



JOLT Charge Pty Limited

Metro Advertising Revenue Funded Electric Vehicle Charging Trial

LESSONS LEARNT REPORT – Final July 2023

Project Details

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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 Charge Port locations, Parking Bay markings, Wheel stops and Remote monitoring.

KEY LEARNINGS

Lesson learnt No.1: Customer experience – Information volume and consistency

Objective: Improve customer service

Detail: From a customer service perspective, the more information that JOLT can provide to the customer around support, charging instructions or troubleshooting times, significantly reduces the touch points with JOLT support. Communication consistency enables JOLT to provide updates, notifications, and important information related to charging services, such as maintenance schedules, service disruptions, or new features. JOLT has taken the following steps to enhance the customer service experience:

- We've set up set up a support page with 25 commonly asked questions and step by step how to videos
- Implemented a 24/7 customer support line for real time support
- The new app links back to the support page whenever there is a failed session and also provides in app instructions on how to fix it. Below is a link to the app and snapshots of the support function: <https://apps.apple.com/au/app/jolt-electric-vehicle-charging/id1536466079>

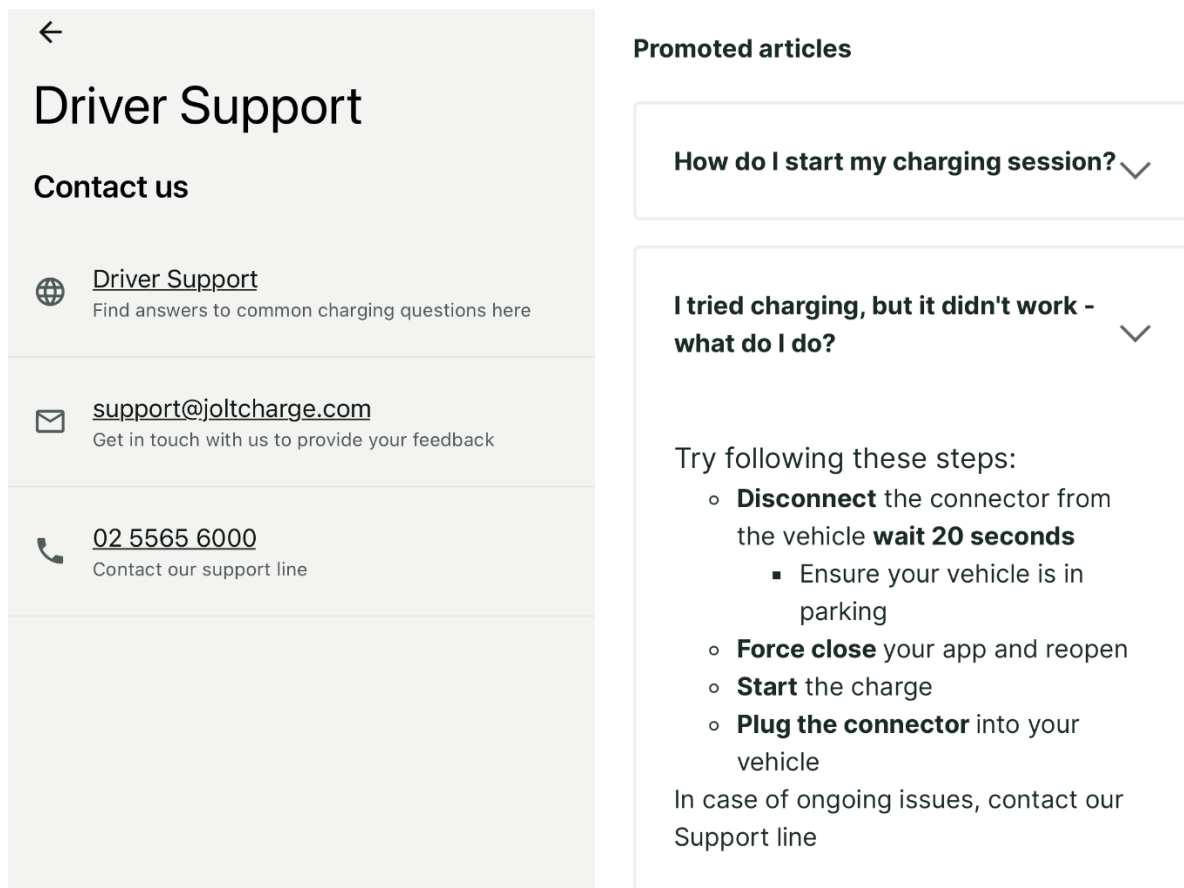


Diagram 1 – Jolt Customer interface

Conclusion: Customer information helps facilitate customer support and enhances the overall user experience.

