EECA INSIGHTS

Efficient and low emissions transport

# New Zealand Public EV Charger Map

**Data Methodology**

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# Contents

# Foreword

Enabling widespread public access to EV charging is a key way to support and enable decarbonisation of New Zealand's vehicle fleet, and is an important part of the Government's ongoing work. EECA has already co-funded more than 700 EV chargers, of which 300 are fast DC chargers, through the Low Emissions Transport Fund (LETF, formerly known as the Low Emission Vehicles Contestable Fund) and we now have EV chargers every 75 km along almost all of the state highway network.

EECA has developed this interactive data visualisation map to complement our work on developing a public charging roadmap for New Zealand, and to help inform other programmes such as the Low Emissions Transport Fund (LETF). This database has been collated to enable more informed decision making around the future for EV public charging for New Zealand and is provided as open data. It will be updated regularly as we continue to bring together more datasets to assist in building a better understanding of the changing needs of New Zealand EV drivers.

This document outlines the key considerations for our initial basic spatial data approach to accompany "***State of charge:*** *Consultation paper on developing a short-term roadmap for the public electric vehicle charging network*". Together, the data visualisation map and the consultation paper are provided to enable more informed decision making on proposed approaches for identifying future locations for public fast EV charging infrastructure. This will then inform EECA's approach to investment in the public EV charging network over the next 12-24 months, and test the approach for developing further EV charging requirements in the future.

Kate Kolich
Manager Evidence Insights and Innovation

EECA TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

# 1 New Zealand Public EV Charger Map

## 1.1 Background

This database and interactive map accompanies the EECA consultation document "***State of charge:*** *Consultation paper on developing a short-term roadmap for the public electric vehicle charging network*". The interactive map contains information that forms the basis for stakeholder consultation on the EV charging network's future design. The map is based on currently available datasets that are relevant to the public EV charging network and will be updated as new and relevant data becomes available.

**Chargers included**

All publicly available DC chargers of rated power 25 kW or higher are considered, including en route on the state highway network and at destination charging points, such as supermarkets or accommodation.

## 1.2 Data in scope for the basic spatial approach

The basic spatial approach is supported by existing datasets which help inform where additional chargers should be installed to support growing demand. The data which was in scope for this approach, and which has populated the visualisation tool, is restricted to DC charge stations of rated power 25 kW or higher, and includes the characteristics of:

- Region,
- Locality,
- Address,
- Latitude and longitude coordinates,
- Owner,
- Operator,
- Rated power,
- Connectors,
- Number of chargers installed,
- Number of chargers in progress, if known,
- EECA funded stations (yes/no).

Tesla Superchargers were excluded as they currently can only charge Tesla vehicles. These will be added to the database in future should they become accessible to all EVs.

The tool can also display secondary data such as the travel range enabled by fast charging stations, and traffic volumes on main routes.

Another secondary dataset included in the tool is electricity network Grid Exit Points (GXPs) along State Highway 1 (SH1) between Auckland and Taupo to illustrate locations along this route that may be able to accommodate high-capacity charging sites.

It is important to note that the data displayed in the current release is static and will be updated periodically.

## 1.3 Data collection methodology

### 1.3.1 Existing charging stations

Data on existing charging stations were obtained from the open dataset on EVRoam[1] and EECA's Low Emission Vehicles Contestable Fund (LEVCF) database[2]. EVRoam is a live database of New Zealand's electric vehicle charging infrastructure, managed by Waka Kotahi. It collects real-time information from all compliant and connected public charge points around New Zealand and freely distributes it. Charger owners are able to register their chargers in EVRoam, however this process is optional, and for that reason some charger information have been obtained from EECA's LEVCF database when chargers are not listed on EVRoam.

EVRoam data used in this release were obtained from the publicly available dataset on the 2nd of October 2021.

### 1.3.2 Criteria for counting the number of installed chargers

The method of counting the number of chargers required a clear definition, because a single charging location can have multiple charging connectors, however the number of connectors does not necessarily match the number of cars that can be charged simultaneously.

**Number of installed chargers**

In our database the number of installed chargers refers to the number of cars that can be charged simultaneously.

