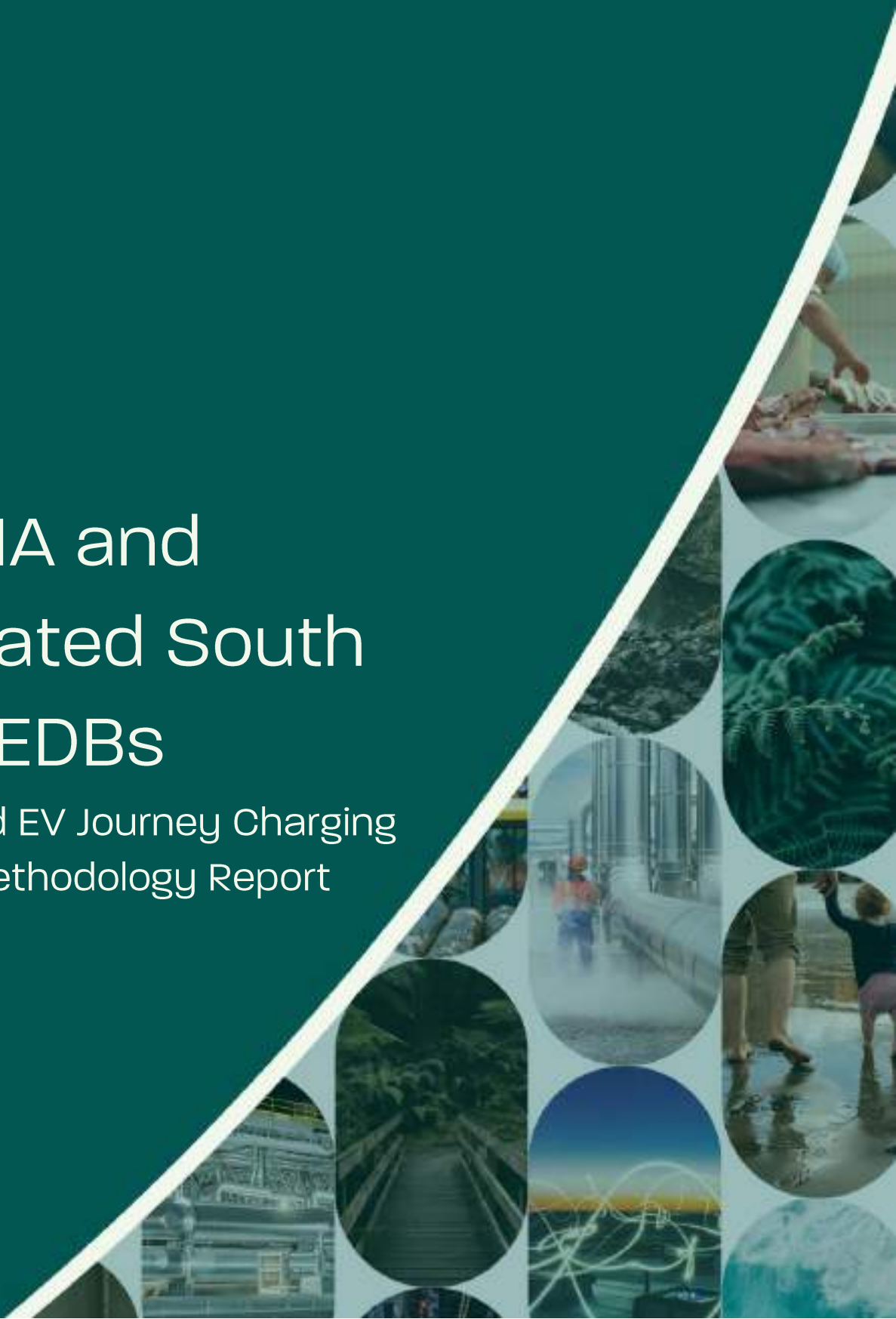
# The ENA and associated South Island EDBs

## South Island EV Journey Charging Project – Methodology Report

Initial Report

12/02/2025



| Revision | Date | Revision Details | Author | Verifier | Approved |
|---|---|---|---|---|---|
| 1 | 3/12/2024 | Initial Report | HOC | DT | BS |
| 2 | 13/02/025 | Updated Initial Report | HOC | DT | |

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# 1. Glossary

| | |
|---|---|
| EV | Electric Vehicle |
| DC | Direct Current |
| EDB | Electricity Distribution Business |
| CPO | Charge Point Operator |
| AADT | Annual Average Daily Traffic |
| CCC | Climate Change Commission |
| EECA | Energy Efficiency and Conservation Authority |

# 2. Project Details

## 2.1 Project Background

The New Zealand Government has committed to installing 10,000 public electric vehicle charging points across the country by 2030. Achieving this ambitious target requires thoughtful and informed decisions regarding the location and capacity of charging points to enable efficient investment in infrastructure. To date there has been no detailed analysis to identify suitable locations for these charging points, with respect to both traffic patterns and networks' available electrical capacity. A two-stage study was conducted to address this gap.

