JETCHARGE

Rocland Estate
Smart EV Charging Trial

Final Report

Rocland Estate

1 Belvidere Road

Nuriootpa SA 5355

EV Charging Strategy – 1 Belvidere Road, Nuriootpa

Project

1 Belvidere Road, Nuriootpa
1 Belvidere Road
Nuriootpa SA 5355

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1. Executive Summary

The Department for Energy and Mining South Australia engaged JET Charge to install EV charging equipment and to perform a trial at Rocland Estate, Nuriootpa. With construction on the EV charging facilities beginning in May 2023, all of the EV charging equipment was installed and operational by July 2023, and the 12-month trial operated from August 2023 through to July 2024, collecting data to determine the evaluate the success of the project's objectives.

The intention of the project was to install and commission DC Fast Chargers and to demonstrate the use of time of use tariff pricing models to encourage EV charging during periods of high renewable energy or low grid demand, and to facilitate a high charging capacity without compromising local grid assets.

In the site overview this report details the electrical infrastructure and EV charging equipment installed at the Rocland Estate site, including the construction and installation process, and the electrical infrastructure and equipment installed on the site. There is also a discussion of the constraints of the limited supply to the EV charging system.

In the second section, this report details the parameters of the trial and analyses the data that has been gathered prior to and over the 12-month trial period of the project from August 2023 through to July 2024. The data was collected from Chargefox and included charger operation and cost. In addition, feedback was directly sought from customer surveys and comments. Using this data, the operation of the charging stations is evaluated to determine key findings regarding the pricing model and DC charger operation.

Overall, the trial succeeded in collecting data about the operation of the DC chargers and customer behaviour, evaluating that the pricing structure was significant enough to elicit customer responses and feedback about the pricing. It was also noted that the site location had numerous advantages, operated well due to the adjacent services, and was received well by customers. With the adjustment in pricing structure from Stage 1 to Stage 2, the proportion of charging that took place in the critical afternoon peak was reduced from 35.6% to 20.0%. The change in pricing structure and charging behaviour resulted in a reduction of average charging cost per kWh from 60.3 cents to 52.9 cents. Further investigation would be required however to determine if this shift in customer charging behaviour is fully attributable to the pricing structure, or if there are other factors involved.

Due to low utilisation rates of the chargers at this stage, the initial ROI (Return on Investment) is estimated at 1.0% in the 2023-2024 year, and 1.5% in the 2024-2025 year. However, it is anticipated that utilisation will increase over time as the number of EVs grows, increasing both the revenue of the EV chargers and drawing more customers to the services complex. In a high utilisation scenario, the average annual ROI over 10 years is estimated to be 10.4%.

The ROI of this project also does not account for the benefits to the services complex and the adjacent area from the presence of nearby charging infrastructure. It is also impacted by the presence of nearby, cheaper chargers operated by the local council, which provide competition and impact the value proposition of the site to customers. In addition, there are also limitations to the site's operation due to the constraints imposed by the limited available supply, which are likely to become more prominent as the utilisation rate of the site increases – in effect, the installed EV charging hardware is unable to operate at its full potential under the supply constraint, impacting the ROI.

2. Background

The site chosen for the EV chargers was Rocland Estate, located at 1 Belvidere Road, Nuriootpa SA 5355. This location was chosen in order to incorporate EV charging into a new service station. The EV charger location was at the corner of the service station, which was expected to become a services and amenities hub for travellers driving through Nuriootpa, and to also be utilised by local EV owners.

The EV charging project was coordinated between the South Australian Department of Energy and Mining, JET Charge, Engie, and Rocland Estate, involving the installation of 5 x DC chargers, an EV Charging Distribution Board, and a DC rectification unit, and all associated electrical and civil works.

The followings were the key project deliverables:

- To provide rapid highway EV charging in Nuriootpa to demonstrate a fully serviced and remotely managed model, that is replicable and scalable for deploying EV smart charging at highway service stations.
- To engage with consumers to promote awareness and understanding of the benefits of surge pricing and/or dynamic power delivery models and resulting charging behaviour adjustments.
- To quantify the business case for private sector investment on a commercial scale for regional deployment of rapid EV smart charging infrastructure using time-of-use and dynamic surge pricing models.
- To quantify the costs and benefits to consumers.
- To assess the effectiveness and benefits to service station owners.
- To evaluate the alignment of electricity demand for EV charging to periods of high renewable energy generation and low grid demand in South Australia.

The 5 x DC chargers were installed at a single location in a row on the corner of the services complex, alongside signage and EV car bay painting. The charging stations were installed ground-mounted on new concrete plinths behind the 10 designated EV charging car spaces.

The site utilised the JET Charge CORE Load Management System (LMS) in order to measure the site demand and limit the EV chargers to prevent the load from exceeding the available capacity. This was necessary as the decision was made due to expected initial low utilisation to limit the EV charging submains to 200A, which was substantially lower than the maximum rating of the chargers.

All charging sessions were billed using Chargefox's third party online software, which allows operators to see number of charging sessions, duration, charger output, cost, and revenue.

One challenge that was identified during the trial was the introduction of electric vehicles with towing capabilities and the associated trailers. While parking with trailers is not a problem that is unique to electric vehicles, the EV charging stations impose an added constraint when vehicles are taking up multiple bays. Due to the relatively low utilisation rate and number of simultaneous charging sessions, this did not prove to be an issue during the trial but should be considered as the utilisation rate increases and for future sites.

3. Site Overview

3.1 Charging Locations

The charging site is located at the corner of the services complex, which features a variety of different amenities for drivers travelling along the Sturt Highway and through Nuriootpa. As the town is directly adjacent, the EV charging infrastructure is also positioned to be utilised by local residents, and to encourage local uptake of EVs. At the time of the initial project planning, there were no nearby DC rapid charging stations within less than one hour of travel time.

A total of 5 x dual-port DC charging stations were installed, servicing 10 parking spaces. 9 of the 10 total ports are standard CCS2 ports, while the first port of Charger #8366 is a CHAdeMO port. While one of the charging stations, #8110, is a standalone 75kW charging station combining both the AC to DC power conversion equipment and the DC outputs, the other four are arranged in a cabinet-satellite configuration, with a central DC rectifier cabinet supplying the four charging stations.

The chargers are supplied from a dedicated EV Charging Distribution Board (DB-EV-1), which is supplied from the nearby Main Switchboard (MSB). The MSB is shared with the adjacent service station site and itself is supplied from the adjacent 1.5MVA pad-mounted transformer. (For a diagram depicting the full electrical configuration of the chargers, see Appendix I.)

