updates, push - pull technology etc
- Not really, dynamic data would definitely aid the providers and consumers

Group 3 responses:

- Who is the user? The OLEV is required to share data to all types of "user" such as local authorities and media. The interface is adequate for an individual EV user who requires basic information but is it sufficient for the anomalies who are searching for something more specific and in depth. I all comes to who's asking for the data and for what purpose

Group 4 responses:

- Question - how would we make NCR the one source of the truth and make it reliable for all EV users to use, rather than researchers, etc ..... need a more sophisticated APP.
- not adequate, not easy for public to access and use ..... not dynamic or real time ..... need to access via an APP, not really usable for an EV driver on the move.

Group 5 responses:

- NCR could/should create a National Chargepoint Data Exchange format.
- Not adequate: server to server is the goal.

### *6.6.2 Data User Post-workshop Additions:*

- The ability to download only those records changed after a certain timestamp would mean that replication of data to downstream systems would be a lot easier to track.
- Our technical person could answer

### *6.6.3 Online Survey Responses:*

Responses to Survey Monkey Question: *Is the existing interface for getting into the NCR database adequate? Are there specific queries on the data that would be required?*

Data Providers (one responder)

- Yes

Data Users (12 responders)

- Yes, geographic search. And search for connector type and power, within an area…
- No (2)

- Don't Know (4)
- Yes
- Outwith my expertise.
- N/A
- It is not a day to know how to gain access. I suggested to the PlugShare programmers to contact NCR to get UK data added to their worldwide database but don’t think was clear how to go about this
- It could always be made simpler.

## 6.7 Question 7: *How frequently do you think the data needs to be refreshed to remain valuable?*

### 6.7.1 *Data Users at Event:*

Group 1 responses:

- 5 or 10 minutes if polled from charging network backend, Realtime push on start of charge / end of charge event could be possible. For faulted status/maintenance, these are less likely to change rapidly. Decision for charging network.

Group 2 responses:

- Frequency depends on the who the user is, say for example an EV user / App developer require 5 minutely update, and for example a National Grid like user may require more frequent updates may be minutely
- every minute

Group 3 responses:

- Real-time data updates seems like overkill. Will the user be watching the real-time status of the chargepoint whilst driving there?
- Every 5 minutes?

Group 4 responses:

- How do we add or show future developments ..... chargers coming near you soon
- Real time data .....

Group 5 responses:

- Showing forthcoming chargers encourages EV adoption (“Coming soon, near you”!)
- For a live API there is no ‘refresh’ — it’s as up-to-date as a CPO keeps it up-to-date.

### 6.7.2 *Data Users Post-Workshop Additions:*

- Ideally, data pushed at the start and end of sessions - or any other update to availability from the provider's network back office. If they need to use polled data, then changes polled every 10 minutes would be sufficient, though polling is probably far less scalable than pushing updates as the number of public chargepoints is expected to grow substantially. Data providers without networked charging points (often on behalf of hotels / hospitality trade / tourist attractions who offer the service as a courtesy to their customers) will not easily be able to give real-time availability, so best efforts would suffice.
- Max 10 Minutes

### 6.7.3 *Online Survey Responses:*

Responses to Survey Monkey Question: *How frequently do you think the NCR data needs to be refreshed to remain valuable to data users?*

Data Providers (one responder)

- Live data is the best

Data Users (12 responders)

- Static data, weekly… Status or availability - every 15 minutes
- 5 minutes
- Hourly
- Real time
- If dynamic, hourly. If not dynamic, weekly.
- Monthly
- 4 days for general data, 30 minutes for usage data
- New points - daily? Status - every half hour?
- Users will expect per second status updates, but per minute would be valuable.
- Weekly or twice monthly at least
- Daily, but up to minutes as useful to know if the chargers are currently in use and/working
- Weekly

