

Simplify your energy transition

Street Light Pole EV Charger Project 2021/ARP002 Milestone 4 – Lessons Learnt Report

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1 | Project Background

Project Overview and Rationale

Australia's transition to electric vehicles presents both opportunity and challenge for energy system planning and urban infrastructure development. While EV adoption is accelerating, with sales growing from negligible levels in 2019 to representing approximately 8% of new vehicle sales in 2024, the availability of convenient and accessible charging infrastructure remains a critical constraint on further growth.

For the estimated 40% - 60% of Australians living in apartments, townhouses, or homes without suitable off-street parking, the absence of accessible public charging represents a significant barrier to EV ownership. This cohort cannot replicate the convenient home charging model that makes EV ownership attractive for detached house residents with garages or driveways. Without addressing this infrastructure gap, Australia risks creating a two-tiered transport system where EV ownership becomes a marker of housing wealth and access rather than a universal option available to all residents.

Existing public charging infrastructure has largely focused on two deployment models. Fast charging hubs located at highway service centres and urban destinations serve long-distance travel and opportunistic top-up charging but are not suitable for regular overnight charging. Workplace and retail car park installations serve commuters and shoppers but do not address the needs of residents seeking to charge near their homes. A missing piece in the charging ecosystem is convenient, cost-effective, overnight charging located in residential areas without requiring dedicated parking infrastructure.

Pole-mounted charging offers a potential solution to this gap by utilising existing street-side power poles as mounting points for AC charging equipment. This approach offers several advantages. It leverages existing infrastructure rather than requiring new dedicated installations, minimises visual and physical streetscape impact, enables the "charge where you park" behaviour that mirrors traditional vehicle ownership patterns, avoids the need for separate electrical connections and new infrastructure assets, and distributes charging capacity across neighbourhoods rather than concentrating it in parking facilities.

However, before this concept could be deployed at scale in Australia, numerous technical, regulatory, commercial, and social questions required investigation. These included:

- What types of poles are suitable for mounting charging equipment?
- How do distribution network service providers assess and approve such installations? What regulatory frameworks govern equipment mounted on network infrastructure?
- How do different site characteristics influence usage patterns?
- What approval processes do local councils require?



- How do communities respond to charging infrastructure in residential streets?
- What are the commercial economics of pole-mounted charging?
- How can ICEing be prevented or managed?
- What hardware specifications are appropriate for Australian conditions?

This ARENA-funded project was designed to answer these questions through a comprehensive pilot deployment. By installing 50 chargers across diverse locations in Sydney, operating them for 12 months, and systematically documenting all aspects of the process, the project aimed to create a knowledge base that would enable confident scaling by industry participants.

Project Objectives

The funding agreement with ARENA specified five contracted outcomes that structured the project's objectives and deliverables.

The first objective focused on improved understanding of consumer behaviour regarding the use of EV charging in metro areas. This would be achieved through collection of charging profile data over the operational period and by testing the appetite of councils and other potential customers for this infrastructure model. The project would document actual usage patterns including session duration, energy delivered, time of use, and user behaviour, rather than relying on international data or assumptions about Australian EV driver preferences.

The second objective sought improved understanding of an innovative product and charging business model. Pole-mounted charging represented an entirely new approach in the Australian context, requiring novel commercial structures, operational models, and technical configurations. The project would test pricing models, explore customer acquisition approaches, and determine the resource requirements for successful operation.

The third objective aimed for improved understanding of barriers and solutions for installing EV chargers in metro areas. This encompassed technical barriers related to pole selection and electrical installation, regulatory barriers within council approval processes, distribution network requirements and access agreements, community acceptance challenges, and coordination requirements across multiple stakeholder organisations. For each barrier identified, the project would document solutions or approaches that successfully navigated the challenge.

The fourth objective committed to increase the value delivered by renewable energy by ensuring all EV chargers are powered with renewable energy via contractual arrangements with energy providers. This would demonstrate the feasibility of renewable energy integration while supporting the broader climate objectives that motivate EV adoption policy.



The fifth objective sought improved understanding of approvals and installation processes for metro EV chargers. This would create documented pathways including timelines, stakeholder engagement requirements, technical specifications, inspection protocols, and commissioning processes that subsequent projects could reference and refine.

Project Scope and Structure

The project deployed 50 AC EV charging points mounted on street-side power poles across the Sydney metropolitan area. The hardware consisted of Schneider Electric EVlink 22kW charging stations, selected to match current and future AC charging capabilities of the current Australian EV fleet. Each installation included the charging unit, electrical protection equipment, metering for both network connection and customer billing, communications equipment for remote monitoring and payment processing, mechanical protection and mounting hardware and designed specifically for pole attachment.

The geographic scope focused on the Sydney metro area, ultimately working with eight local council areas. These councils represented diverse suburban contexts including established beachside suburbs with high amenity value, mixed-use areas with commercial and residential integration, high-density inner suburbs with limited off-street parking, middle-ring suburbs with aging housing stock, and some regional locations to test applicability beyond the densest urban areas.