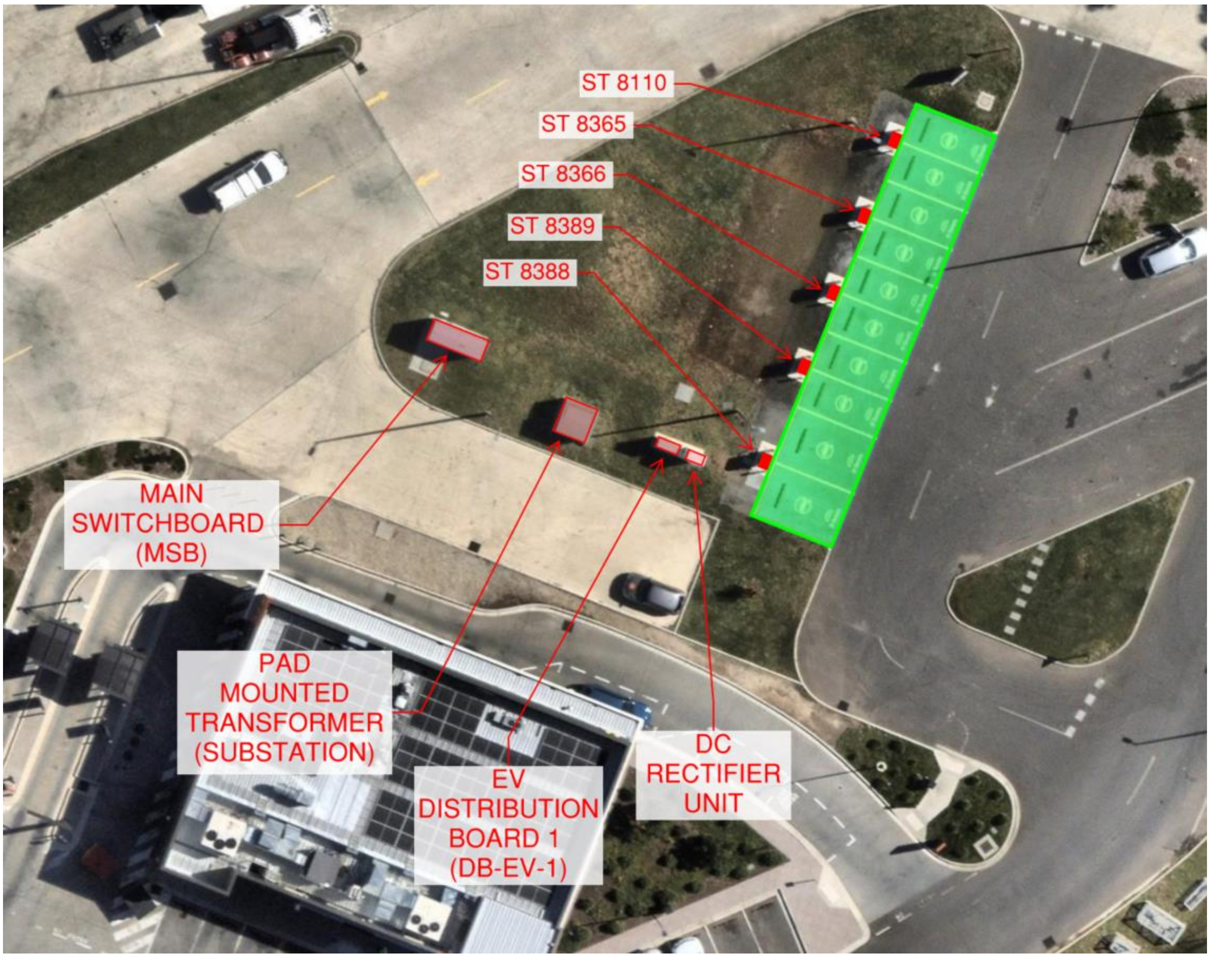

Figure 1: Overall Site Layout

3.2 Equipment List

Charger Station	Port A	Port B	Type of Charger	Maximum Charge Rate
Charger # 8388	CCS2	CCS2	DC Rapid Charger	75 kW
Charger # 8389	CCS2	CCS2	DC Rapid Charger	75 kW
Charger # 8366	CHAdeMO	CCS2	DC Rapid Charger	75 kW
Charger # 8365	CCS2	CCS2	DC Rapid Charger	75 kW
Charger # 8110	CCS2	CCS2	DC Rapid Charger	75 kW

Figure 2: Chargers

3.3 Construction & Installation

The construction of the service station broke ground in early 2021, and the site general electrical infrastructure and the services amenities facilities, including the site's substation and the MSB, were completed prior to the EV charger installation works.

The EV charger works, which included the DB-EV, DC Rectifiers Cabinet, DC Charging Stations, and associated electrical and civil works, began in May 2023 and were completed by July 2023. The site was formally launched with the South Australian Government, Engie, JET Charge, and Rocland staff on the 4th of July 2023.

The total cost of the EV charging component of the project was equal to $527,500. Of this cost, $343,500 was in EV charger hardware supply costs, and the remaining $184,000 was installation and infrastructure costs.

Note, this does not include the cost of any electrical infrastructure works at the Main Switchboard or upstream. As this infrastructure is shared between the EV charging infrastructure and the rest of the service station, it is difficult to directly determine the added electrical infrastructure imposed by the addition of the EV charging system. However, the available supply to the EV chargers here was restricted to 200A in order to avoid requiring any additional electrical infrastructure upgrade, indicating that this site may be more representative of the scenarios where chargers utilise existing spare capacity with Load Management rather than requiring substantial upstream upgrades.

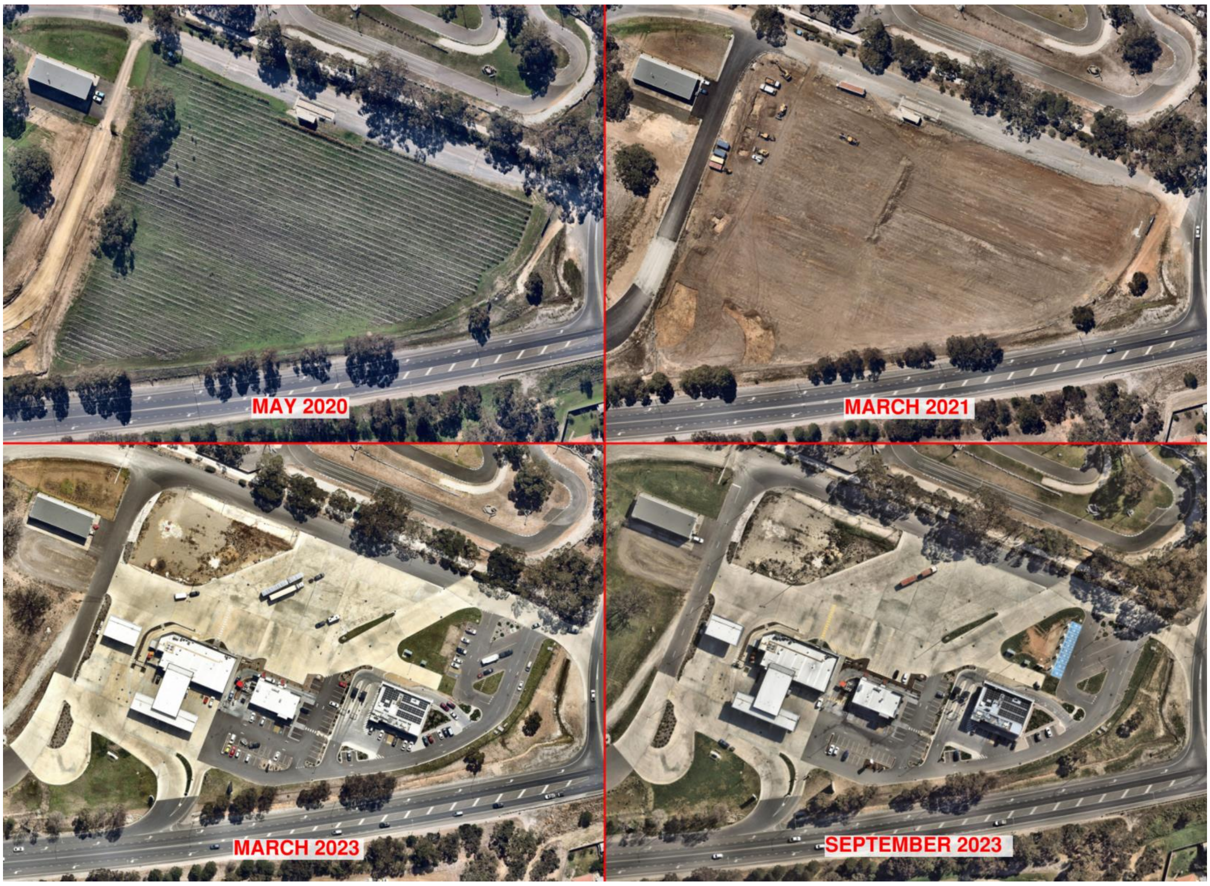

Figure 3: Construction Timelapse

Figure 4. Civil Works Construction

Figure 5. Site Launch

3.4 Electrical Capacity & Load Management

As the service complex was a new, greenfield site, the electrical infrastructure, including the site's transformer substation and Main Switchboard (MSB), was all newly constructed. The electricity supply to the EV chargers came from a new EV Charging Distribution Board (DB-EV-1), supplied directly from the adjacent MSB.

Despite the new equipment however, the available electricity capacity to the site was constrained by the high projected load of the service station and other users on the site. The decision was made during design to impose an initial 200A limit on the EV charging equipment due to an expectation of low initial utilisation. (See Appendix I for the full electrical layout.)

In addition, the JET Charge CORE Load Management system was installed to monitor the site's full load and control the charger outputs, in order to provide a hard limit to prevent the EV chargers from overloading the site MSB and mains beyond its maximum capacity. It was also required to coordinate the limited available capacity at DB-EV-1 between the chargers, as the chargers were capable of a total of 375kW of DC charging, which would require more than 540A of supply, which is significantly greater that the available supply of 200A. The system incorporated energy meters at both the MSB and DB-EV-1 to allow for monitoring at those points.