Lesson learnt No.2: Parking Bay Markings

Objective: To ensure safety and accessibility at charging site infrastructure

Detail: A crucial learning from our early Adelaide network is the importance of clear and well-defined bay markings indicating EV charging only usage for the bay. Bay markings are important for electric vehicle charging for several reasons:

1. **Organization and Efficiency:** Bay markings help designate specific parking spaces for EV charging, ensuring order and efficiency in the charging area. Clear markings and signage make it easier for EV drivers to identify and access the designated spots, reducing confusion and congestion.
2. **Accessibility:** Bay markings ensure that charging spots are accessible and available for EV owners who need to charge their vehicles. By clearly delineating the spaces, it prevents



non-EV vehicles from occupying these spots, which could result in charging stations being inaccessible when needed.

3. **Safety:** Well-defined Bay markings contribute to safety by providing clear separation between charging stations and non-charging areas. This helps prevent accidental collisions or damage to charging equipment.

4. **Compliance and Enforcement:** Bay markings assist in enforcing parking regulations specific to EV charging spaces. With proper markings, it becomes easier for parking enforcement personnel or security staff to identify vehicles that are improperly parked in these spaces and take appropriate action.

5. **Maximizing Space Utilization:** Properly marked bays allow for efficient use of the available charging infrastructure. It helps to optimize the placement and arrangement of charging stations, ensuring that the charging spots are utilized to their full potential.

6. **User Experience:** Clear and visible bay markings contribute to a positive user experience for EV drivers. When charging spots are well-marked and organized, it enhances the overall convenience and satisfaction of EV owners, making it easier for them to locate and utilize the charging stations.

Conclusion: Bay markings play a crucial role in organizing, securing, and optimizing the use of EV charging stations. They ensure accessibility, safety, compliance, and a positive user experience for EV owners, contributing to the smooth operation of electric vehicle charging infrastructure. An example of one of the bay markings is shown below for reference. The high visibility colour scheme is a key deterrent to ICE vehicles using the bays.



Diagram 2 – Jolt Parking Bay markings

Lesson learnt No.3: Charge Port locations

Objective: To enhance the design and layout of sites commensurate with EV's design

Detail: The most common charger port location on electric vehicles (EVs) is on the front or rear of the vehicle, typically on one of the sides. This placement allows for convenient access and easy connection to charging stations or home charging equipment. The exact location can vary depending on the vehicle manufacturer and model. Here are a few common charger port locations on EVs:

1. Front fender: Some EVs have the charger port located on the front fender, either on the driver's side or the passenger's side. This placement allows for easy access when parking nose-in or in tight spaces.
2. Rear fender: Many EVs have the charger port on the rear fender, again on either the driver's side or passenger's side. This location allows for convenient access when parking rear-end first or when using a charging station with rear-mounted charging cables.

3. Rear hatch area: Certain EVs, particularly hatchbacks or SUVs, may have the charger port located in the rear hatch area. This placement provides easy access when opening the rear hatch for charging.

4. Rear bumper: Some EVs have the charger port integrated into the rear bumper. In this case, a small panel or door usually conceals the port, which can be opened for charging.

Conclusion: It's important to note that while these various locations are common, they are not universal, and some EV models may have unique charger port placements. It's always best to consult the vehicle's manual or reach out to the manufacturer for specific information on the charger port location of a particular EV model as shown below some ports are near the front of the vehicle and others on the side towards the rear of the vehicle.