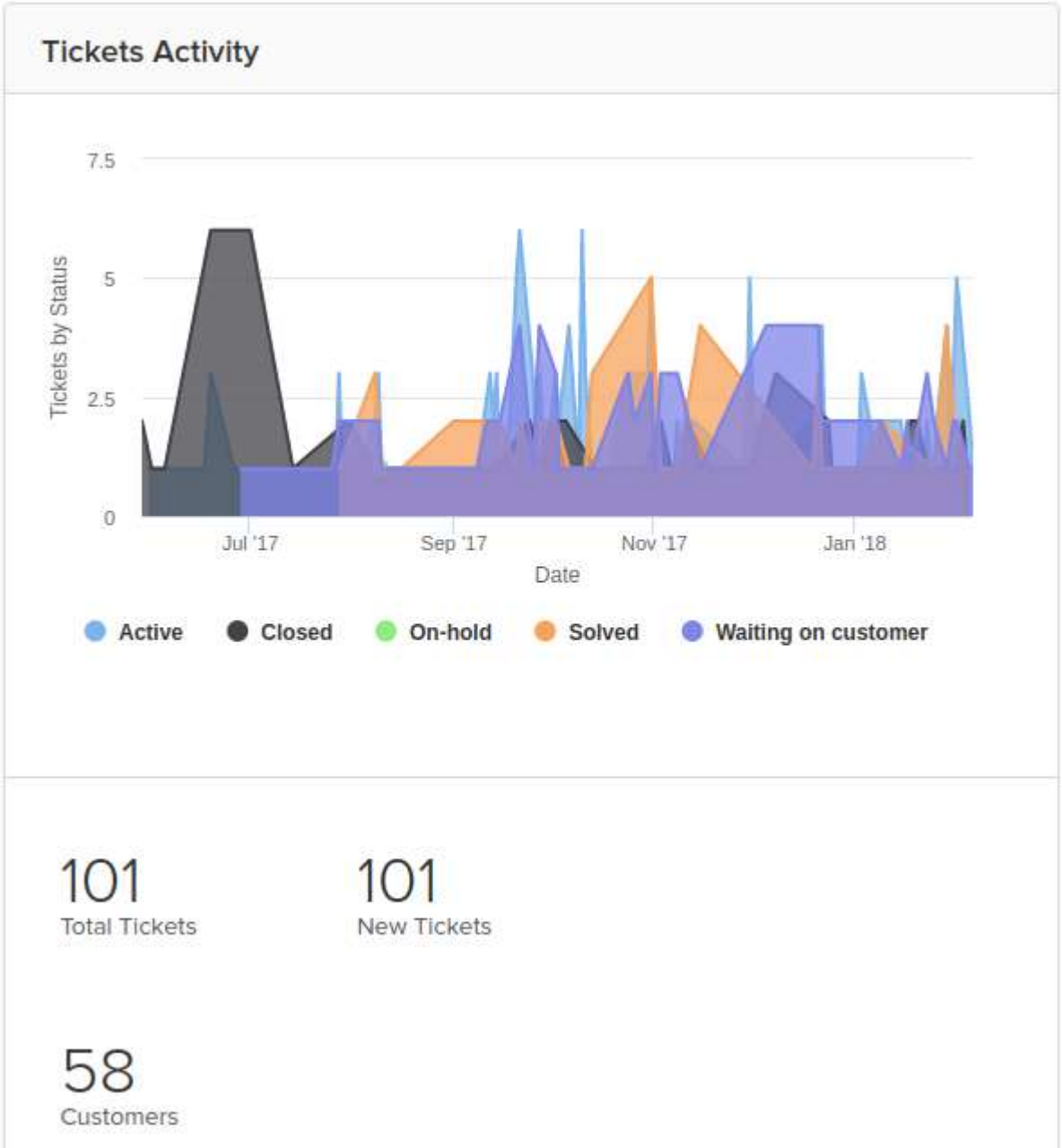
# 7 Appendix 1: Attendees

Removed from published version.

# 8 Appendix 2: Summary of Recent Support Queries to NCR

The NCR accepts support queries via email, telephone and post. Cenex and Apetrel have put in place an online help desk system to allow tracking and response allocation to all incoming support queries. The following graphic provides a visual overview of queries handled during the period June 2017 until end January 2018 (the latest available data at time of writing).