The cheapest cost for EV charging was implemented during the 10AM to 3PM period of the day, in order to encourage use of the chargers during this time. A higher cost was implemented outside of this period during Stage 1 and then adjusted during Stage 2 to have maximum peak costs during the 3 to 9PM afternoon-evening period, and lower costs outside of this period of time.

Figure 6. CORE LMS Controller

4. Trial Operations & Results

4.1 Reporting Summary

The data for the 12-month trial covers the period from 01/08/2023 through to 31/07/2024 and was initially gathered in monthly blocks. In addition to the Chargefox data, JET Charge also performed a survey of the EV charging customers to gather additional feedback.

The Chargefox data was used to quantify and evaluate consumer behaviour around a number of different variables impacting Charging Sessions, including Time, Duration, Number, Distribution, Cost, and Revenue.

For the purposes of this evaluation, only successful charging sessions that resulted in a cost charged to the customer were recorded, resulting in the removal of many smaller sessions that were typically less than a minute in duration. There is however also noise in the data from interrupted sessions that could not be filtered so easily, i.e. sessions that were discontinued and then restarted, and should ideally therefore be considered as a single larger session. As such, the total amount of charging at each station may be a more effective indication of charging station utilisation than the number of sessions alone.

For this charging trial, the time-of-use pricing structure for EV charging was a key variable with the goal to:

- Implement a Time-of-Use and/or Surge Pricing power delivery model
- Analyse and understand how the models affect consumer behaviour
- Engage with consumers to understand their reaction to the pricing models

As such, two-stage tariff was set for the duration of the trial in order to promote daytime usage during periods of low prices and to attempt to shift or at least adequately cost charging during the afternoon-evening peak periods. This tariff was made clear to customers through the installation of a sign adjacent to the EV chargers. The cost of power on the site was a flat 19 cents per kWh. Stage 1 of the pricing structure ran from August 2023 through to September 2023, and Stage 2 ran from October 2023 to July 2024, and remains in effect.

Pricing Structure – Stage 1	
Daytime Renewable (10AM – 3PM)	$0.40 per kWh
All Other Hours (3PM – 10AM)	$0.80 per kWh

Pricing Structure – Stage 2	
Daytime Renewable (10AM – 3PM)	$0.40 per kWh
Peak Rate (3PM – 9PM)	$1.00 per kWh
Night Rate (9PM – 10AM)	$0.40 per kWh

During the trial period, a large digital screen was utilised at the EV Charging site to display the Time of Usage charging prices. In addition, the costs were also displayed inside the Chargefox App:

