

Overview of charging system installation process

Installation process

The installation process for EV chargers is outlined below:

Action 1: Site inspection

A site inspection is undertaken by an electrician in order to perform the following tasks;

- **Assess condition and capacity of switchboard**

If the site is older than 30 years old, its switchboard may need replacing. An old switchboard is more likely to have been modified poorly, may contain asbestos, have deteriorated wiring or faulty fuses and is less likely to be designed for modern, high-power appliances such as EV chargers. If you intend on installing an EV charger, now may be an ideal time to upgrade to a new switchboard.

- **Determine load of charging system**

When applying to the local distribution company (Essential Energy), the installer will need to provide assumptions around the load that the charging stations will draw at the site. In order to avoid upgrade costs, the key question will be what the peak capacity will be given to new chargers. The distributor will apply a standard load expectation based on AS/NZS 3000 recommendations. The relevant section of the standard is Table C2 which recommends a demand management allowance for EVs of 100% of the rated load of the largest charger and 75% of rated load of chargers thereafter.

- **Estimate service room for EV charging system**

A network connection under 100 A single phase (or 63 A three phase) will require a *Basic* Connection Offer Contract. If the intention is to install a charging system that will require replacing a switchboard with one greater than 100 amps you will require a *Standard* Connection Offer Contract and approval from the Essential Energy Regional Inspector to determine if the load meets the NSW Service and Installation Rules¹.

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<https://energy.nsw.gov.au/government-and-regulation/legislative-and-regulatory-requirements/service-installation-rules>

- **Assess location of charging station in relation to switchboard and determine cable runs.**

An electrician can provide advice about the degree of difficulty and cost of running cables through ceilings/walls or through underground conduits.

Action 2: Network capacity

It is important to engage with the Essential Energy early on in the process as in rare cases, even a single Level 2 AC charger may trigger the requirement for upstream network upgrades.

Consult the Essential Energy “Connecting to the network information pack” on how to prepare an application².

Action 3: Obtain landholder permission

Before the commencement of any work engage with the landholder. This will be either the Council or Lessor of the site unless the owner is the applicant.

Action 4: Choose an installer

Refer to “Minimum Qualifications of Proponents” of Baseline Technical Requirements section of this document for New Installations of Vehicle Charging Infrastructure.

Installers that operate in the Centroc region include:

- Jetcharge
- EVSE Australia
- Everty
- EVolution Australia
- E-Station
- NHP
- Chargers Direct
- Energis

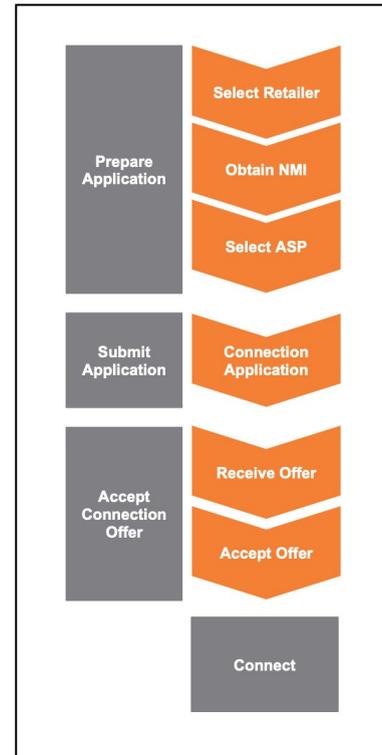
Action 5: Draw charge station plans

A charge station plan should be drawn up by the installer or by an architect or drafter and provided to the council planning department for approval.

Action 6: Obtain planning approval

Planning approval will:

- **be exempt** if the charger will be installed in an existing car park
- **be compliant** if the charger is assessed by a certified compliance officer (Council)
- **require a planning permit** from the Council:
 - if the charge station changes the use of the site
 - if the charge station requires addition structure such as canopy
 - if the site is heritage listed



² <https://www.essentialenergy.com.au/our-network/connecting-to-the-network>

Action 7: Switchboard upgrade and network connection

The electrical design work, installation and energising of a new connection to the electricity network must be done by a Level 2 Accredited Service Provider (ASP), while an upgrade to an existing connection can be done by a Level 3 ASP with associated civil works best done by a local contractor.

For a list of Level 2 Service Providers for service work/connection services in NSW, visit the NSW energy saver website³ under 'List of Level 2 Accredited Service Providers'.

Action 8: Installation of charge station

The charge station installation can be procured as a *turnkey* solution by installers listed above under Action 4, or similar organisations. The project can also be managed by the council with separate procurement of civil, electrical and hardware. Separating procurement can reduce project costs, but increases complexity and risk and means there is no single entity able to warrant the full EVSE implementation.

For a council managed installation, the EVSE hardware must be procured, either from the installers listed above or from the manufacturer. The council must then coordinate the following contracts:

- Civil - Road surface, trenching and coring, concrete foundations for EVSE and protective structures (bollards).
- Electrical - Circuit breaker, cabling, isolator and conduits.
- Site - Signage, bollards, tyre stops, line markings

Action 9: Commissioning of charge station

All EV charging stations must be designed, installed, connected, tested, inspected and certified in accordance with AS/NZS 3000 and the manufacturer's installation instructions.

³ <https://energysaver.nsw.gov.au/households/you-and-energy-providers/installing-or-altering-your-electricity-service>