eLumina

CASE STUDY

D3 Battery-Integrated Fast Charger ROI Analysis



- 88% growth in charging sessions during the first year.
- Stable utilisation demonstrated after the initial growth period with capacity for more.
- Approximately 130 MWh annual charging throughput with stable utilisation.
- Up to AUD $61,100 annual gross operating profit.
- Estimated 24.5% ROI and 4 year payback.

Executive Summary

This charger is located at a sporting precinct south of Brisbane, Queensland. Our new model D3 can provide charging speeds of up to 200kW and supports charging of 2 vehicles simultaneously.

The charger showed strong utilisation growth during its first year, with charging sessions increasing by 88%, stabilising at a mature utilisation level of 11 sessions per day.

Using the mature utilisation period as the basis for future operation, is expected to deliver 130 MWh of charging energy annually from Year 2 onwards, generating AUD $61,100 of annual gross operating profit and achieving a simple ROI of approximately 24.5% with a payback period of 4.1 years.

Measured Site Performance

Monitoring period	1 May 2025 to 2 September 2026
Total charging sessions	4,778
Average sessions/day (first 12 months)	9.51
Mature utilisation	11.14 sessions/day
Average energy/session	31.9 kWh
Annualised energy throughput	130 MWh/year

Analysis

The charging data shows a clear adoption phase during the first 12 months. Utilisation increased from 6.5 sessions per day to 12.2 sessions per day, representing approximately 88% growth, before stabilising at around 11 sessions per day.

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Mature Throughput Forecast

For forecasting purposes, the analysis distinguishes between the early adoption period and the mature operating period. This avoids overstating future performance from ramp-up growth, while still using actual site data to establish a conservative, steady-state operating case.

The mature operating period provides the best basis for future forecasting. Based on mature sessions/day (11.14) and average energy per session (31.9 kWh), the mature throughput is approximately 355 kWh/day or 130 MWh/year.

Financial Analysis

The financial analysis is based on the following gross-margin assumptions: CAPEX of AUD $249,000, charging tariff of AUD $0.80/kWh, electricity cost of AUD $0.33/kWh, and gross margin of AUD $0.47/kWh.

Metric	Value
Annual energy delivered	130 MWh
Annual revenue	$104,000
Electricity cost	$42,900
Gross operating profit	$61,100

Simple ROI and Payback

Metric	Value
CAPEX	$249,000
Annual gross profit (from Year 2 onwards)	$61,100
Simple ROI (from Year 2 onwards)	24.5%
Payback period	4.08 years

Assumptions

Calculations do not include: demand charges, maintenance costs, financing costs, insurance, tax treatment, site lease costs, battery degradation, charger availability assumptions, or residual value. These exclusions should be reviewed before using the results as a full investment case.

Conclusion

The site performance supports a commercially credible case for eLumina's D3 battery-backed fast charging where grid capacity is constrained. Analysis of more than 4,700 charging sessions indicates the site is expected to deliver approximately 130 MWh of charging energy annually during the mature operating period, generating approximately AUD $61,100 of annual gross operating profit. With a capital investment of just AUD $249,000, the installation achieves a simple ROI of approximately 24.5% from Year 2 onwards and a payback period of 4.1 years. The investment case should be validated against full site costs, demand charges, maintenance, battery degradation and financing assumptions before final approval.

Is Your Site a Strong Candidate?

A strong fast-charging site combines regular vehicle dwell time, safe access, visible parking bays, reliable communications and space for charging equipment. Battery-integrated charging is particularly relevant where demand for fast charging exists, but the available grid connection is limited or network upgrade costs are difficult to justify. Strong candidate sites typically include fleet depots, sporting and entertainment precincts, regional stopover locations, commercial car parks, retail sites, logistics facilities and sites where EV charging can improve customer amenity, fleet efficiency or new revenue generation.

Our battery-integrated charging solutions deliver high-power charging from limited grid connections, supported by site assessment, system design, commissioning, monitoring and ongoing technical support.

Day-to-Day Charger Operation

A Charge Point Operator can manage customer access, payments, billing, remote monitoring, availability reporting and revenue administration on your behalf. This allows you to offer fast charging as a customer amenity or revenue opportunity without needing to operate the charging network internally.

Maintenance and Support Responsibilities

Maintenance and warranty support can be managed by eLumina or an authorised service partner under an agreed support arrangement. Your role is typically limited to providing safe access, basic site presentation and reporting any visible damage, access issues or operational concerns.

Financing and Grant Support

eLumina can help you assess financing options that reduce upfront capital requirements, including leasing structures. Where relevant funding programs are available, eLumina can also support grant applications with equipment details, technical inputs, project descriptions and commercial information.