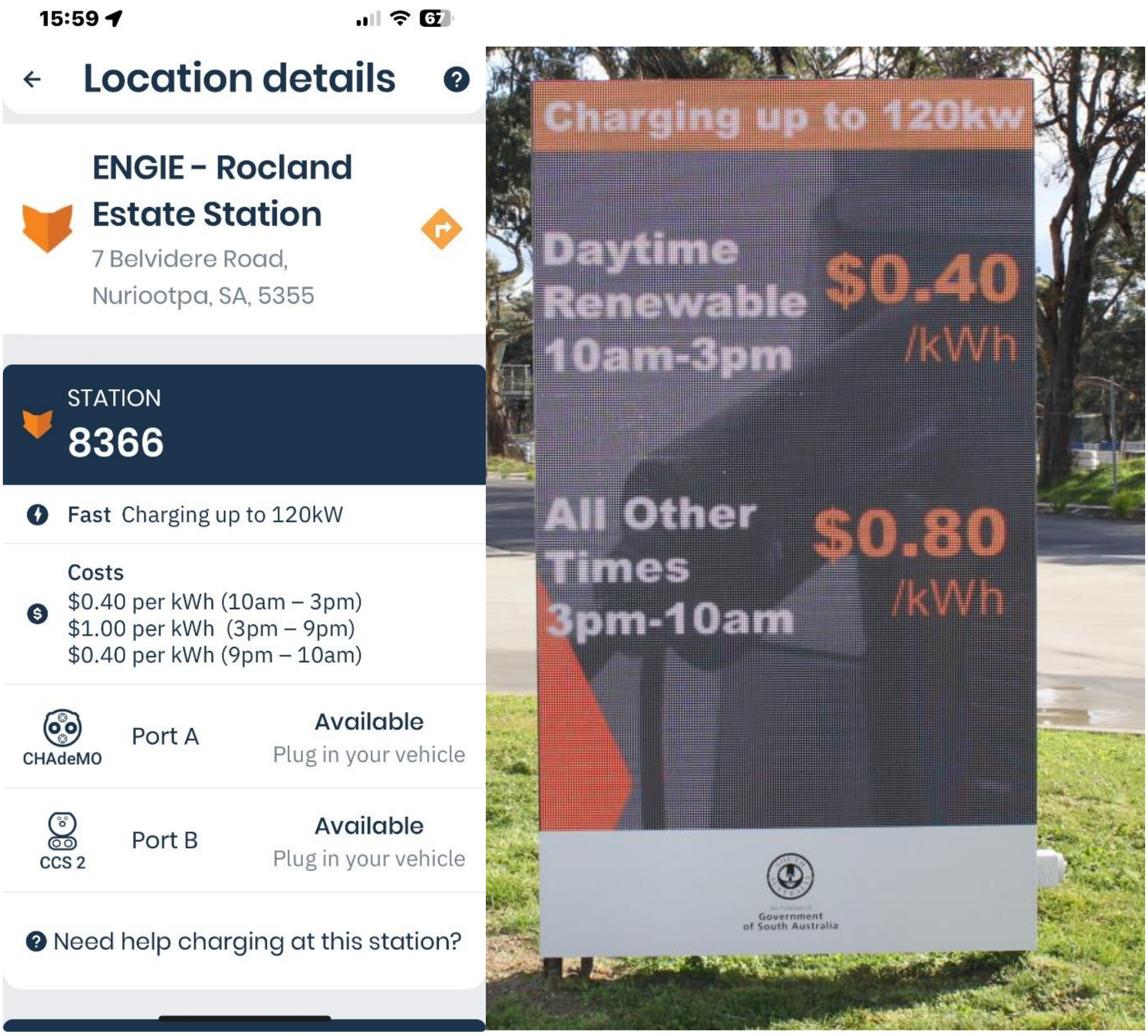

Figure 7: Digital Signage and App Display

4.2 Total Charging Sessions

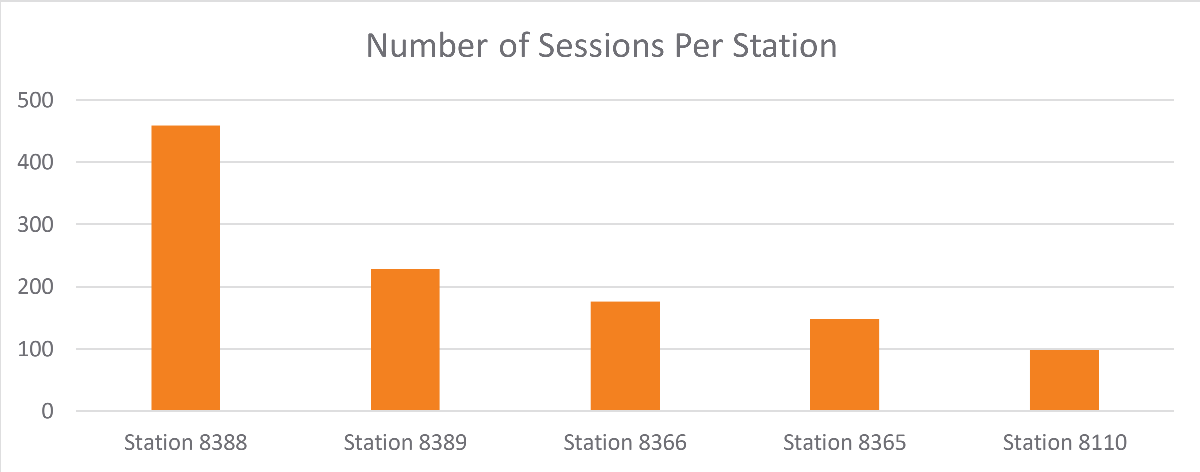

Figure 8. Number of Charging Sessions Per Station

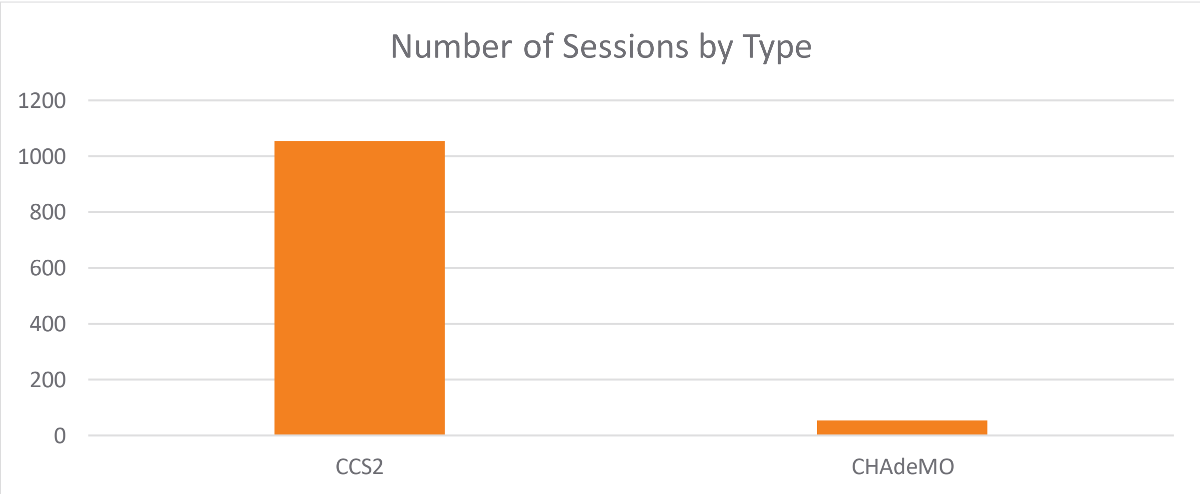

Figure 9 Number of Charging Sessions by Type

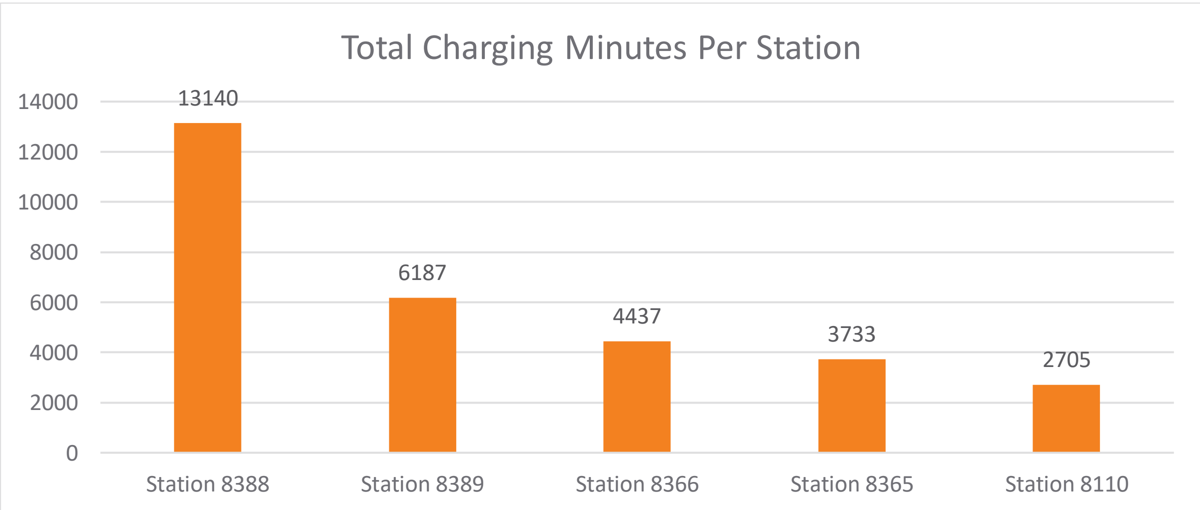

Figure 10. Total Charging Minutes Per Station

Comments:

From an assessment of the data, it has been observed that there were a total of 1109 charging sessions delivered across the entire trial period:

- The charger that was utilised the most was Charging Station #8388, the leftmost charging station. The utilisation rate drops for each subsequent station as they get further away. This would appear to be because customers utilising EV charging are preferentially parking in the car bays nearest to the service stations.
- Out of the 1109 charging sessions, 54 of them utilised the CHAdeMO charging port on Station #8366.