The project structure divided into four distinct phases aligned with milestone deliverables.

Milestone 1 covered the period from project commencement through mid-2022 and focused on capability building, partner agreements, and project establishment. During this phase, Intellihub developed internal capabilities spanning strategy, business model development, financing, hardware specifications, software systems, and installation procedures. The team established appropriate governance including steering committees and working groups. Critical bilateral agreements were negotiated and executed with key partners including councils (via memoranda of understanding and site agreements), hardware suppliers (Schneider Electric for charging equipment), field service providers (Service Stream for installation), charge point operator platform providers (EVSE), and advisory partners (Withywindle for knowledge sharing).

Milestone 2 covered the design phase from mid-2022 through late 2022. This phase concentrated on technical design, site finalisation, and equipment configuration. Extensive work occurred on electrical design including enclosures, protection works, grounding, and accommodation of various pole configurations. Physical design addressed mounting systems, vandalism protection, height requirements for safety and accessibility, and integration of multiple components into a cohesive installation. The pole selection criteria were refined through collaboration with Ausgrid, resulting in comprehensive guidance documentation and the development of the mobile site nomination tool.



Milestone 3 encompassed the installation phase from late 2022 through mid-2023. This phase involved contracting with councils to finalise installation sites, electrical and physical installation of charging infrastructure across the 50 sites, conduct of expert advisory board meetings, and dissemination of learnings from the installation experience. The installation phase revealed the complexities of coordinating multiple contractors, navigating council approval processes at scale, managing community consultation, and commissioning networked equipment across dispersed locations.

Milestone 4, the focus of this final report, covered the operational phase from mid-2023 through late 2024. This included a full 12-month operational period generating usage data, analysis of that usage data to identify patterns and drivers, monitoring of hardware performance and reliability, and synthesis of learnings across the entire project lifecycle.

Project Partners and Roles

Intellihub Australia served as the funding recipient organisation and project lead, responsible for overall project management, stakeholder coordination, product development and management, metering and electrical expertise, technical problem-solving, charge point operator and knowledge capture. Intellihub brought extensive experience in metering and distributed energy resources, existing relationships with councils and network operators, and capability in data analysis and technology integration.

Schneider Electric (Australia) provided the EV charging hardware and technical expertise on equipment specifications, installation requirements, and integration with back-end systems. During the project, Schneider Electric discontinued production of the initially selected charger model, requiring adaptation to a newer model with different specifications and capabilities. This change, while creating short-term complexity, ultimately provided access to more advanced functionality and better integration of components.

Service Stream served as the field service operator responsible for physical installation of charging equipment. Service Stream brought expertise in working on distribution network infrastructure, established relationships with Ausgrid, and capacity to manage dispersed installation activities across the Sydney region. Service Stream established a practice installation at their warehouse facility, enabling refinement of mounting procedures, testing of equipment configurations, and pre-approval discussions with Ausgrid technical staff before proceeding to field installations.

Withywindle operated as the project advisory and knowledge sharing partner, providing expertise in policy analysis, stakeholder engagement, and documentation of learnings. Withywindle's involvement ensured that knowledge capture occurred systematically throughout the project lifecycle, and that findings were structured for maximum utility to industry participants.



Ausgrid, as the distribution network service provider for much of Sydney, served as a critical technical partner. Ausgrid staff reviewed pole selection criteria, assessed electrical capacity at potential sites, provided technical specifications for mounting equipment on network infrastructure, conducted safety reviews of installation designs, and negotiated the facilities access agreement governing use of poles.

Ausgrid's engagement evolved from cautious assessment in early phases to increasingly collaborative problem-solving as mutual understanding developed.

EVSE provided the charge point operator platform Exploren, equipment commissioning, handling payment processing, user interface through mobile applications, remote monitoring and control of charging equipment, and customer service for EV drivers using the network. This backend infrastructure is essential for operating public charging but largely invisible to users when functioning correctly.

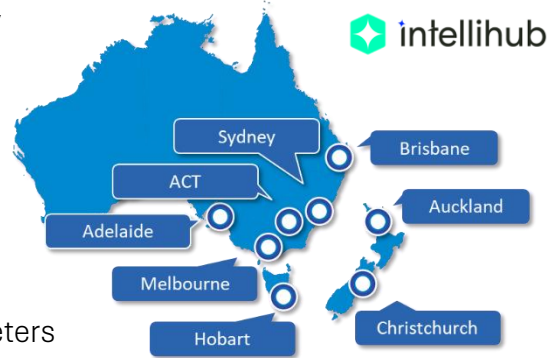
The eight participating councils provided local knowledge for site selection, approval authority for installations on council-controlled assets, community consultation services, parking regulation modifications to create EV-only bays, enforcement of parking restrictions, and ongoing liaison with local residents. The councils represented diverse approaches to EV infrastructure, from those with mature EV strategies to those taking first steps in this innovative domain.