## 2.2 Stage 1: Modelling Charging Demand

DETA has completed a South Island wide analysis of light vehicle traffic flows using daily NZTA through-traffic data for major traffic routes to identify areas where charge points will be needed to service 2030 EV journey charging demand. Average, peak and 90$^{th}$ percentile traffic flows in each location were analysed to ensure the charging points will cope during peak traffic seasons.

This analysis focuses only on light vehicles (less than 3.5 T) and journey charging needs. This demand forecast does not aim to meet the charging needs of local traffic in the area charging publicly or any drivers using destination charging. Current charging capacity in each location has been removed from the total forecasted demand, however in some circumstances this capacity will be classified as destination charging, rather than journey charging.

## 2.3 Stage 2: EDB Engagement

On completion of modelling 2030 charging demand, DETA engaged with EDBs to gain information about the available electrical capacity on their network to meet the forecast demand. Information regarding available transformer capacity to meet the forecast demand and high-level connection costs was sought.

The provided data enabled the production of a map showing transformers in each location with spare capacity and their indicative connection costs.

## 2.4 Document Purpose

This document provides a description of the assumptions and methodology used for calculating forecast traffic charging demands and how EDBs were engaged to gain transformer and costing data.

A summary of each section follows:

- Modelling Assumptions: States assumptions and data used in the forecast demand model.

- Modelling Methodology: Step by step process of how the demand forecast was built, broken down into location and traffic monitoring site selection, traffic analysis, and demand forecast.
- EDB Engagement Approach: Description of information requested from EDBs.
- Appendices: Supporting information on the choice of traffic monitoring sites, EV uptake forecast, turn-in rates, average battery capacity and current charging capacity.

# 3. Modelling Assumptions

## 3.1 Key Assumptions

- 2021 quarter hourly traffic counts[1] were used for modelling purposes as they were the most recent and complete annual data available for traffic flows. 2021 daily traffic counts[2] were used to calculate the peak and 90th percentile traffic days.
    - Note that the effects of Covid-19 are present during this year with lower traffic flows seen in some months. This could underestimate the demand forecast in future years; however, it is unlikely to have a significant impact as the average traffic profile for the year was taken, minimising the effect of lower traffic flows during lockdowns.
    - When comparing peak traffic days in 2021 with 2022 and 2023 data there was little difference. This traffic analysis could be reviewed following the publication of more recent data.

- Local population data used to determine turn-in rates were taken from the 2023 census[3]

- The current charging capacity (DC chargers 25 kW and over) at each location was subtracted from the total 2030 demand forecast to calculate required additional charging demands. This assumes that all current DC chargers are used as journey chargers, and not by locals, or as destination chargers. This approach may underestimate the charging demand needed in 2030 and could be resolved through the provision of charging data to allow for a better understanding of charging behaviours. Current charging capacity data were retrieved from:
    - NZTA Journey Planner[4]
    - ChargeNet NZ[5]
    - PlugShare[6]
    - Tesla FindUs[7]

- The annual traffic increase is assumed to increase in-line with New Zealand's forecast economic growth rate of 3% pa[8].

[1] TMS traffic quarter-hourly: Oct 2020 to Jan 2022 | Waka Kotahi open data
[2] TMS daily traffic counts CSV | Waka Kotahi open data
[3] Place and ethnic group summaries - Stats NZ
[4] EV Chargers | NZTA Journey Planner
[5] Find your local EV charging station | ChargeNet
[6] EV Charging Station Map | PlugShare
[7] Find Us | Tesla
[8] Regional Economic Profile | New Zealand | Economic growth

- 10% of the NZ light vehicle fleet will be BEV in 2030. This number is an average of EECA's TIMES-NZ TUI and TIMES-NZ KEA models and the CCC's model for the percentage of EVs in the national light vehicle fleet. 10% is seen to be optimistic at this stage due to the reduced uptake in recent years attributed to the removal of government financial incentives.

- Average light EV battery capacity will be 70 kWh based on current NZ EV market share[9].

- EVs will stop and charge their battery for an average of 30% of battery capacity based on provided NZ public charging data, giving an average energy delivered per charge of 21 kWh.

- Turn-in rates for each location were estimated based on the distance traffic monitoring sites were away from a 'medium' or 'major' town. It was assumed that the closer a monitoring site is to a larger town, the lower the turn-in rate would be as the respective town is more likely to be a destination rather than a stop on a driver's journey. Distances were calculated using google maps.

## 3.2 Additional Data Sources

- NZTA state highway traffic monitoring sites[10]
- EECA light EV uptake forecasts[11]
- CCC light EV uptake forecast[12]

[9] EV Market Stats 2024
[10] State highway traffic monitoring sites
[11] New Zealand Energy Scenarios TIMES-NZ 2.0 | EECA
[12] Ināia tonu nei: Modelling and data » Climate Change Commission

# 4. Modelling Methodology

The modelling method consists of three stages:

- Location and traffic monitoring site selection
- Traffic analysis
- Demand forecast

## 4.1 Location and traffic monitoring site selection

1. Locations on state highways around the South Island were analysed in terms of journey charging suitability. A maximum of five locations per EDB were selected based on distance apart from each other (minimum of 20 km between locations and maximum of 100 km), and a qualitative assessment of where drivers more most likely to stop on trips in-between destinations in terms of amenities and route. Locations were selected and collated, with 2-6 locations per EDB, and sent to CPOs and EDBs for feedback.