Our counting based on the above definition can be understood using the following example as outlined from EVRoam data:

| Name | Address | Connectors |
|---|---|---|
| Hamilton South | 58 Anglesea Street, Hamilton | DC, 25 kW, CHAdeMO<br>DC, 25 kW, Type 2 CCS<br>DC, 25 kW, CHAdeMO<br>DC, 25 kW, Type 2 CCS |

In New Zealand, chargers usually have two types of connectors: CHAdeMO and Type 2 CCS. These cover most vehicles on New Zealand roads, and those with other plugs (such as some Tesla models) use adaptors to access these stations. However, for each pair of these adaptors, we note that only 1 car can be charged at a time. Based on this criteria, the location in the example above, which has 2 CHAdeMO 25kW connectors and 2 CSS 25kW connectors, can charge 2 vehicles at the same time, and thus the number of chargers is counted as 2.

[1] https://www.journeys.nzta.govt.nz/ev-chargers-list-view/
[2] EECA internal

Further information on EV charger standards and specifications can be found in SNZ PAS 6010:2021 Electric vehicle (EV) chargers for commercial applications[3].

### 1.3.3 The Low Emission Vehicles Contestable Fund (LEVCF)

EECA's LEVCF has funded over 300 fast DC chargers since its first round in 2017.[4] Internal EECA data from this fund has been used to identify chargers not listed on EVRoam.

## 1.4 Frequency of data releases to the New Zealand Public EV Charger Map

The best way to keep up to date on new data releases to the New Zealand Public EV Charger Map is to register for the EECA Newsletter (sign up here) and check the website frequently for updates. All data releases will be added to release notes in the about text on the data visualisation tool.

[3] https://www.standards.govt.nz/shop/snz-pas-60102021/
[4] https://www.eeca.govt.nz/co-funding/transport-emission-reduction/co-funded-transport-projects/

# 2 New Zealand Public EV Charger Map visualisation tool

This section provides an overview of the New Zealand Public EV Charger Map visualisation tool: an interactive data visualisation tool that enables exploration of the data. This is free to access on the EECA website.

www.eeca.govt.nz/nz-public-ev-charger-map

## 2.1 Map View

The main landing page of the New Zealand Public EV Charger Map is an interactive map of New Zealand, as seen in Figure 1. On the left-hand side of the screen, the following information layers can be selected:

- State Highway network – divided into very high, high, and medium traffic flow,
- Charging locations by rate of charge,
- Analysis – such as fast charging travel range, gaps of 75 km or more between chargers, and GXPs on State Highway 1 between Auckland and Taupo,
- Chargers which have been co-funded by EECA's LEVCF.

On the right-hand side, the number of selected locations and chargers are displayed, as well as a button to download the selected data in a .csv file.

The map in the centre of the screen displays the selected locations, which can be hovered over to display its rate, number of installed chargers, and number of chargers in progress (if known).