About Intellihub Group

Intellihub Group is an Australia and New Zealand utility services company delivering innovative metering and data solutions to utilities with a focus on exceptional customer experience. The company provides multi-utility services across electricity, gas, and water networks for residential, commercial and industrial, embedded network, and solar metering customers.

The company currently has over 3 million advanced meters under management. Intellihub consistently installs up to 40,000 advanced meters per month and maintains contracts with all major retailers across Australia and New Zealand. This operational capability provided valuable experience relevant to the EV charging project, including expertise in managing dispersed field installations, integrating communications and backend systems, navigating regulatory requirements across multiple jurisdictions, and maintaining performance across a large installed base of smart infrastructure.



Throughout the project term, Intellihub has rapidly expanded into Behind-the-Meter services including via strategic acquisitions and partnerships – such as Evergen, EVSE and Pooled. Our unique technology platform, technical expertise and deep capital pool enables us to provide an end-to-end service that includes funding, procurement, installation, maintenance, monitoring, optimisation and orchestration of solar, battery & EV charging assets as part of a ‘one-stop shop’.

Intellihub's shareholders include Pacific Equity Partners, one of Australia's leading investment managers, and Brookfield, one of the world's largest alternative asset managers. Pacific Equity Partners manages the investment on behalf of co-investor partners including large institutions and on behalf of Australians and New Zealanders





2 | Executive Summary

This report consolidates key insights from Australia's first large-scale power pole-mounted EV charging project. It highlights predictive factors for site selection, strategic deployment guidelines, and hardware reliability lessons. These findings aim to inform industry stakeholders and support future EV infrastructure planning. As this project concludes its final phase, several learnings with industry-wide relevance have emerged. These are summarised below:

2.1 EV Charging Site Selection: Key Findings & Formula

Strongest Predictive Factors (by correlation strength):

- Residential Density: +0.61 correlation - strongest single predictor
- Local EV Ownership: +0.55 correlation - critical planning metric
- POIs within 300m: +0.52 correlation - "charge while you shop" effect
- Visibility: +0.51 correlation - frontage on main roads/retail corridors
- Retail Adjacency: +0.49 correlation - proximity to cafés, shops, services
- Parking Availability: +0.47 correlation - clear, legal EV parking spaces
- Charger Speed: +0.43 correlation - faster chargers see higher throughput
- Transit Stops (300m): +0.39 correlation - moderate impact

2.2 Predictive Formula

The regression model explains 81% of usage variation:

Expected Daily Energy (Wh) =
105 × Residential Density (people/ha)
+ 85 × POIs within 300m
+ 60 × Transit Stops within 300m
+ 140 × Visibility Score (0-1)
+ 120 × Retail Adjacency (0-1)
+ 95 × Charger Speed Index (0-1)
+ 110 × Local EV Ownership Rate (0-1)
+ 2,100

2.3 Strategic Insights

- Sweet spot: 4,000-7,000 people/km² density with 80+ POIs nearby
- Visibility matters more than transit access - prioritize main road frontages
- Retail clustering drives usage - locate near shopping/dining precincts
- Avoid oversaturation - consider existing chargers within 1km as penalty factor
- Regional limitations - even well-connected regional areas show lower usage patterns

2.4 Implementation

- Focus on high-density, amenity-rich locations with good visibility and retail proximity, while monitoring local EV adoption rates for optimal deployment timing.
- Rigorous testing and staged deployment of EV Charger OEM firmware is important to prevent fleet wide issues.



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Milestone 4

Knowledge Learnings



3 | Knowledge Learnings

Intellihub has delivered Australia's first and largest power pole-mounted EV charging project. This ARENA-funded initiative involved installing 50 EV chargers on street-side power poles across Sydney, in partnership with 8 local councils and DNSP Ausgrid. The pilot aimed to capture technical, regulatory, engineering, community, and commercial learnings over 12 months

This final knowledge-sharing report focuses on usage patterns and hardware considerations. Key activities included gathering and analysing usage data to identify drivers of performance.

The focus of this final knowledge sharing report is centred around usage and hardware considerations.

The milestone activities include:

- Gathering usage data
- Analysing usage data



3.1 | Lesson 1 – Location Selection is the Paramount Success Factor

3.11 Category

Commercial

3.12 Lesson learnt title

Location Selection is the Paramount Success Factor

3.13 Summary

The single most important finding from this project is that location selection determines economic viability to an extent that dwarfs all other factors. The top-performing site delivered more than 20 times the energy of the worst-performing site over the same operational period. This variation is not marginal but rather determinative of whether a site can achieve acceptable commercial returns.

3.14 Lesson Detail

Working with local councils, site selection took into account geographic spread and high variety of site characteristics to serve the community and to derive useful planning insights. As such a large variation in usage across sites was found. The highest performing site was Arncliffe Street Wolli Creek, accounting for 11.5% of total energy delivered, the next highest site was under half that at 5.6% in Ashburner street, Manly, ignoring difference in installation dates. The top 5 sites accounted for 29.3%, the next 5 sites 18.2%.