4.3 Session Charge Length & Rate

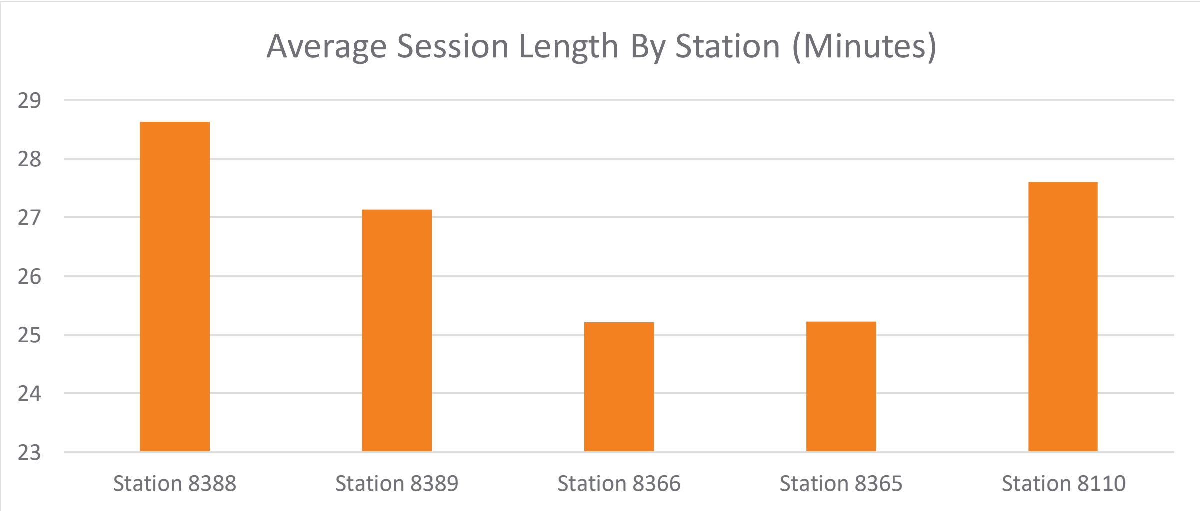

Figure 11. Average Charging Session Length by Station

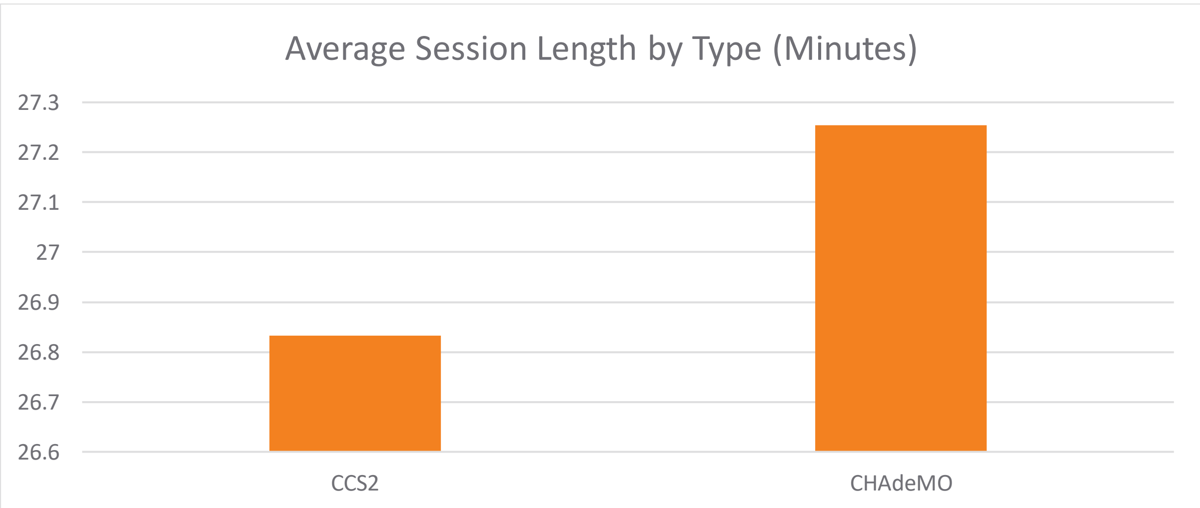

Figure 12. Average Charging Session Length by Type

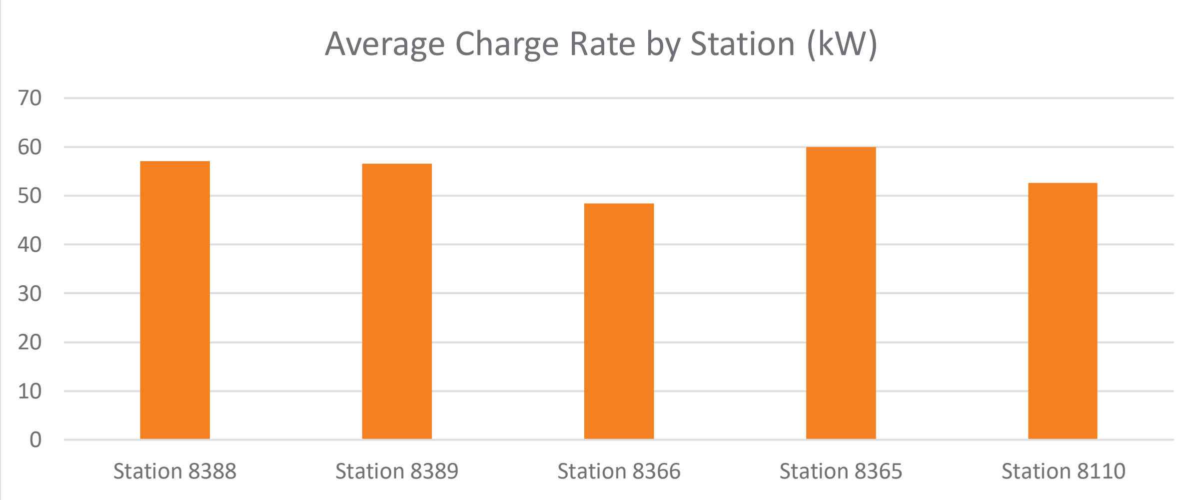

Figure 13. Average Charge Rate by Station

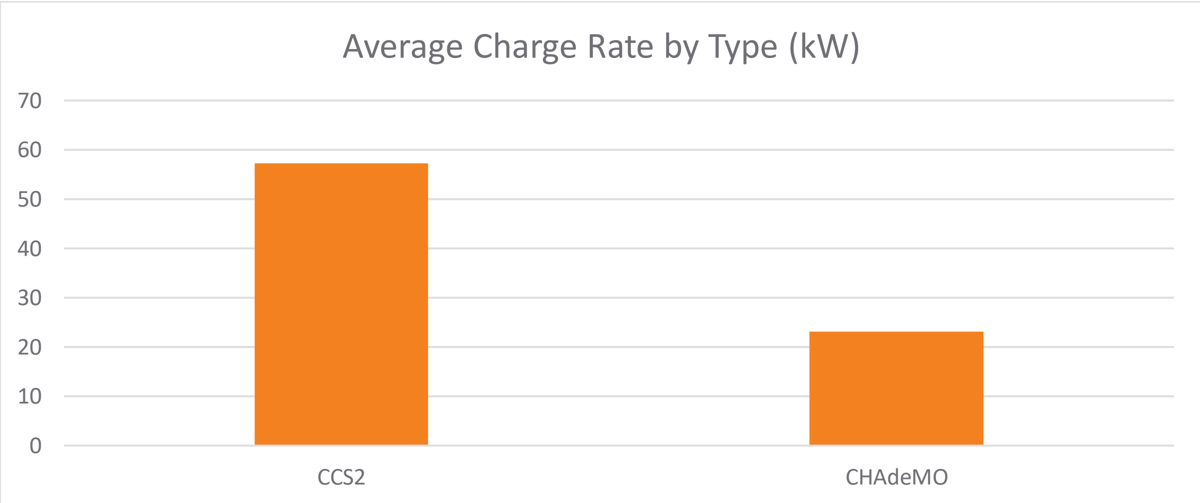

Figure 14. Average Charge Rate by Type

Comments:

The average session length across all chargers was 27 minutes and 3 seconds, with a standard deviation of 14 minutes and 23 seconds across all charging session. In the entire trial period, only a total of 24 charging sessions lasted longer than 60 minutes. This seems to indicate that despite a small number of customer complaints, the available charging rate was generally sufficient especially outside of peak times.

The average CHAdeMO charging session was 25 seconds longer than the average CCS2 session, which is a fairly minor difference. However, the average charge rate of CCS2 sessions was two and a half times greater than the average charge rate of CHAdeMO sessions, due to the limited charging speeds of CHAdeMO vehicles.

The average session length was not substantially different across the chargers or type. In addition, the average charging rate was similar across all of the stations with the exception of #8366, which has a lower charging rate due to the CHAdeMO plug. The similar charging session duration could suggest that customers are remaining at the site for a predetermined amount of time regardless of their vehicle's level of charge.

4.4 Time of Charging

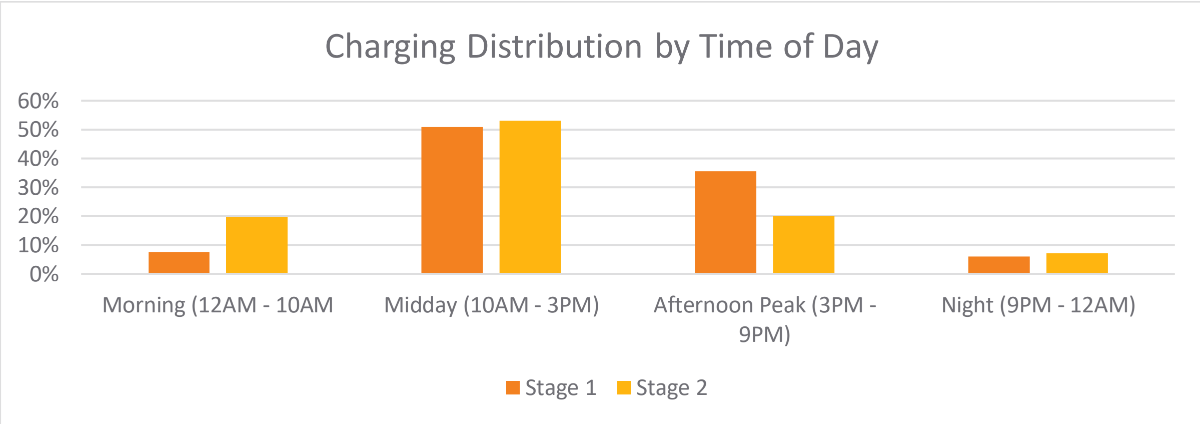

Figure 15: Charging Proportion by Time of Day (Percentage of the total minutes of charging that took place within each interval)

Comments:

It can be seen that customers preferred to charge their vehicles during the midday period the most, followed by the afternoon and morning periods. This is the expected customer behaviour, as this is the period of time where it would be expected that drivers would be stopping at the service station on longer duration trips.

It can also be seen that from the change to the pricing structure in Stage 2, the proportion of charging taking place in the expensive afternoon peak was reduced, while the proportion taking place in the cheaper morning and midday increased. There was also a small increase in the proportion of charging that took place at night as well. This suggests that the higher prices may have had an impact in pushing charger utilisation into both earlier and later in the day away from the afternoon peak. The shift from midday into morning however is somewhat harder to explain, as the Stage 2 pricing is the same in both of these time intervals. This suggests that it is also possible that there is a seasonal effect involved here, as Stage 1 and Stage 2 took place at different times of the year, and there could be other explanations for changes in behaviour over that period of time.

Overall, the proportion of charging that took place during the critical afternoon peak period dropped from 35.6% during Stage 1 to 20.0% during Stage 2.

It should also be noted that the charging may not be evenly distributed within each charging session.