2. Once the locations were confirmed, NZTA traffic monitoring sites were selected to provide traffic data for modelling. These sites were chosen using the following criteria:
    a. The monitoring site must count both lanes of traffic. One exception was made for the stretch of State Highway 1 around the Christchurch airport. There was no monitoring site that counted both lanes adequately, so a monitoring site for each lane was used at similar points on the highway.
    b. The site must be at least 5 km away from a town centre to help minimise the impact of local travel. While a minimum of 5 km was targeted, sites are chosen on a case-by-case basis, so some will be located within this distance due to lack of other adequate sites. The list of monitoring sites used can be found in Appendix A.1.
    c. The site must have the highest annual average daily traffic (AADT) total out of each of the sites on the state highways passing through or leading to a town. The maximum AADT would give a conservative basis (highest volume of traffic) for charging demand which is desired. In most cases, a traffic balance around the town adds up to this maximum traffic count when there are multiple state highways passing through or leading to a town

3. For each chosen traffic monitoring site, the AADT for 2021 and 2022 were compiled.

## 4.2 Traffic analysis

1. For each monitoring site, average daily traffic profiles for each month of 2021 were calculated using quarter hourly data from the NZTA traffic monitoring site information. The quarter hourly data were converted to half hourly data.

2. The average of daily profiles for each month was calculated to get an average 2021 daily traffic profile for each site.

3. Daily traffic profiles were forecast out to 2030 using the 2021 average annual traffic profile and an assumed traffic growth rate of 3.0% pa.

## 4.3 Demand forecast

1. To estimate the average EV charging demand, the 2030 average daily traffic forecast for each site was multiplied by the following parameters:
    a. 10% EV uptake, based off the average of the EV penetration in the national light vehicle fleet models from the CCC and EECA's TIMES-NZ TUI and TIMES-NZ KEA models. See Appendix A.2 for further detail.
    b. A turn-in rate dependent on the distance of the monitoring site from the town (percentage of EVs stopping to charge over total EVs driving past). See Appendix A.3 for details.
    c. Average battery capacity of 70 kWh. See Appendix A.4.
    d. Average battery charge of 30%. See Appendix A.4.

2. Peak and 90$^{th}$ percentile factors:
    a. The peak daily total traffic count in 2021 was identified (2022 peak traffic count was used where there was lack of recorded data in 2021).
    b. The yearly 90$^{th}$ percentile daily traffic count for 2021 was calculated (2022 peak traffic count was used where there was lack of recorded data in 2021)
    c. The peak day factor was calculated by taking the 2021 peak daily traffic count over the 2021 AADT (2022 data used where necessary).
    d. The 90$^{th}$ percentile factor was calculated by taking the 2021 90$^{th}$ percentile daily traffic count over the 2021 AADT (2022 data used where necessary).

3. Peak and 90$^{th}$ percentile charging demand:
    a. Peak charging demand forecast was calculated by multiplying the average EV demand profile for 2030 by the peak day factor. This forecast was compared to a selection of actual peak days for various traffic monitoring sites and corresponded well.
    b. 90$^{th}$ percentile charging demand forecast was calculated by multiplying the average EV demand profile for 2030 by the yearly 90$^{th}$ percentile factor.

4. RFI data:
    a. The 2030 **total** charging demand for each location used in the RFI was taken as the highest charging demand over a day for the 2030 average, peak and 90$^{th}$ percentile forecast.
    b. The 2030 **additional** charging demand was calculated by subtracting current 2024 charging capacity in each location from the total charging demand forecasted. The current charging capacity was a total of all the DC chargers 25 kW and above in each location. A complete list of the current chargers used can be found in Appendix A.5.
    c. The 2024 **total** charging demand for the 2030 average, peak and 90$^{th}$ percentile forecast was also shown, as well as the 2024 **additional** charging demand, by subtracting the current charging capacity available.

# 5. EDB Engagement Approach

On the completion of modelling the 2030 charging demand in each location, each EDB was sent a Request for Information (RFI). The following information was requested for each location in the EDB:

1. A list of the **top 5 distribution transformers in terms of low connection cost** with spare capacity that can currently meet the **2030 90th percentile traffic day peak additional demand** (rounded up to the nearest 25 kW).

   For each transformer, consideration should be given to the following EECA guideline points around public EV charging hubs:
   - Hubs in highly visible locations on, or adjacent to the highway network.
   - Proximity to customer services such as cafeterias, other food, and toilets.