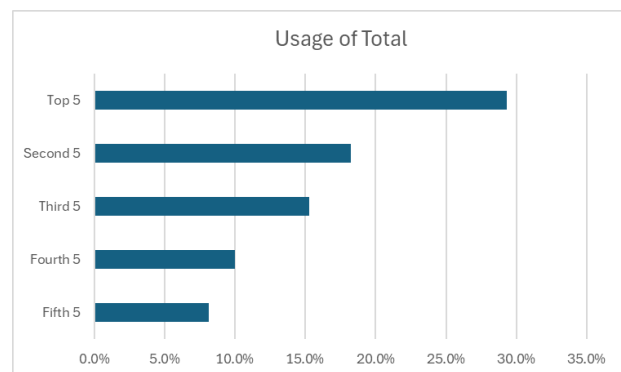


Figure 1 - Usage of Total

High-performing sites: Arncliffe St (Wolli Creek), Ashburner St (Manly), Pinaroo Pl (Lane Cove North), Paddington strips – all mixed-use, high-footfall precincts with strong residential density.

Low-performing sites: Poor signage, ICEing issues, and lack of nearby amenities (e.g., Smith Street, Charlestown). Given this wide variation, the focus of this milestone report is looking at the underlying generators of usage, so that future installations can benefit from the knowledge generated from the data.



Quick highlights

High performing sites:

Examples are Arncliffe St, Wolli Creek, West Promenade & Ashburner St (Manly), Pinaroo Pl (Lane Cove North), Paddington strips.

These are classic mixed-use, high-footfall precincts with good residential density.



Figure 2 - Arncliffe St, Wolli Creek

Low performing sites:

The low performing sites are located in low density areas, far from popular destinations, have insufficient signage, resulting in frequent ICEing. An example is Smith Street in Charlestown (see below), where the site has no signage, frequently ICed, where construction has occurred during most of the trial.

Site availability and desirability can be limited due to the multiple levels of assessment and approval required by council and DNSPs. Often the most desired and likely highest utilised sites were not always allowed by councils to balance community 'available parking' interests, a hotly contested public amenity, and a desire for geographic spread of EV infrastructure, in lower density areas. For the pilot term, this was observed to lead to poorly utilised sites, significantly effecting commercial viability.



