JOLT Charge Pty Limited

Metro Advertising Revenue Funded Electric Vehicle Charging Trial

LESSONS LEARNT REPORT

Project Details

Recipient Name and website	JOLT Charge www.jolt.com.au
Primary Contact Name	Doug McNamee
Contact Email	info@joltcharge.com
Reporting Period	1/06/2021 – 17/01/2022
Date of Submission	17/01/2022

This Project received funding from ARENA as part of ARENAs Advancing Renewables Program.

EXECUTIVE SUMMARY

The key findings relate to the optimisation of the deployment to navigate the complexities of grid connections, high voltage cabling and existing underground infrastructure. These are core issues which will face the deployment of any EV network given the proximity of chargers to metropolitan areas. In addition, several key learnings have been identified around customer experience such as ensuring bay markings to maximise bays for EV charging and adequate cable length to charge a variety of car models / types.

KEY LEARNINGS

Lesson learnt No.1: Early Engagement with DNSP

Category: Regulatory

Objective: To secure connections with the DNSP in a timely manner

Detail: For each site deployed within the JOLT Charge network, it is usually necessary to draw power from the adjacent public source. In Adelaide, this power is typically drawn from the nearest Stobie Pole or Electrical Service Pit/Pillar, controlled by SA Power Networks (SAPN).

The first step in the connection process is nominating potential locations for installation as part of a formal request process with SA Power Networks. Each location is then scoped for suitability by SAPN, and a connection process is communicated to JOLT Charge. This process can often be lengthy (approximately 3 months), with subsequent bookings for connection taking an additional 3 months, depending on the complexity of the work required. In many instances, the network infrastructure needed to be augmented or upgraded to allow for our supply, which may involve road-crossings, planned outages and the installation of new pits.

As access to electricity is required prior to any installations taking place, JOLT Charge found this to be a limitation of the installation program as unforeseen delays to connections delayed the installation of the charging units.

Conclusion: For following rounds of installations, early engagement with SA Power Networks will allow JOLT Charge to identify these timeframes and work towards them accordingly.

Lesson learnt No.2: Desktop In-ground Service Investigation Not Accurate

Category: Logistical

Objective: To ensure any civil works do not impact underground infrastructure

Detail: Each installation of a charging unit involves excavation to facilitate the underground conduits which house the electrical supply to the unit from the public power source, via the Main Switchboard. Additionally, a footing of approximately 1300mm depth is required to support the charging unit.

Prior to installation, a desktop analysis is required to determine the existing inground services, such as electricity, stormwater, gas and irrigation systems. This is typically conducted with the use of desktop surveying services such as Dial Before You Dig, in combination with available information from Council or the relevant utilities. Unfortunately, the accuracy of this information is only as good as what has been uploaded into the desktop platform, which can result in inaccurate and incomplete information being relied upon. In a number of instances, major

public inground services such as gas and stormwater were not identified on the desktop analysis, creating delays on site when installation was underway.

Conclusion: A way to mitigate this inaccurate information was the use of a high-pressure hose/vacuum sucker truck to physically investigate the inground services on site prior to installation. This allowed our civil contractors to determine each inground service without causing damage to any unmapped inground utilities. The high-pressure hose also was able to dig the trenches at the same time, which allowed scheduled work to continue uninterrupted. Although this method was more expensive than conventional excavation, JOLT Charge was able to install all 21 charging units and associated conduits without causing damage to any inground services, which would have resulted in expensive remediation work. This is an excavation method which JOLT Charge will replicate across the network where available.

Lesson learnt No.3: Avoid deploying in areas with underground high voltage

Category: Logistical

Objective: To minimise impact of high voltage cabling on the roll-out

Detail: The high voltage inground cabling can create layers of regulation and complexities in deployment beyond the normal procedures due to the dangers involved with excavating around this type of infrastructure. In Adelaide, the median of Port Road features a high volume of underground high voltage cabling, which required extensive investigations and safety measures during the installation process, with the help of Electranet. Whilst this excavation went smoothly, additional cost and time was spent at each of the affected locations to ensure that these sites were excavated safely.

Conclusion: An assessment should be made going forward as to the proximity of the charger to the high voltage power, where applicable, and a determination be made to either move the charger to avoid this infrastructure or engage earlier with Electranet to avoid delays to the installation of the charger.

Lesson learnt No.4: Bay Markings are key to avoid ICEing

Category: Commercial

Objective: To maximise use of carpark for EV charging

Detail: During the early stages of the project, it was not uncommon for non-electric vehicles to park in the EV charging bay, blocking users of the station (this is commonly known in the

industry as ICEing). This is not unique to the JOLT Charge network, but a problem across the world as road users become used to this new type of vehicle and infrastructure.

Whilst Council signage has been installed, which displays a sign that says "*Electric Vehicle Parking Only Whilst Charging"*, it is the painting of the car parking bay with branded EV Charging Bay markings that caused a rapid decline in ICEing across the network. This highly visible green and white bay marking, which features the JOLT Charge logo as well as the lettering "ELECTRIC VEHICLE CHARGING ONLY", is very obvious to drivers and is an important deterrent for misuse.

Conclusion: The earlier that JOLT Charge can brand the bays post-installation, the less ICEing has occurred and greater use of the bays for EV charging.

Lesson learnt No.5: Longer cable lengths to deliver a better customer experience

Category: Customer

Objective: To ensure equal accessibility of EV charging to all car models / types

Detail: Electric Vehicle models often have varying placement of the charging port on each vehicle type. The Tesla Model 3 features a charge port on the back right of the vehicle, whereas the Audi E-Tron places their charge port on the front right. The Mini Cooper EV chargers from the back right, whereas the Hyundai Kona Electric chargers from the front centre of the vehicle. As a result, it is essential that the cables for each charging station are long enough to ensure all vehicle types can be reached by the charging cable. For the first round of installations, the charging cable provided by the OEM were too short to reach many of the configurations of vehicle ports.

Conclusion: JOLT Charge subsequently released an upgrade from 4 metre cables to 7 metre cables to ensure all customers could charge easily and safely. In addition, we needed to provide enough slack via our internal spirator to ensure that the charging cable could be deployed and retracted safely, so when the cable was not in use it does not drag on the ground causing a tripping hazard. This was received well from customers across the network.