   For each transformer:
   - The rated capacity and available capacity (kVA)
   - Location
   - Indicative connection cost (+/- $10,000)
   - If the spare capacity on the 5 transformers cannot meet the demand, indicate which transformer(s) that will be easiest to upgrade and provide the upgrade cost (+/- $10,000)

2. Information about current available capacity and plans to upgrade transformers in the next five years.

3. Specific sites where it would be cheap to connect with available capacity, and there is space for cars to charge (e.g. carpark near the council building on West St.).

The Data Template tab included the listed information and a template for EDBs to fill out for each location that did not have negative capacity. An example of the Data Template tab in the RFI can be found in Appendix B.

- 2024 and 2030 total forecasted demand (avg., peak, 90$^{th}$ percentile)
- 2024 DC charging capacity
- 2024 and 2030 additional capacity (avg., peak, 90$^{th}$ percentile)
- Peak time
- Peak/Avg. factor
- 90th percentile/Avg. factor
- Turn-in rate.

It was stated that "Negative 2030 90$^{th}$ percentile additional capacity shows that the model has forecasted that there will be sufficient charging capacity in 2030 in these locations. **Distribution transformer data is not necessary** to find for these places." However, some EDBs have provided upgrade costs for these locations anyway.

# Appendix A: Assumptions and Data

## A.1 List of Traffic Monitoring Sites Chosen for Each Location

Table 1: Description of the Traffic Monitoring Sites for each Location

| Location | Traffic Monitoring Site Description |
|---|---|
| Blenheim | Koromiko |
| Picton | Koromiko |
| Motueka | RIWAKA - Telemetry Site 86 |
| Murchison | MURCHISON - Telemetry Site 35 |
| Nelson | Ruby Bay Bypass |
| Richmond | Ruby Bay Bypass |
| Springs Junction | LEWIS PASS - Telemetry Site 32 |
| Takaka | Takaka Hill (Riwaka Valley Rd) |
| Westport | Westport - Nth of SH 6 Junction |
| Karamea | Nth of Mokihinui River |
| Franz/Fox | South of Waiho Flat Rd |
| Reefton | Reefton - Sth of Inangahua River |
| Greymouth | Kumara Junction - Nth of SH 73 Junction |
| Hokitika | Ruatapu - Sth of Township (Bittern Creek) |
| Punakiki | PUNAKAIKI - Telemetry Site 39 - Just Nth of Canoe Creek |
| Amberley | WAIPARA - Telemetry Site 52 -(WIM Site) |
| Cheviot | 1.5 km Nth of Hurunui R. |
| Culverden | Sth of SH7A Junction (Hanmer Turnoff) |
| Kaikoura | Parnassus - Nth of Leader R. |
| Akaroa | Robinsons Bay - East of Robinsons Valley Rd |
| Arthurs Pass | Arthurs Pass Village - Counter Housed Courtesy Dept of Conservation |
| Darfield | Aylesbury - West of Corner |
| Rolleston | Burnham - Sth of Burnham Rd |
| SH1Nth of CHCH airport - Inc | CHCH W Mway btwn Sawyers Arms and Macleans Island - Inc |
| SH1Nth of CHCH airport - Dec | CHCH W Mway btwn Sawyers Arms and Macleans Island - Dec |
| Ashburton | Rakaia - Nth of Hatfield Overdale Rd |
| Methven | Methven - Sth of Reynolds Rd |
| Fairlie/Geraldine | FAIRLIE - Telemetry Site 98 |
| Lake Tekapo | Nth of Irishman's Creek Rd at ERP |
| Mt Cook | Lake Pukaki - Nth of SH8 Junction |
| Timaru | Pareora - Nth of Campbells Rd |
| Twizel | Pukaki - Sth-west of SH 80 Junction |
| Oamaru | Glenavy - Nth of Township |
| Omarama | Omarama past township |
| Dunedin | Sth Allanton-after Stack St |
| Alexandra/Clyde/Cromwell | ALEXANDRA - Telemetry Site 44 |
| Queenstown | Between Jacks Point and Lakeside Estate |
| Tarras | TARRAS - Telemetry Site 110 |
| Wanaka | WANAKA - Telemetry Site 109 |
| Balclutha | Nth Balclutha-before Johnson Rd |
| Gore | Mataura Sth of SH 96 junction Brydon |
| Lumsden | Dipton |
| Te Anau | Mararoa-past Princhester Creek Bridge |
| Invercargill | Winton |
| Milford | Homer Tunnel |
| Haast | Haast - West of Greenstone Creek |

Note that *SH1Nth of CHCH airport – Inc* refers to the side of the road where traffic is travelling towards the end of SH1 in Bluff, and *SH1Nth of CHCH airport – Dec* refers to the side of the road where traffic is travelling towards the start of SH1 in Cape Rēinga[13].

## A.2 Chosen EV Uptake Forecast

The CCC, TIMES-NZ TUI and TIMES-NZ KEA EV uptake forecasts as a percentage of the total light vehicle fleet can be seen in Figure 1.

Figure 1: CCC, TIMES-NZ TUI, TIMES-NZ KEA, Average of the Three Forecasts, and Average of Times Kea and Tui

TIMES-NZ TUI represents a scenario where climate change is recognised as an important issue among various priorities, with most decisions driven by individual choices and market forces.