Figure 3 - Smith Street, Charlestown

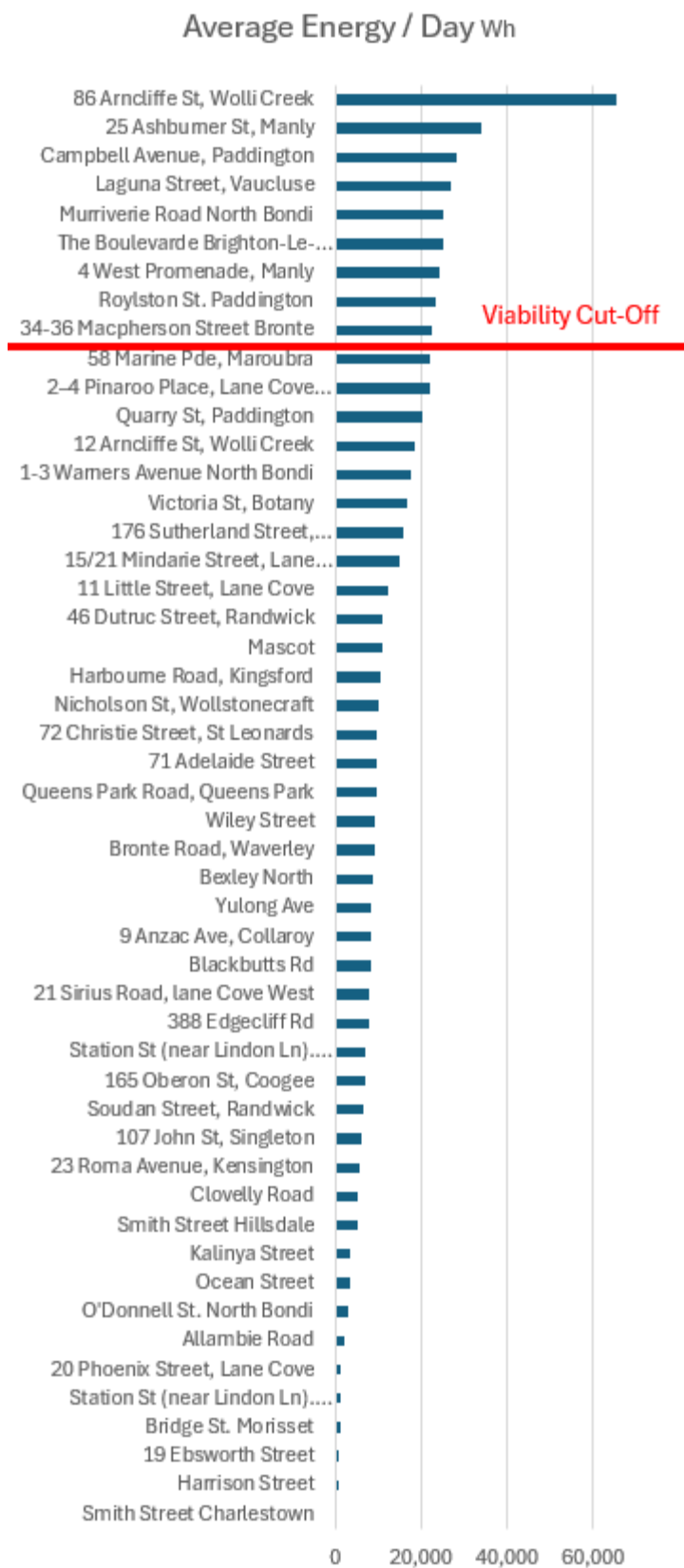


Figure 4 - Average consumption per day (Wh)



Key Findings by Factor Category

Primary Demographic Drivers

Residential Density (+0.61 correlation - strongest predictor)

- For every 10 additional people per hectare, expect ~1,050 Wh more daily usage
- Sweet spot identified: 4,000-7,000 people/km² provides optimal balance
- Ultra-high density areas (8,000+ people/km²) show mixed results - CBD-adjacent locations like Coogee and Edgecliff perform variably
- Very high density beachside suburbs (6,000-8,000 people/km²) like Manly, North Bondi, and Paddington show consistently strong performance

Local EV Ownership Rate (+0.55 correlation)

- Critical planning metric that directly correlates with usage patterns
- Higher adoption areas provide built-in user base and word-of-mouth promotion
- Essential for timing deployment decisions in emerging markets

Location & Accessibility Factors

Points of Interest (POIs) within 300m (+0.52 correlation)

- Each additional POI contributes ~85 Wh/day to usage
- Moderate correlation (0.284) but consistent across all site types
- Retail, food, fitness, and community facilities all contribute positively
- "Charge while you shop" behaviour drives extended dwell times
- POI clustering effect: benefits compound in amenity-rich areas

Visibility from Main Roads (+0.51 correlation)

- Surprisingly powerful factor - more important than transit access
- Frontage on arterial/collector roads significantly boosts discovery
- Correlation with AADT (Annual Average Daily Traffic) suggests exposure drives adoption
- Critical for new user acquisition and spontaneous usage

Retail Adjacency (+0.49 correlation)

- Proximity to cafés, shops, and services creates natural charging opportunities
- Enables productive use of charging time, increasing user satisfaction
- Particularly effective in mixed-use developments and shopping precincts

Parking Availability (+0.47 correlation)

- Number of legal on-street bays within 50m usable for ≥90 minutes
- Clear, dedicated EV parking spaces reduce user friction
- Availability during peak demand periods is crucial
- Infrastructure & Technical Factors

Charger Speed (+0.43 correlation)

- Faster chargers (22kW vs. 7kW) see higher daily energy throughput
- Important but not dominant - convenience often trumps speed in urban settings
- Speed Index considers both maximum power and charging curve efficiency

Transit Accessibility (Variable impact)

- Transit stops within 500m: +0.140 correlation (weak but positive)
- Transit stops within 300m: +0.084 correlation (very weak)



- Each nearby stop contributes ~60 Wh/day
- More effective in mixed-use zones than purely residential areas
- Major transport interchanges can be outliers (e.g., Wolli Creek with 42.8 MWh usage)

Notable Patterns and Anomalies

Geographic Performance Insights

- **Beachside Premium:** Coastal locations with good amenities consistently outperform density predictions
- **Transport Hub Effect:** Major interchanges like Wolli Creek show exceptional usage despite moderate density
- **Regional Limitations:** Well-connected regional areas (Singleton, Morisset) underperform due to different travel patterns
- **CBD Variability:** Ultra-high density central areas show mixed results, suggesting saturation effects

Interaction Effects

- **Density × POI Synergy:** POIs become more valuable in denser areas
- **Transit × Mixed-Use:** Transit proximity matters more in commercial zones than residential-only areas
- **Visibility × Retail:** Combined effect of road frontage and retail clustering amplifies usage

Predictive Model Framework

Primary Formula (81% accuracy)

Expected Daily Energy (Wh) =

$$\begin{aligned} & 105 \times \text{Residential Density (people/hectare)} \\ & + 85 \times \text{POIs within 300m (count)} \\ & + 60 \times \text{Transit Stops within 300m (count)} \\ & + 140 \times \text{Visibility Score (0-1 normalized)} \\ & + 120 \times \text{Retail Adjacency (0-1 normalized)} \\ & + 95 \times \text{Charger Speed Index (0-1 normalized)} \\ & + 110 \times \text{Local EV Ownership Rate (0-1 normalized)} \\ & + 2,100 \text{ (base usage constant)} \end{aligned}$$