4.5 Simultaneous Charging Sessions

Simultaneous Charging Sessions	
Two Plugs	Three or More
122	8

Figure 16: Number of Instances with two or more vehicles simultaneously charging

4.6 Cost of Charging & Revenue

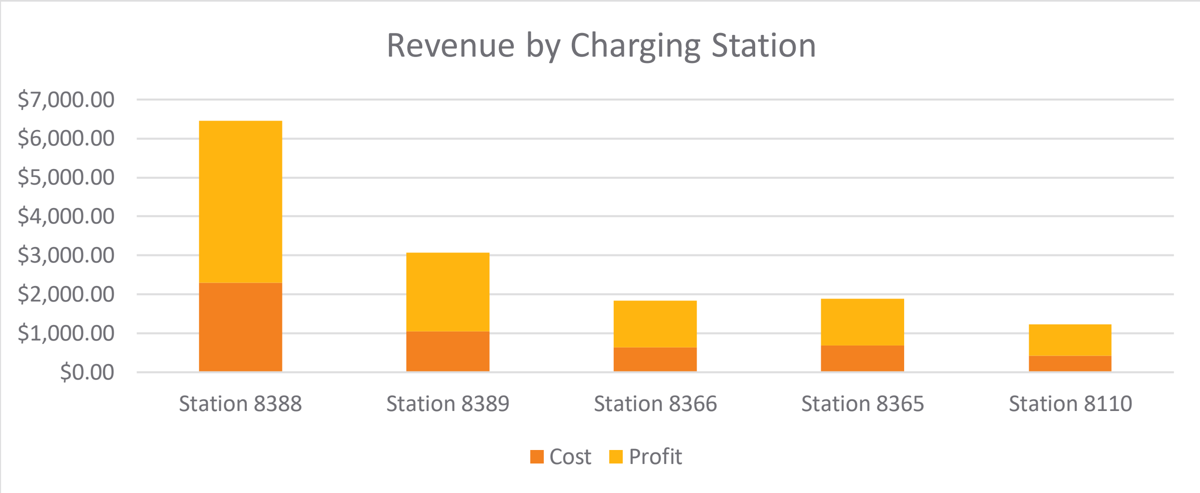

Figure 17. Revenue by Charging Station

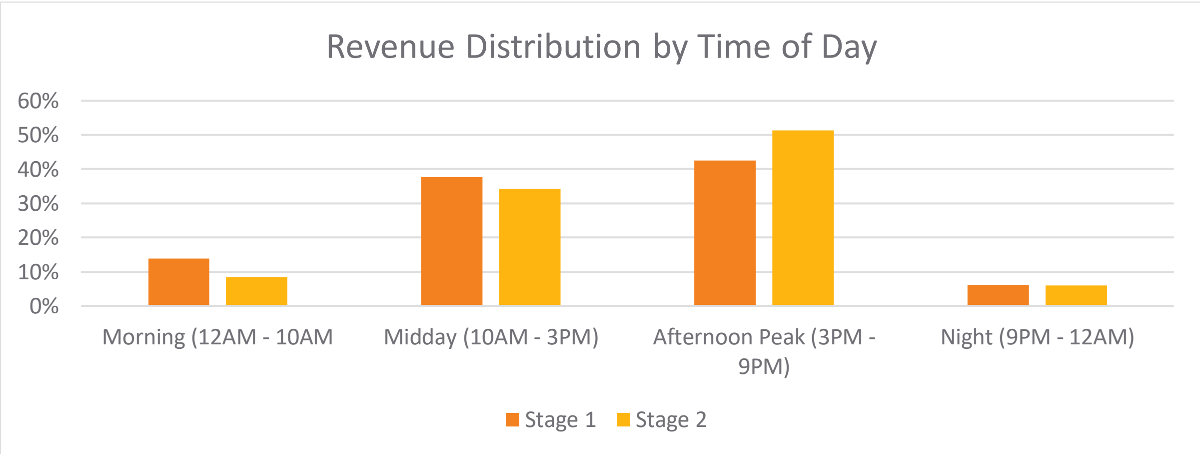

Figure 18: Revenue Distribution by Time of Day (What percentage of the total revenue earned by the system is earned during this specific interval of time?)

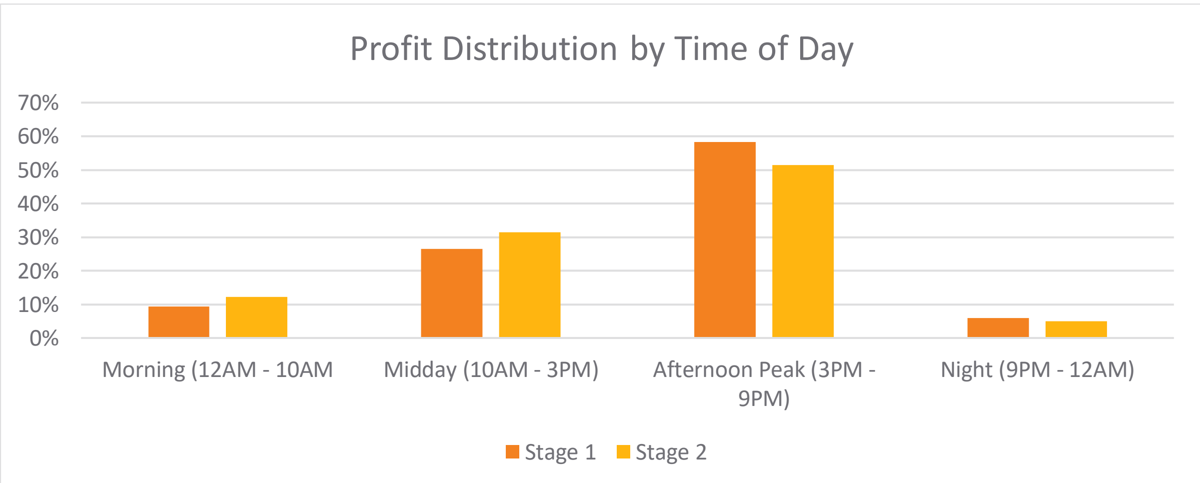

Figure 19. Profit Distribution by Time of Day (What percentage of the total profit earned by the system is earned during this specific interval of time?)

Comments:

It should be noted that the price of electricity has been fixed to a single rate feed in tariff of 19 cents per kWh, inclusive of both energy and network costs. While single rate feed in tariffs are offered by energy retailers, this is not necessarily a true reflection of the true economic price of electricity, which varies at different times depending on the wholesale energy market.

The revenue across the charging stations unsurprisingly tracks with the usage of the charging stations, with Station #8388 recording the highest revenue at $6,463.07 over the 12-month trial period, and Station #8110 recording the lowest revenue at $1,225.99. On their own, these numbers are unlikely to indicate commercial viability due to the cost of the equipment and installation works. The average charger revenue was equal to $2,896.03.

However, the EV charging system had a utilisation rate (of its theoretical maximum rating of 200A) of only approximately 2.23%. As the number of EVs on the road increases, the demand for EV charging is likely to increase, with a corresponding increase in the utilisation rate that could see significantly increased revenues. If it is considered that the electrical supply to the site could be upgraded to allow a greater total capacity, the potential total utilisation further increases.

Although there was a higher volume of charging during the midday period throughout the trial period, the afternoon peak saw a higher proportion of the total revenue due to the higher prices during this period of time. This is especially noticeable in Stage 2, where it was increased. Due to the fixed electricity prices, the profit distribution is skewed even further in this direction.

It can be seen however that in Stage 2, due to the shift in charger utilisation from the afternoon peak to the midday period, the proportion of profit in the afternoon peak actually fell compared to in Stage 1, indicating that increasing prices to and beyond this point could potentially be shifting customer behaviour rather than increasing returns.

For the customers, the average cost of charging during the Stage 1 portion of the trial was equal to 60.3 cents per kWh. In Stage 2, this dropped to an average of 52.9 cents. It should be noted that from a financial perspective on this project, due to the fixed retail electricity cost, this is a negative for the ROI. However, this does indicate that the adjusted tariff structure could create savings for customers and also shift customer behaviour – as indicated in the Time of Charging section, the amount of charging during the critical afternoon peak reduced from 35.6% to 20.0%, a significant reduction. In addition, the actual cost of electricity on the wholesale market is not a fixed rate, and so the shift in usage created by the pricing structure creates cost savings that could potentially be captured through other mechanisms.