TIMES-NZ KEA represents a scenario where climate change is treated as the top priority, with New Zealand intentionally adopting coordinated strategies to transition to a low-emissions economy.

The current proportion of BEVs in New Zealand's light vehicle fleet is 1.8%[9], at 78,404 vehicles. The increase in number of BEVs within New Zealand's light vehicle fleet from 2017-2024 (year to date) can be seen in Figure 2.

[13] Traffic monitoring for state highways | NZ Transport Agency Waka Kotahi

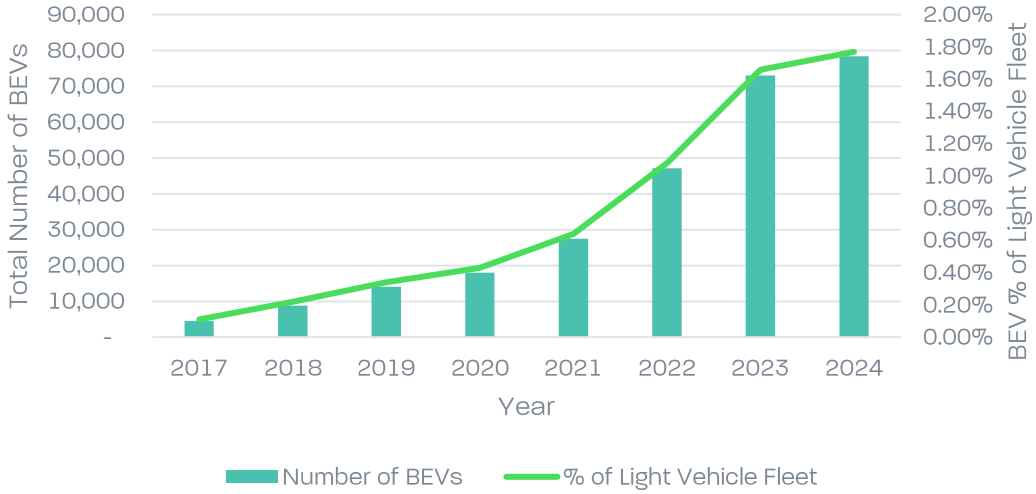


Figure 2: Number of BEVs and %BEVs within Light Vehicle Fleet from 2017-2024(YTD)[https://evdb.nz/ev-stats]

Between 2017 and 2024, the percentage of BEVs in NZ's light vehicle fleet has increased by 1.7%, from 0.11% to 1.77%. It could be expected that EV uptake between 2024-2030 would be higher than from 2017-2024. However, this comparison makes the 15% (CCC), and possibly 11% (TIMES-NZ KEA) by 2030 appear optimistic.

On the other hand, TIMES-NZ TUI forecasts 3% by 2030. This would mean a slower average annual rate of BEV increase than 2017-2024, which is also not an expected outcome.

An average of the three models was taken, which projects approximately 10% by 2030. This projection may seem reasonably optimistic but will ultimately depend on a number of unknown factors including technology advancements and associated costs of BEVs, cost of electricity/fossil fuels, government policies and social influences.

## A.3 Turn-in rates

The turn-in rate estimates how many EVs will turn in at each location based on how far away a traffic monitoring site is to a medium or major town. A medium town has a population of 1,000 – 10,000 and a major town has a population over 10,000. 2023 census population data was used.

Various criteria were used to allocate different turn-in rates based on the distance traffic monitoring sites are away from a town, with the conditions shown in the table below.

Table 2: Turn-in rate conditions

| Condition # | Condition Description | Turn-in rate |
|---|---|---|
| 1 | If within 20 km of major town | 5% |
| 2 | If between 20 – 50 km of major town and within 20km of medium town | 10% |
| 3 | If between 20 – 50 km of major town and 20 – 50 km of a medium town | 10% |
| 4 | If between 50 – 80 km of major town and within 20km of medium town | 15% |
| 5 | If between 50-80 km from a major town and between 20 – 50 km from medium town | 15% |
| 6 | If between 50 – 80 km from a major town and between 50 – 80 km from a medium town | 20% |
| 7 | If further than 80 km from a major town, and within 20 km from a medium town | 15% |
| 8 | If further than 80 km from a major town and between 20 – 50 km from medium town | 20% |
| 9 | If further than 80km from a major town and between 50 – 80 km from medium town | 25% |
| 10 | If further than 80 km from a major town, and further than 80 km from a medium town | 30% |

Lower turn in rates were assumed for monitoring sites that are closer to major towns due to the assumption that traffic heading to major towns are likely returning home or staying for a period of time, thus will likely charge either residentially, or using destination chargers.

## A.4 Average Battery Capacity and Average Charge in 2030

The YTD 2024 EV market share was used to estimate the average 2030 EV battery capacity as 70 kWh, as seen in Table 2. Another data source gives 71.3 kWh as an average battery capacity[14].