Practical Siting Formula for Implementation

For candidate site scoring using normalized (0-1) features:

Charger Location Score =

$$\begin{aligned} & 0.25 \times \text{Pop500 (population density within 500m)} \\ & + 0.20 \times \text{POI300 (log POI count within 300m)} \\ & + 0.15 \times \text{Transit500 (transit accessibility index)} \\ & + 0.15 \times \text{Visibility (road class/AADT scaling)} \\ & + 0.10 \times \text{DestDwell (destination-dwell alignment)} \\ & + 0.05 \times \text{SafetyLit (lighting/safety proxy)} \\ & + 0.05 \times \text{GridHead (grid capacity headroom)} \\ & + 0.05 \times \text{Parking50 (available bays within 50m)} \\ & - 0.05 \times \text{Comp1k (existing chargers within 1km penalty)} \end{aligned}$$



3.15 Implications for future projects

Strategic Implementation Guidelines

Investment in thorough site selection analysis must be the highest priority for any charging infrastructure deployment. The cost of comprehensive GIS analysis, data compilation, and predictive modelling is trivial compared to the cost of deploying infrastructure in poor locations. A site that will never achieve commercial viability cannot be rescued by operational improvements, marketing campaigns, price

Priority Site Characteristics

1. **High-value targets:** 5,000-7,000 people/km² with 80+ POIs within 300m
2. **Visibility essential:** Prioritize arterial road frontages over hidden locations
3. **Retail clustering:** Target shopping precincts, café strips, and mixed-use developments
4. **Adequate parking:** Ensure 90+ minute legal parking availability
5. **Grid readiness:** Confirm local network capacity before deployment

Deployment Sequencing

1. **Phase 1:** High-density, high-amenity locations with proven EV ownership
2. **Phase 2:** Moderate-density areas with strong retail/transit connections
3. **Phase 3:** Regional centers with major transport infrastructure
4. **Ongoing:** Monitor competition density to avoid oversaturation

Risk Mitigation

- **Saturation monitoring:** Consider existing chargers within 1km as penalty factor
- **Equity considerations:** Balance commercial viability with access needs
- **Grid constraints:** Prioritize locations with available electrical capacity
- **Future-proofing:** Account for planned developments and transport improvements

Success Optimisation

- **Amenity synergy:** Co-locate with complementary services (cafés, retail, gyms)
- **Wayfinding:** Ensure clear signage and digital visibility
- **Speed matching:** Align charger speed with typical dwell times for location type

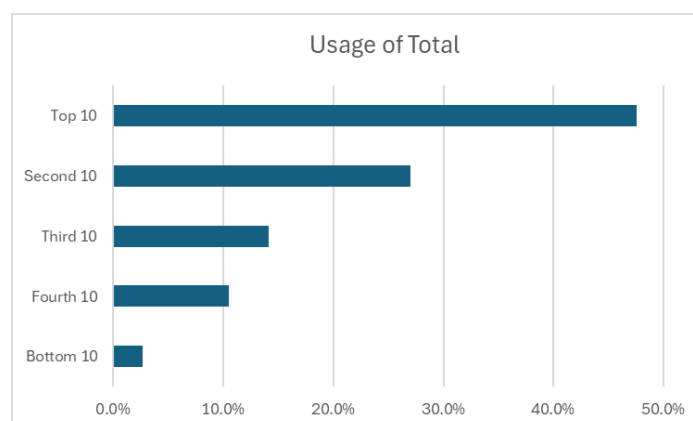


Figure 5 - Usage of Total



3.2 | Lesson 2 – Firmware and Hardware Reliability Management

3.21 Category:

Technical

3.22 Lesson learnt title:

Firmware and Hardware Reliability Management

3.23 Summary

Rigorous testing and staged deployment of EV Charger OEM firmware updates is important to prevent fleet wide hardware failure.

3.24 Lesson Detail

During the 12-month project, downtime occurred due to equipment reliability. After troubleshooting, the root cause was traced to a failed remote OEM firmware upgrade that rendered most units temporarily inoperable. This required site visits for hardware replacement. Beyond the financial impact, the incident temporarily affected user confidence and highlighted the importance of robust reliability measures in EV infrastructure.

Following the seasonal dip in January and February, recovery in usage was further delayed by this outage. Usage levels have only recently returned to pre-outage performance (see below).