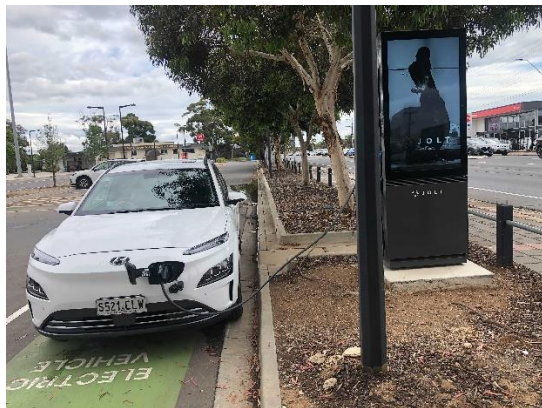


Diagram 3 – Jolt Charge Port locations

Lesson learnt No.4: Wheel stops

Objective: To maximise the safe use of carparks for EV charging

Detail: From monitoring the performance and any damage to JOLT's assets in Adelaide over the last 2 years, the installation wheel stops, also known as parking stops or wheel chocks, are important for electric vehicle chargers for several reasons:

1. Safety: Wheel stops help ensure the safety of both the electric vehicle (EV) and the charging infrastructure. They prevent vehicles from rolling forward or backward during the charging process, especially when the vehicle is left unattended. This reduces the risk of accidents or damage to the charging equipment.

2. Proper Alignment: Wheel stops provide a fixed reference point for drivers to align their vehicles correctly with the charging station. This is particularly important for EVs that rely on precise alignment for successful charging. Improper alignment can lead to difficulties in

establishing a secure connection between the charger and the vehicle, potentially causing charging disruptions or failures.

3. Cable Protection: Wheel stops can help protect the charging cables from being run over or damaged by vehicles passing by. By positioning the wheel stops strategically, the cables can be kept away from high-traffic areas, minimizing the risk of accidental cable damage.

4. Orderly Parking: Wheel stops can be used to designate dedicated parking spaces for electric vehicles. By clearly marking the parking spots, it encourages drivers to park their vehicles in an orderly manner, optimizing the available charging infrastructure and ensuring fair access to charging stations.

5. Accessibility Compliance: Wheel stops can assist in ensuring compliance with accessibility regulations. By providing designated EV parking spots with properly positioned wheel stops, it helps prevent vehicles from encroaching into accessible paths or blocking ramps, making it easier for individuals with disabilities to access the charging stations.

Overall, wheel stops play a crucial role in promoting safety, efficient charging, cable protection, and orderly parking at electric vehicle charging stations.

Conclusion: Overall, wheel stops play a crucial role in promoting safety, efficient charging, cable protection, and orderly parking at electric vehicle charging stations. As the photo below shows the wheel stop is an important feature for those reverse parking to charge where the port is located towards the rear of the vehicle.