It was assumed that the type of light EVs entering the country in 2024 will be mainstream in 2030, as these vehicles enter the second-hand market. 30% of the light EV fleet in NZ is currently made up of Nissan Leafs with 30 kWh batteries, however, it is assumed that Nissan Leafs will be used less on the open road where data for this analysis is taken, so the lower capacity will have less of an impact in 2030.

An average of 30% of vehicle battery capacity per charging session was assumed to remain constant from 2024 to 2030. This average was taken from current NZ EV charging data DETA Consulting has access to. This approach could result in the modelling underestimating overall journey charging demand as battery sizes increase in the future. However, as battery capacities increase, vehicles will also need to stop to charge less (which will result in a lower turn-in factor) – which is assumed to therefore balance out any charging demand increase from increased battery sizes.

[14] https://ev-database.org/cheatsheet/useable-battery-capacity-electric-car

Table 3: Light EV market share data

| Light EV type | Battery capacity range (kWh) | Average battery capacity (kWh) | % of light EV market share | Average market share battery capacity (kWh) |
|---|---|---|---|---|
| Compact | 10 – 50 | 40 | 10% | 70 |
| Mid-size | 51 – 70 | 60 | 30% | |
| High-end | 71 - 120 | 80 | 60% | |

## A.5 List of Current Charging Capacity for Each Location

| EDB | Location | Address of Journey Charger/s | Owner of Charger | Current Capacity at Each Site (kW) | Current Capacity in Location (kW) |
|---|---|---|---|---|---|
| Marlborough Lines | Picton | 101 High Street, Picton 7220 | Z Energy | 75 | 75 |
| | Blenheim | 2226 State Highway 1, Blenheim 7202, NZ | ChargeNet NZ | 50 | 1725 |
| | | 1 Westwood Avenue, Blenheim 7271, NZ | ChargeNet NZ | 300 | |
| | | Park Terrace, Blenheim 7201 | Marlborough Lines Ltd | 450 | |
| | | Cnr Kinross and Redwood Streets, Blenheim 7201, NZ | The Warehouse Ltd | 25 | |
| | | 14 Main Street, Central,. Blenheim, 7201, NZ | bp charge | 150 | |
| | | 2 Park TerraceBlenheim, Marlborough 7201 | Tesla | 750 | |
| Nelson Elecrtricity | Nelson | 75 Vanguard St, Nelson 7010, NZ | ChargeNet NZ | 50 | 1700 |
| | | 81 Trafalgar Street, Nelson 7010, NZ | Network Tasman Ltd | 50 | |
| | | 49 Saxton Road, 7011 Nelso | Meridian Energy Limited | 25 | |
| | | 14 Main Street, Central,. Blenheim, 7201, NZ | bp charge | 75 | |
| | | 99 Quarantine RoadNelson, Nelson 7020 | Tesla | 1500 | |
| Network Tasman | Richmond | 177 Queen Street, Richmond, 7020, Nelson | bp charge | 150 | 200 |
| | | 280 Queen Street, Richmond 7020, NZ | Network Tasman Ltd | 50 | |
| | Murchison | Fairfax St, Murchison 7007, NZ | ChargeNet NZ | 50 | 50 |
| | Motueka | 271 High Street, Motueka 7120 | ChargeNet NZ | 300 | 300 |
| | | 270 High St, Motueka 7120, NZ | The Warehouse Ltd | 25 | |
| | Springs Junction | | | No DC Charging | 0 |
| | Takaka | 16 Willow Street, Golden Bay 7110, NZ | Network Tasman Ltd | 50 | 50 |
| Buller Electricity | Karamea | 103 Bridge Street, Karamea 7893, NZ | ChargeNet NZ | 25 | 25 |
| | Westport | 5 Adderley Street, Westport 7825, NZ | ChargeNet NZ | 50 | 50 |
| Westpower | Reefton | 47 Broadway, Reefton 7830, NZ | ChargeNet NZ | 25 | 25 |
| | Greymouth | 13 Tarapuhi Street, Greymouth 7805 | ChargeNet NZ | 50 | 75 |
| | | 174 Mawhera Quay, Greymouth 7805, NZ | The Warehouse Ltd | 25 | |
| | Hokitika | 116 Revell Street, Hokitika 7810, NZ | ChargeNet NZ | 50 | 50 |
| | Franz/Fox | 63 Cron Street, Franz Joseph Glacier 7886 | ChargeNet NZ | 75 | 75 |
| | Punakaiki | | | No DC Charging | 0 |
| MainPower NZ | Kaikoura | 124-128 Beach Rd, Kaikōura 7300, NZ | ChargeNet NZ | 50 | 1600 |
| | | 105 Beach RdKaikōura, Canterbury 7300 | Tesla | 1500 | |
| | | 51 West End, Kaikōura 7300 | ChargeNet NZ | 50 | |
| | Cheviot | 4 Seddon St, Cheviot 7310, NZ | ChargeNet NZ | 50 | 50 |
| | Amberley | 123 Carters Rd, Amberley 7410, NZ | ChargeNet NZ | 50 | 50 |