*Summary of handling of NCR helpdesk tickets (June 2017 - end January 2018)*

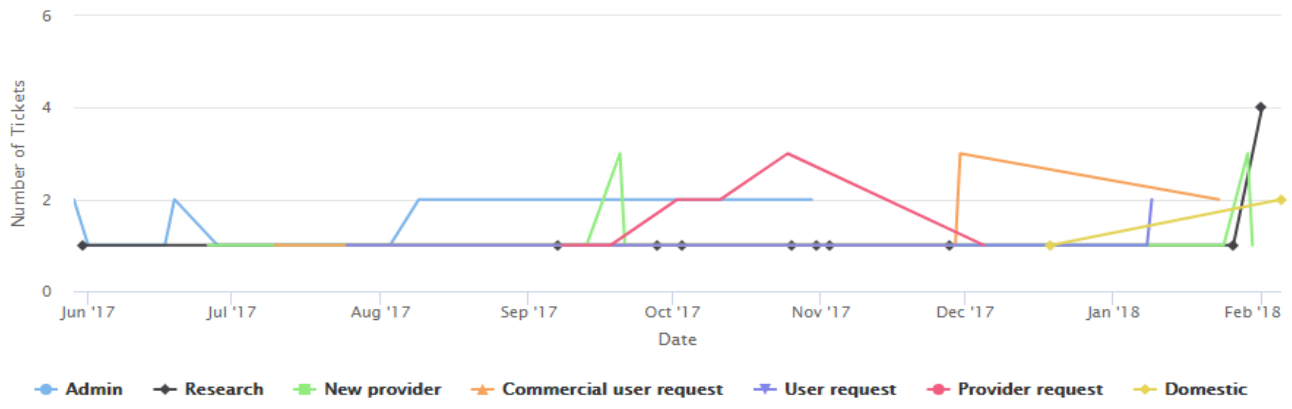



*Summary of categorization of NCR helpdesk tickets*

## Popular Tags

| | |
|---|---|
| New provider 21 | 24% |
| Admin 16 | 18% |
| Research 14 | 16% |
| Provider request 13 | 15% |
| Commercial user request 11 | 13% |
| User request 9 | 10% |
| Domestic 3 | 3% |

## Tags Timeseries



**Notes**.

1. Some examples of Commercial user requests are:
   *Request for API using OCPI*
   *Request for live updates*
   *Request for a data tag for free chargepoints*
2. Some examples of user calls are:
   *Request for live info on Out of Service*
   *Request for pricing info*
3. Some examples of provider requests are:
   *Request for registration of vehicle to grid*
   *Request for support of live updates*
   *Request for API (OCPI suggested)*
4. Some examples of research requests are:
   *Geographic specific requests (most common)*
   *Power ratings available by country or area (next most common)*
   *Level of usage of chargepoints*
   *Data on Tesla chargepoints*
5. Spam and nuisance calls have been discarded.

# 9 Appendix 3: Pictures and images

*Image 1: example of Slido screen*

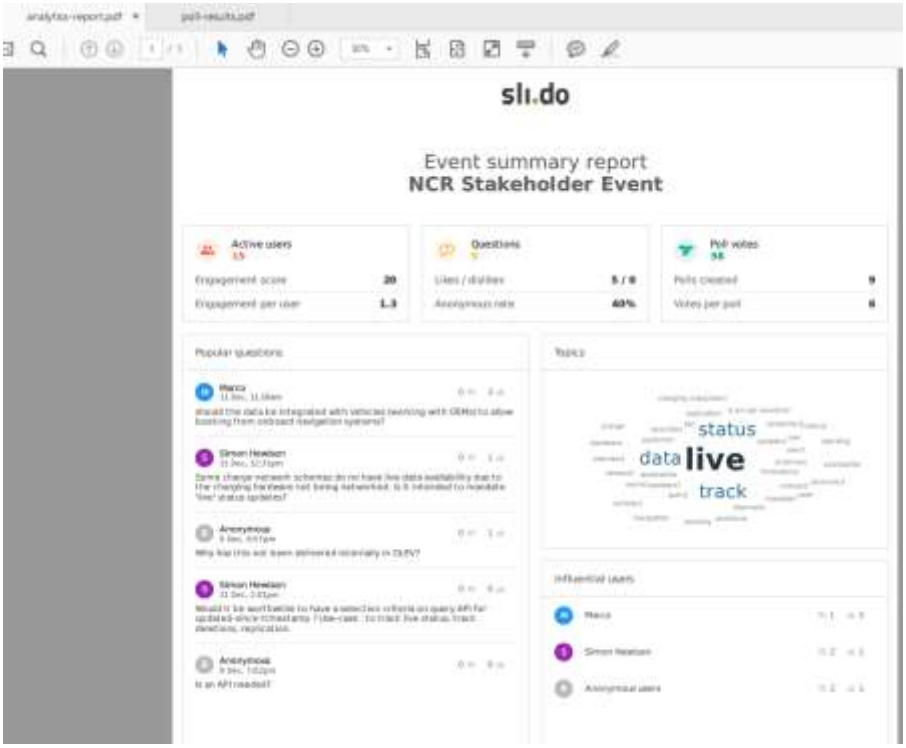



*Image 2: consultation under way*

Independent, not-for-profit, low carbon vehicle technology experts

Research

Programme Development

Consultancy


Low Carbon Vehicle Event

Cenex
Advanced Technology Innovation Centre
Oakwood Drive
Loughborough
Leicestershire
LE11 3QF

**Tel:** 01509 635 750
**Fax:** 01509 635 751
**Email:** info@cenex.co.uk
**Website:** www.cenex.co.uk
**Twitter:** @CenexLCFC