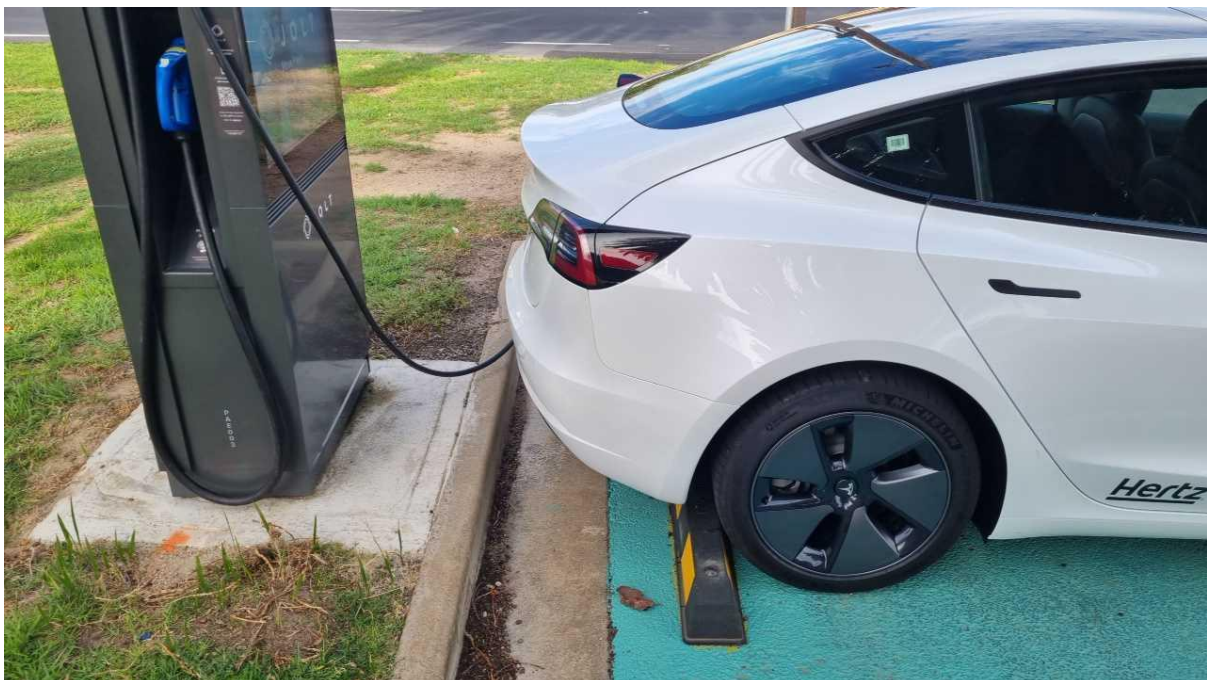




Diagram 4 – Jolt Parking Bay wheel stops

Lesson learnt No.5: Remote monitoring

Objective: To ensure timely response to issues and track energy loads

Detail: JOLT's Adelaide charging network has evolved to include a range of remote monitoring protocols to streamline maintenance and performance. This has been crucial to ensure the network is operating smoothly and efficiently. Remote monitoring of EV chargers is important for several reasons:

1. **Operational Efficiency:** Remote monitoring allows charging service providers to track the performance and status of EV chargers in real-time. It provides visibility into key metrics such as charging session data, energy consumption, and charger availability. By monitoring chargers remotely, service providers can identify and address issues promptly, reducing downtime and ensuring optimal operational efficiency of the charging infrastructure.
2. **Maintenance and Diagnostics:** Remote monitoring enables proactive maintenance and diagnostics of EV chargers. Service providers can receive automated alerts or notifications when a charger experiences a fault, outage, or performance issue. This allows for timely troubleshooting and dispatching of maintenance personnel to resolve the problem. Remote diagnostics can help identify the root cause of issues, reducing the need for on-site inspections and minimizing service disruptions.



3. **Service Quality and Customer Support:** With remote monitoring, charging service providers can offer better customer support. They can remotely assess and address customer concerns related to charging sessions, billing, or technical issues. Real-time monitoring helps ensure the charging infrastructure operates reliably, improving the overall service quality and customer satisfaction.

4. **Load Management and Optimization:** Remote monitoring provides valuable insights into charging patterns and usage data. Service providers can analyze this data to optimize the charging infrastructure, plan for future expansion, and manage load distribution. By understanding peak usage times and demand patterns, they can allocate resources efficiently, prevent overloads, and balance the charging load across multiple chargers or locations.

5. **Energy Management and Sustainability:** Remote monitoring facilitates energy management and sustainability efforts. By monitoring energy consumption and usage patterns, charging service providers can identify opportunities for energy optimization and efficiency. They can implement smart charging strategies, demand-response programs, or load balancing techniques to reduce peak demand, lower energy costs, and integrate renewable energy sources into the charging network.

6. **Security and Safety:** Remote monitoring enhances the security and safety of EV chargers. It allows for monitoring of security parameters, such as unauthorized access, tampering, or physical damage to the chargers. Service providers can receive real-time alerts in case of security breaches and take appropriate actions to mitigate risks and ensure the safety of the charging infrastructure and users.

Conclusion: Overall, remote monitoring of EV chargers provides operational insights, improves maintenance efficiency, enhances customer support, optimizes energy management, and ensures the security and reliability of the charging infrastructure. It is a valuable tool for charging service providers to deliver a seamless and efficient charging experience to EV ownership.