| | Culverden | 27A Mountain View Rd, Culverden 7392 | ChargeNet NZ | 50 | 50 |
| Orion New Zealand | Arthurs Pass | 80 State Highway 73, Arthurs Pass 7875 | ChargeNet NZ | 50 | 50 |
| | Akaroa | | | No DC Charging | 0 |
| | Darfield | 33 South Terrace, Darfield 7510 | ChargeNet NZ | 50 | 50 |
| | SH1 near Airport | 530 Sawyers Arms Road, Bishopdale, Christchurch 8051 | Z Energy | 300 | 2700 |
| | | Z russley | Z Energy | 225 | |
| | | 800 Harewood Rd, Harewood, Christchurch 8051, NZ | Charge Net NZ | 600 | |
| | | 418 Main South RoadHornby, Canterbury 8441 | Tesla | 1500 | |
| | | 661 Russley Road, Harewood Christchurch, Canterbury 8051, | bp charge | 75 | |
| | Rolleston | 1705 Main South Road Rolleston, Canterbury 8042, | bp charge | 75 | 435 |
| | | 92 Rolleston Drive, Rolleston 7614 | Orion New Zealand Ltd | 50 | |
| | | 174 Mawhera Quay, Greymouth 7805, NZ | The Warehouse Ltd | 50 | |
| | | 4 Brookside Road, Rolleston 7614 | Z Energy | 260 | |
| EA Networks | Ashburton | 109 West Street, Ashburton 7700 | Electricity Ashburton Ltd | 50 | 1050 |
| | | 35 Moore Street, Ashburton 7700 | ChargeNet NZ | 300 | |
| | | 358 West Street, Ashburton 7700 | bp charge | 300 | |
| | | 141 West Street, Ashburton 7700 | Z Energy | 400 | |
| | Rakaia | 41 Bridge Street, Rakaia 7710 | Electricity Ashburton Ltd | 50 | 50 |
| | Methven | 160 Main St, Methven 7730 | Electricity Ashburton Ltd | 50 | 50 |
| Alpine Energy | Fairlie/Geraldine | 14 Geraldine-Fairlie Hwy, Geraldine 7930 | Alpine Energy Limited | 50 | 100 |
| | | Opposite 53 Main St, Fairlie 7925 | Alpine Energy Limited | 50 | |
| | Timaru | 62 Theodosia Street, Timaru 7910 | Z Energy | 225 | 750 |
| | | 193 Evans Street Waimataitai, Canterbury 7910, | bp charge | 75 | |
| | | 223 Hilton Highway, WashdykeTimaru 7910 | Tesla | 375 | |
| | | 98 Evans St, Timaru 7910 | ChargeNet NZ | 75 | |
| | Twizel | Opposite 64 MacKenzie Drive, Twizel 7901 | Alpine Energy Limited | 150 | 150 |
| | Mt Cook | 105 Bowen Drive, Mt Cook National Park 7999 | Alpine Energy Limited | 50 | 50 |
| | Lake Tekapo | State Highway 8, Tekapo 7999 | Alpine Energy Limited | 50 | 50 |
| Network Waitaki | Oamaru | 1B Wansbeck St, Ōamaru 9400 | Network Waitaki Ltd | 410 | 630 |
| | | 3 Eden Street, Ōamaru 9400 | Network Waitaki Ltd | 220 | |
| | Omamara | 29 Omarama Ave, Main Omarama Twizel HighwayOmarama 9448 | Tesla | 250 | 660 |
| | | 2 Sutherland Road, Ōmārama 9412 | Network Waitaki Ltd | 410 | |
| Aurora | Wanaka | 42 Ardmore St, Wanaka 9305 | ChargeNet NZ | 50 | 550 |
| | | 135 Sir Tim Wallis Drive, Wanaka 9305 | ChargeNet NZ | 500 | |
| | Alexandra/Clyde/Cromwell | 9 Thompson St, Alexandra 9320 | ChargeNet NZ | 50 | 150 |
| | | 2A The Mall, Cromwell 9310 | ChargeNet NZ | 50 | |
| | | 8 Elspeth Street, Cromwell 9310 | ChargeNet NZ | 100 | |
| | Queenstown | 9 Athol St, Queenstown 9300, NZ | ChargeNet NZ | 100 | 850 |
| | | 19 Grant Road, Queenstown 9300 | ChargeNet NZ | 450 | |
| | | Hawthorne Dr, FranktonQueenstown 9300 | Tesla | 250 | |
| | | 302 Hawthorne Drive, Queenstown 9300 | ChargeNet NZ | 50 | |
| | Dunedin | 75 Saint David Street, Dunedin 9016, NZ | ChargeNet NZ | 50 | 2000 |
| | | Water St, Dunedin 9016, NZ | ChargeNet NZ | 75 | |
| | | 95E Hanover Street, Dunedin 9016 | ChargeNet NZ | 300 | |
| | | 49 Timaru StreetDunedin, Otago 9012 | Tesla | 1500 | |
| | | 64 Hillside Rd, Dunedin 9012, NZ | The Warehouse Ltd | 25 | |
| | | 86 Hillside Rd, Dunedin 9012 | ChargeNet NZ | 50 | |
| | Tarras | | | No DC Charging | 0 |
| Powernet | Balclutha | 23 Charlotte Street, Balclutha 9230 | ChargeNet NZ | 50 | 50 |
| | Te Anau | 6 Mokonui Street, Te Anau 9600 | ChargeNet NZ | 75 | 75 |
| | Gore | 4 Irk St, Gore 9710 | ChargeNet NZ | 50 | 50 |
| | Lumsden | 14 Diana St, Lumsden 9730, NZ | ChargeNet NZ | 50 | 50 |
| | Invercargill | 116 Esk Street, Invercargill 9810 | ChargeNet NZ | 50 | 75 |
| | | 70 Leven St, Invercargill 9810, NZ | The Warehouse Ltd | 25 | |