<u>It should also be noted that the cost and profit numbers here do not include the cost of maintenance or other operational expenses, only the cost of electricity.</u>

4.7 Feedback & Surveys

A QR code was installed on the chargers on with a link to an online survey, and the following feedback was gathered for the period from August 2023 to July 2024. The data collected from this survey has been utilised to analyse customer feedback with the following questions:

Customer Survey	
Q1. Overall, how satisfied are you with your charging experience today? (1-5 stars)	Average Rating: 3.2
Q2. It is easy to operate the charger. (Agree/Disagree)	Agree: 25 Disagree: 6
Q3. It is easy to pay for charging. (Agree/Disagree)	Agree: 24 Disagree: 7
Q4. Charging here is affordable. (Agree/Disagree)	Agree: 24 Disagree: 7
Q5. The charger is easy to access. (Agree/Disagree)	Agree: 30 Disagree: 1
Q6. Please rank the importance of the following to you as the user of this charger, from MOST IMPORTANT to LEAST IMPORTANT: (Location convenience, Cost to charge, Charging speed, Using Green Energy)	Total Score (Weighted Importance): • Location Convenience: 2.57 • Cost to Charge: 3.07 • Charing Amenities Available: 3.07 • Charging Speed: 4.00 • Using Green Energy: 2.29

Charging speed, the nearby amenities, and cost of charging were indicated as priorities by customers, while the location convenience and use of green energy were considered somewhat less important. While the responses to the survey on balance were favourable, there were also a substantial number of negative reviews regarding the ease of operating the charger, paying for charging, and affordability.

The average 3.2 star rating alongside the positive-to-mixed responses indicates that while most customers had a satisfactory experience, others had a negative experience, that could be explained by difficulty operating or paying for the charger, slow charging rates due to load management, or dissatisfaction at the pricing.

JET Charge also sought feedback for the trial on Plug Share, receiving comments from users. The feedback of the comments has been assessed as follows:

- The general conclusion of the comments is that the chargers are in a good location with generous parking bays, with emphasis on the convenience of the surrounding facilities.
- Customers have made comments regarding low charging rates at times due to load management.
- Customers also made comments noting that there were other nearby EV charging facilities with lower charging rates.

JET Charge also obtained feedback from the Rocland site owner after the end of the trial, which has been summarised and evaluated below:

- The construction process was smooth and the workers on site were professional.
- There have been some minor disruptions to the operation of the site due to interruptions in connectivity and software.
- The utilisation of the chargers is currently still on the lower end, but they are expecting it to increase over time as the number of electric vehicles increases.
- Due to the installation of nearby free charging stations by the local council, the site faces competition that they currently cannot match. Customers have also given feedback about this disparity in pricing.

This feedback suggests that reliability is a very important to customers, and that any downtime or inability to use the chargers correctly is very noticed. When combined with the customer survey responses regarding the operation and usability of the charger, some of which were negative, this suggests that a key area of focus for customer experience is reliable connectivity and software.

The low utilisation of the chargers is noted and is expected to increase over time, which would be required for the commercial feasibility of such DC projects. Customers have also provided positive feedback about the location of the chargers, indicating that there are customer satisfaction benefits to the location, but also commercial benefits to the charger operator and to the nearby services and amenities operators.

The presence of local charging stations that provide free charging and have been funded by the local council or other government bodies raises questions about unintentional market effects of these projects. Such subsidised chargers if operated in such a way would have a significant impact on the commercial value proposition of any privately-funded and operated chargers, which must earn revenue in order to recoup their equipment and installation costs.

4.8 Annual Trend

In order to evaluate the long-term outlook of the system, the trial period (2023-2024) data has been compared to the following annual period (2024-2025). It should be noted that the data set for the 2024-2025 period was taken at the middle of July 2025, and the usage data for the last two weeks has been extrapolated in order to create a consistent comparison to the 2023-2024 period.