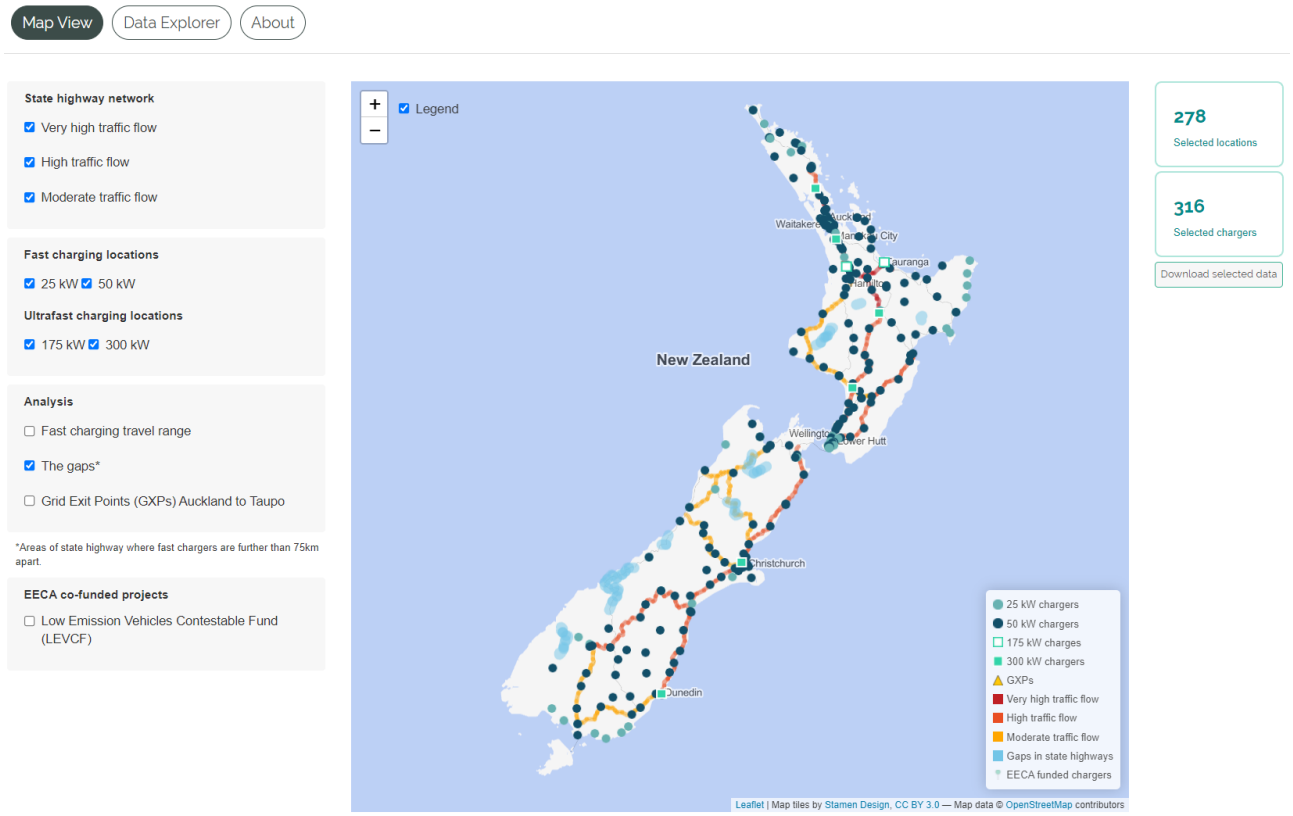


Figure 1: Landing page with the map view of the New Zealand Public EV Charger Map.

## 2.2 Data Explorer

The Data Explorer page shows a bar graph with the number of installed chargers by region (Figure 2). For further detail, the drop down on the left can be used to select a region to summarise the number of fast charger locations, installed fast chargers, and installed ultrafast chargers in this area. The chart is available for download as an image or as an open dataset and available to use under a creative commons licence.

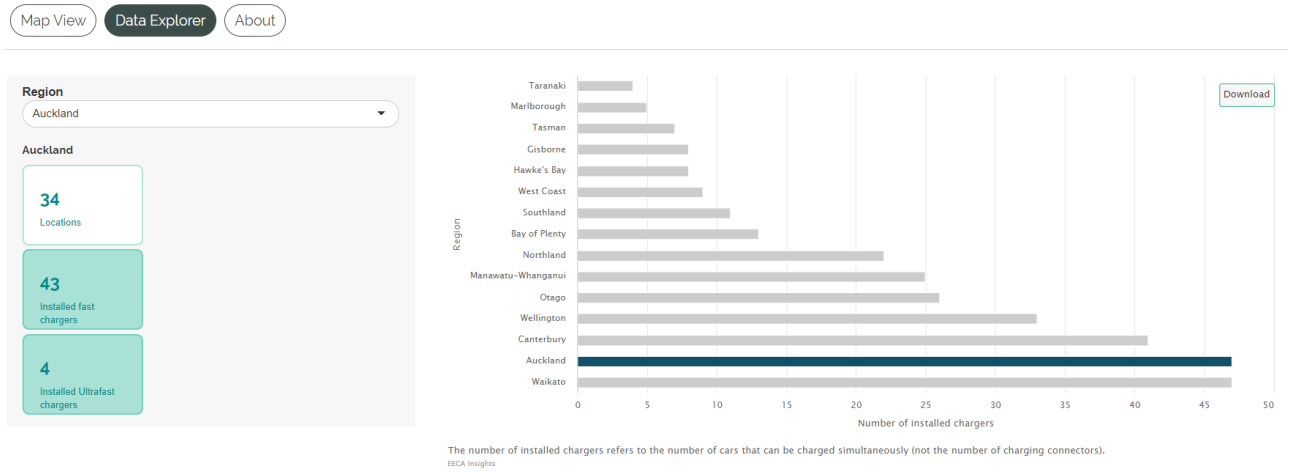


Figure 2: The Data Explorer tab of the tool, showing a bar graph with the number of installed chargers by region

## 2.3 About

The about page gives a brief summary of the tool, as well as a log of any updates to the data inputs.