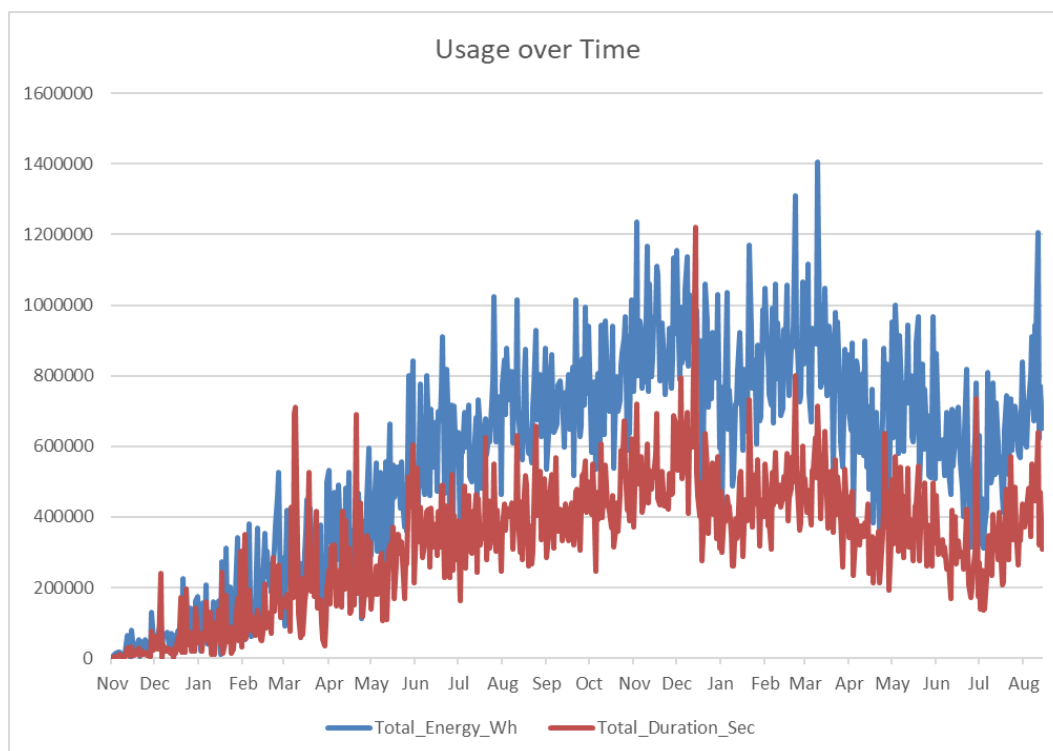


Figure 6 - Usage over time



3.25 Implications for future projects

Temporary outages following a firmware update reinforced the need for rigorous testing and staged deployment. Intellihub has since implemented enhanced protocols to ensure resilience.

Risk Mitigation Recommendations

- Implement staged firmware updates with rollback capability.
- Introduce remote diagnostics and recovery tools to reduce site visits.
- Maintain a proactive maintenance schedule supported by predictive analytics.

Confidence Restoration Measures

- Strengthened SLAs with councils and partners to ensure rapid response.
- Enhanced communication protocols to keep stakeholders informed during outages.
- Introduced additional signage and digital visibility to reassure end-users.

Implementing these measures will improve system resilience, reduce operational costs, and restore stakeholder confidence in EV infrastructure reliability.



4 | Conclusion

1. Location selection is an essential prerequisite for success, and good locations greatly outperform. Only good locations are economically viable. Included in location selection should be good signage and line marking. We have now established a “recipe” for site selection, which should be used for optimal locations.

2. Hardware and firmware issues temporarily affected utilisation, reinforcing the importance of robust testing and vendor management. Enhanced protocols are now in place to ensure resilience.

3. Anecdotally, ICEing of charge spaces is a problem. This is difficult to quantify, however there have been a number of reports of this. Council cooperation is required to ensure parking spaces are kept free for EVs.

Intellihub and its partners will continue to monitor usage data and refine the location models to maximise usage for future deployments. Consideration will be given to relocating underperforming units as confidence in new location performance increases.

Careful selection of hardware for future deployments, and testing before firmware updates are rolled out will be instigated.



Appendix

Data Sources

-  Regional population, 2023-24 financial year | Australian Bureau of Statistics abs.gov.au
-  Data by region | Australian Bureau of Statistics abs.gov.au
-  Search Census data | Australian Bureau of Statistics abs.gov.au
-  Population | Australian Bureau of Statistics abs.gov.au
-  Regional population, 2021 | Australian Bureau of Statistics abs.gov.au
-  Suburbs and Localities | Australian Bureau of Statistics abs.gov.au
-  ABS Maps | Australian Bureau of Statistics abs.gov.au
-  National, state and territory population, December 2024 | Australian Bureau of Statistics abs.gov.au
-  Find Census data | Australian Bureau of Statistics abs.gov.au
-  Regional population, 2021-22 financial year | Australian Bureau of Statistics abs.gov.au
- NSW population density suburbs API dataset download residential density per suburb
- 10 results
-  Suburb - Datasets - Page 1 - Data.NSW nsw.gov.au
-  Home | Data.NSW nsw.gov.au
-  Regional population, 2023-24 financial year | Australian Bureau of Statistics abs.gov.au
-  List of population demographics of New South Wales by local government area - Wikipedia
- wikipedia.org
-  Data by region | Australian Bureau of Statistics abs.gov.au
-  ABS - Census of Population and Housing - Selected Person Characteristics By Sex - Suburb Level - G01 — Cumberland City Council nsw.gov.au
-  Suburb - Dataset - SEED - NSW Government nsw.gov.au
-  State Suburbs - Australia — Opendatasoft opendatasoft.com
-  NSW Suburb Dataset data.gov.au



Glossary

AADT – Annual Average Daily Traffic

A standard measure of the average number of vehicles passing a point on a road each day. Used to estimate site visibility and traffic exposure.