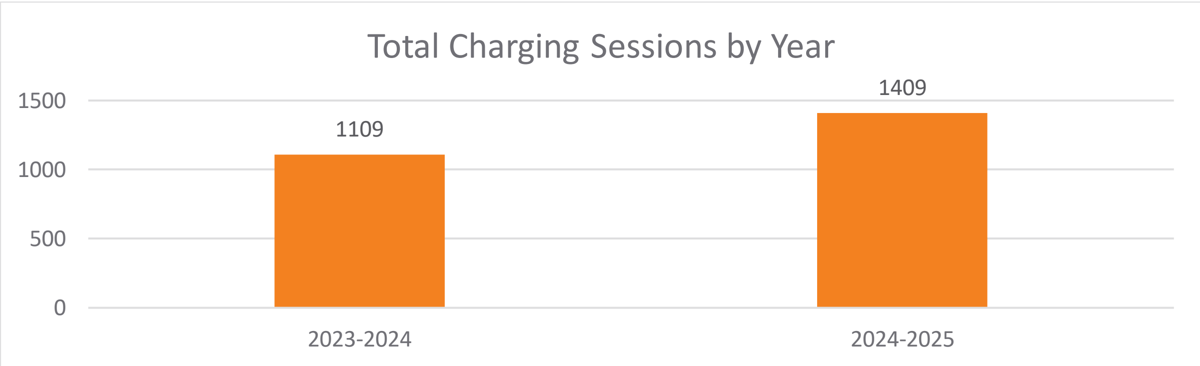

Figure 20. Total Charging Sessions by Year

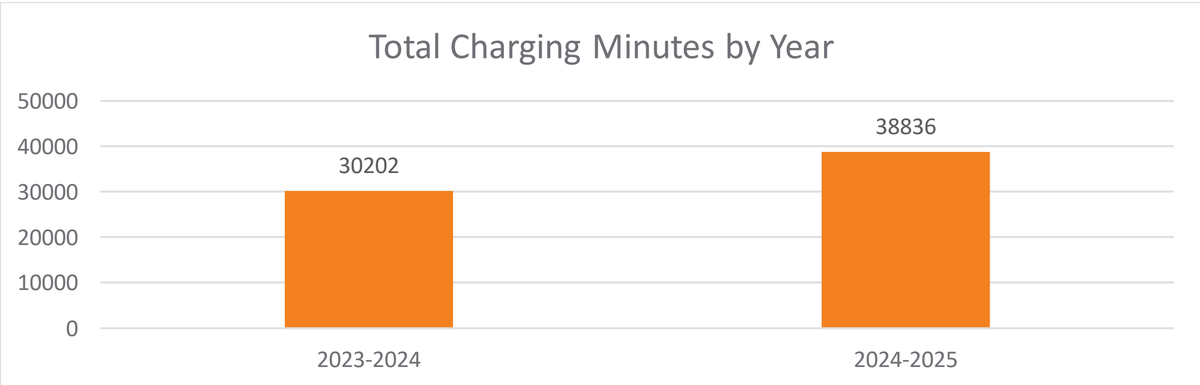

Figure 21. Total Charging Minutes by Year

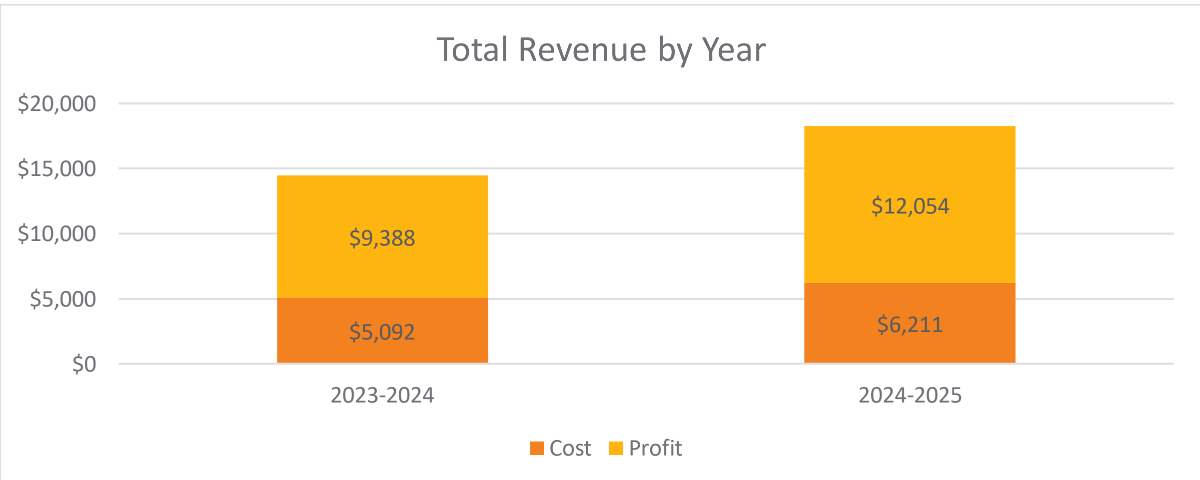

Figure 22. Total Revenue by Year

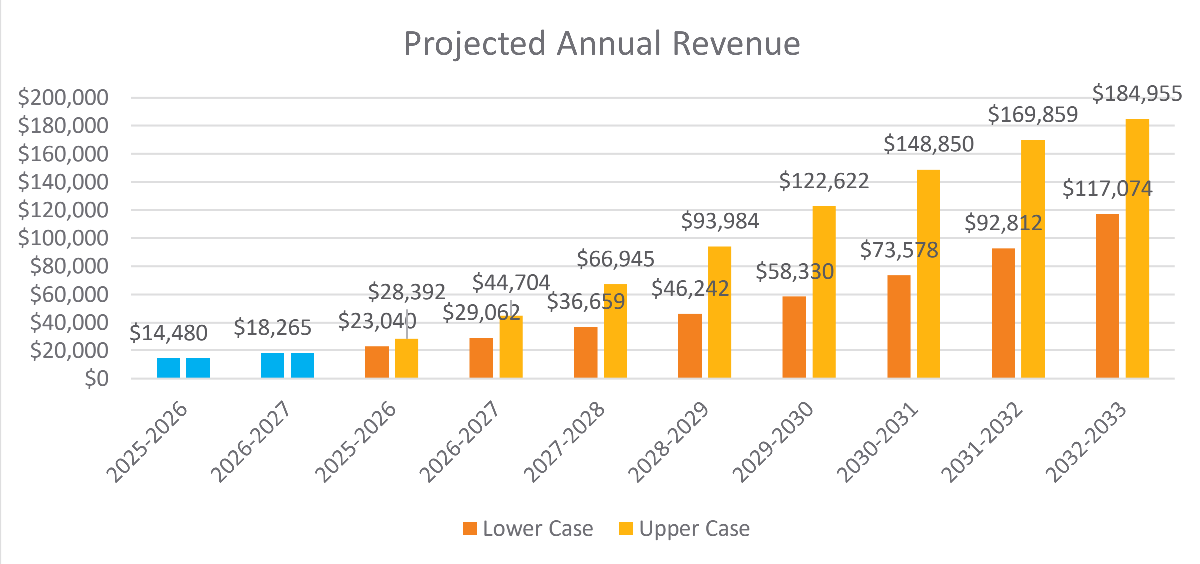

Figure 23. Projected Annual Revenue Through to 2023

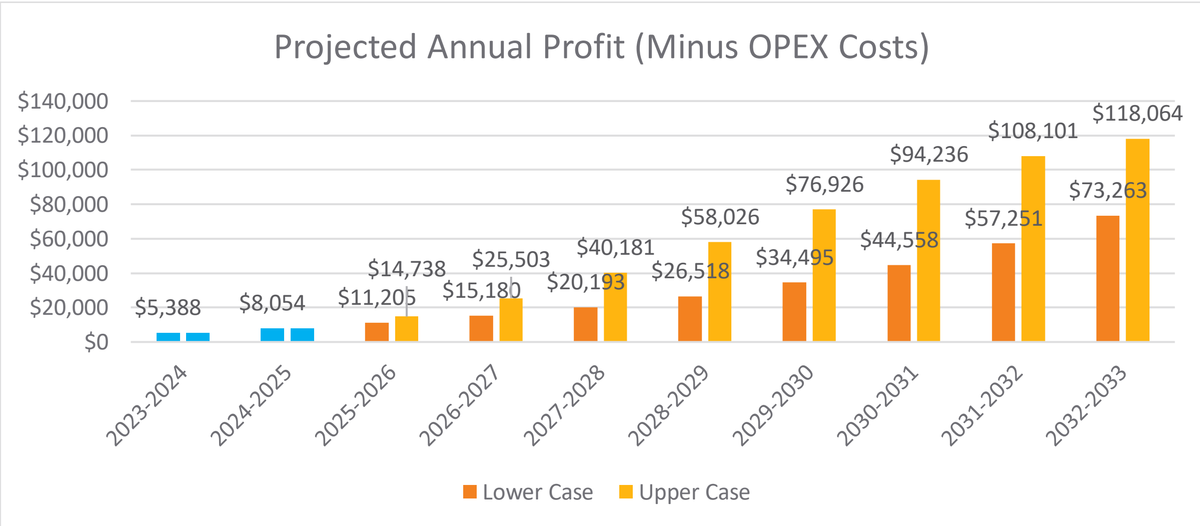

Figure 24. Projected Annual Profit (After Accounting for OPEX Costs) Through to 2023

These figures were generated by projecting the utilisation rate of the EV chargers to future years. Two different methodologies were utilised, with the "Lower Case" assuming a regular annual growth in utilisation in line with the known years. The "Upper Case" instead assumes a growth in utilisation in line with the projected increase in electric vehicle uptake[1], with the utilisation rate of the chargers imposing an added limitation towards the upper end of the range as more of the desirable hours of the day for charging are taken up by users. The profit here is also calculated after estimated maintenance and other operational costs. It does not however account for long term changes in electricity pricing.

Overall, with an initial project cost of $527,500, it can be seen that the expected payback period on the project is approximately 10 years in the upper case, and would take several years longer in the lower case.

This does not however consider the cost of financing, or the opportunity cost and time value of money. On the other hand, the benefits of adjacent EV charging to the service station and local area have also not been considered, which may provide additional justification for infrastructure even with a long payback period.

4.9 Evaluation

The outcome of the time-of-use pricing structure demonstrated some amount of success in shifting customer usage from the afternoon peak to earlier times, although more investigation may be required to determine how much of this is directly attributable to the pricing structure. Overall, the percentage of charging that took place during the critical afternoon peak (3-9PM) was reduced from 35.6% in Stage 1 to 20.0% under the Stage 2 pricing structure. The midday period would however be expected to be the most likely time for drivers to be arriving on the site, and the Stage 2 pattern of shifts in usage suggested that other factors may also be involved. The decrease in proportion of profit in the afternoon peak in Stage 2 compared to Stage 1 suggests that $1 per kWh may be altering customer behaviour but also creating diminishing returns for profit, and it is unclear if some potential customers may have avoided charging due to the higher afternoon peak prices from the altered pricing structure. During the trial period, other chargers were installed nearby by competing operators, and customers in the survey gave feedback that the prices at those operators were lower, and also that the cost of charging was important to them. Therefore, it may be necessary to balance attempts to shift customer usage with potential negative responses to high peak prices.

The revenue generated by EV charging was relatively low during the trial period and would not directly cover the cost of the EV charging equipment and installation from a commercial perspective, with the return in the 2023-2024 year being approximately 1.0%, and 1.5% in the 2024-2025 year. This was likely however due to the low utilisation rates, which would be expected to grow as the number of EVs on the road increases. The utilisation rate over the initial trial period was only around 2.2%, and this would be expected to grow substantially over time. In addition, the EV chargers on the site have been limited by the 200A limit imposed on the EV charging submains – the EV charging infrastructure is in effect not being utilised at its full potential, and an increase in the available supply through network infrastructure upgrades could further increase the maximum potential utilisation and therefore potential revenue with a smaller corresponding increase in cost.

By locating the chargers at the corner of the service complex, customers are drawn to the nearby amenities while waiting to charge, and simultaneously, the amenities encourage customers to choose this location when they require charging. Customer feedback regarding the location of the chargers themselves was very positive, indicating that the site location was received well. This is an explanation for why despite complaints about the higher prices when compared to competing charging facilities, some customers still chose to utilise the chargers at this site. However, the presence of nearby lower-cost subsidised charging has been noted by the operator as having a detrimental effect on the site's value proposition to customers.

With a 200A supply limit, the maximum EV charging capacity was approximately 125kW once a suitable buffer on the LMS is considered. The total potential capacity of all of the DC chargers installed on the site however was equal to 375kW at 75kW per charging station, meaning that the charging rate must be slightly restricted by the load management system when two stations are in use simultaneously, and restricted more heavily when there are three or more. The data recorded indicated that there were 122 total instances where two charging stations were utilised simultaneously, and 8 total instances where three charging stations were utilised simultaneously, indicating that peak congestion over the course of the trial was a relatively infrequent occurrence. This is supported by the relatively high average charging rate. However, feedback was received from customers indicating that there were some periods where the charging rate was decreased due to congestion, likely during the 6 documented instances with three stations at once. With the 200A limitation on this site, as utilisation rates increase, it should be expected that congestion will become a more common occurrence, requiring an increase in power to the site and/or another adjustment of the pricing structure.

5. References

1. Graham, P., Mediwaththe, C. and Green, D. 2025, *Electric vehicle projections 2024*. CSIRO, Australia.

6. Appendices

Appendix I: Site Electrical Drawings