# Appendix B: Example EDB RFI (Westpower)

| | | 2024 | | | | | | | Constant factors | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locations | Traffic Monitoring Site Descriptions | 2024 Total Forecasted Demand | | | 2024 DC Charging Capacity (kW) | 2024 Additional Capacity Needed | | | Peak Time | Peak / Avg | 90th / Avg | Turn-in rate |
| | | Avg (kW) | Peak (kW) | 90th (kW) | | Avg (kW) | Peak (kW) | 90th (kW) | | | | |
| Franz/Fox Township | South of Waiho Flat Rd | 5 | 16 | 8 | 75 | -70 | -59 | -67 | 3:30:00 PM | 3.01 | 1.47 | 30% |
| Reefton Township | Reefton - Sth of Inangahua River | 10 | 21 | 15 | 25 | -15 | -4 | -10 | 1:30:00 PM | 2.03 | 1.49 | 25% |
| Greymouth Township | Kumara Junction - Nth of SH 73 Junction | 20 | 31 | 24 | 75 | -55 | -44 | -51 | 4:30:00 PM | 1.56 | 1.21 | 15% |
| Hokitika Township | Ruatapu - Sth of Township (Bittern Creek) | 5 | 10 | 8 | 50 | -45 | -40 | -42 | 11:30:00 AM | 1.91 | 1.58 | 15% |
| Punakaiki Township | PUNAKAIKI - Telemetry Site 39 - Just Nth of Canoe Creek | 6 | 12 | 8 | 0 | 6 | 12 | 8 | 3:00:00 PM | 2.20 | 1.35 | 20% |

| | | 2030 | | | | | | | Constant factors | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locations | Traffic Monitoring Site Descriptions | 2030 Total Forecasted Demand | | | 2024 DC Charging Capacity (kW) | 2030 Additional Capacity Needed (Factoring in 2024 Charging Capacity) | | | Peak Time | Peak / Avg | 90th / Avg | Turn-in rate |
| | | Avg (kW) | Peak (kW) | 90th (kW) | | Avg (kW) | Peak (kW) | 90th (kW) | | | | |
| Franz/Fox Township | South of Waiho Flat Rd | 43 | 128 | 63 | 75 | -32 | 53 | -12 | 3:30:00 PM | 3.01 | 1.47 | 30% |
| Reefton Township | Reefton - Sth of Inangahua River | 80 | 163 | 120 | 25 | 55 | 138 | **95** | 1:30:00 PM | 2.03 | 1.49 | 25% |
| Greymouth Township | Kumara Junction - Nth of SH 73 Junction | 155 | 242 | 188 | 75 | 80 | 167 | **113** | 4:30:00 PM | 1.56 | 1.21 | 15% |
| Hokitika Township | Ruatapu - Sth of Township (Bittern Creek) | 42 | 79 | 66 | 50 | -8 | 29 | **16** | 11:30:00 AM | 1.91 | 1.58 | 15% |
| Punakaiki Township | PUNAKAIKI - Telemetry Site 39 - Just Nth of Canoe Creek | 44 | 97 | 59 | 0 | 44 | 97 | **59** | 3:00:00 PM | 2.20 | 1.35 | 20% |

Negative additional capacity shows that the model has forecasted that there will be sufficient charging capacity in 2030 in this location. **Distribution transformer data is not necessary** to find for this place.

| Franz/Fox Township | | | | | |
|---|---|---|---|---|---|
| | Rated capacity (kVA) | Available capacity (kVA) | Indicative connection cost ($) | Location | Comments |
| Transformer 1 | | | | | |
| Transformer 2 | | | | | |
| Transformer 3 | | | | | |
| Transformer 4 | | | | | |
| Transformer 5 | | | | | |

| Reefton Township | | | | | |
|---|---|---|---|---|---|
| | Rated capacity (kVA) | Available capacity (kVA) | Indicative connection cost ($) | Location | Comments |
| Transformer 1 | | | | | |
| Transformer 2 | | | | | |
| Transformer 3 | | | | | |
| Transformer 4 | | | | | |
| Transformer 5 | | | | | |