ABS – Australian Bureau of Statistics

Australia's national statistical agency responsible for demographic, economic, and geographic datasets used in project analysis.

AC – Alternating Current

The type of electrical current delivered by AC EV chargers, including the 22kW chargers used in this project.

AEMC – Australian Energy Market Commission

Responsible for rule-making and market development in the National Electricity Market.

AEMO – Australian Energy Market Operator

Operator of the National Electricity Market and gas markets, responsible for system security and metering compliance.

AER – Australian Energy Regulator

Regulates energy markets and networks, including overseeing network pricing and compliance obligations.

ARENA – Australian Renewable Energy Agency

Federal agency funding renewable energy innovation, including this project under the Advancing Renewables Program.

AS/NZS – Australian/New Zealand Standards

Joint standards governing electrical installations, safety, and equipment compliance (e.g., AS/NZS 3000).

CER – Consumer Energy Resources

Distributed energy assets such as solar, batteries, smart inverters, EV chargers, and other behind-the-meter technologies.

C&I – Commercial and Industrial

Refers to business-scale energy users and metering deployments.

CPO – Charge Point Operator

Entity responsible for operating and managing EV charging infrastructure. Intellihub served as the CPO for this project.

**DD – Due Diligence**

Assessment processes used to evaluate technical, regulatory, and commercial risks or requirements.

DNSP – Distribution Network Service Provider

Network operators responsible for poles, wires, and local electricity distribution (e.g., Ausgrid).

EV – Electric Vehicle

Vehicles powered by electricity stored in batteries, requiring charging infrastructure like that deployed in this project.

EVSE – Electric Vehicle Supply Equipment

Charging hardware and associated services; also the name of the project's back-end software and service partner.

FAA – Facilities Access Agreement

Agreement with a DNSP governing use of electricity poles and infrastructure for mounting EV chargers.

GIS – Geographic Information System

Tools used to analyse spatial datasets such as density, POIs, road networks, and EV ownership patterns.

GM – Gross Margin

A financial metric used to assess project revenue performance excluding downstream overheads.

ICEing – Internal Combustion Engine Parking

When non-EV vehicles occupy EV charging bays, blocking access and reducing utilisation.

kW – Kilowatt

A measure of electrical power output, such as 7kW, 11kW, or 22kW EV chargers.

kWh – Kilowatt-hour

A measure of energy delivered or consumed; used to quantify EV charging sessions.

LGA – Local Government Area

Council jurisdiction responsible for approvals, consultation, signage, line marking, and community engagement.

LNSP – Local Network Service Provider

Another term for DNSP, used in AEMO documentation referring to distribution network operators.

MC – Metering Coordinator

AEMO-accredited role responsible for metering safety, compliance, and asset management.

MDP – Metering Data Provider

Responsible for collecting, validating, and delivering metering data for settlement and billing.

**MP / MPB – Metering Provider / Metering Provider B**

Entities responsible for installing, maintaining, and testing electricity meters.

MDMS – Meter Data Management System

Software systems used to validate, estimate, substitute and process electricity interval data.

MDC – Meter Data Collector

Component of metering systems that retrieves interval data from meters for processing.

NEM – National Electricity Market

The wholesale electricity market covering Australia's eastern and southern states.

NER – National Electricity Rules

The rules governing the NEM, including metering standards and operational requirements.

NMI – National Metering Identifier

A unique identifier for billing-grade meters installed at each charging site.

NSW – New South Wales

The Australian state in which this project was conducted.

OEM – Original Equipment Manufacturer

Refers to hardware suppliers such as Schneider Electric, including firmware updates that impacted project uptime.

OPEX – Operating Expenditure

Ongoing operational costs associated with running the charging network.

POI – Point of Interest

Nearby amenities such as shops, cafés, gyms, or services used to predict charging demand.

R² – Coefficient of Determination

Statistical measure of model accuracy; used for evaluating the predictive model ($R^2 = 0.81$).

SLA – Service Level Agreement

Performance commitments regarding uptime, response times, and remedy processes.

UGOH – Underground to Overhead

Type of pole configuration where cables transition from underground to overhead, with implications for charger mounting and safety.

VPP – Virtual Power Plant

Aggregated distributed energy resources managed as a coordinated system.

Wh – Watt-hour

Unit of measurement for energy used in EV charging reporting and analytics

