The future of transport is clean and clever

September 2023

Richard Briggs

GM Homes Transport & Government

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

EECA's role is to mobilise New Zealanders

Our purpose

Mobilise New Zealanders to be world leaders in clean and clever energy use.

Our desired outcome

A sustainable energy system that supports the prosperity and wellbeing of current and future generations.

Strategic focus areas

Productive and low-emissions business

Efficient and low-emissions transport

Energy efficient homes

Government leadership

Engage hearts and minds

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Efficient and low-emissions transport

- ✓ New Zealand adopts low-emissions transport technologies and fuels
- ✓ Government establishes low-emissions transport policies and initiatives
- ✓ New Zealanders choose low-emissions mobility options

Co-investing	Motivating People	Regulation
Low Emission Transport Fund. Heavy Freight Decarbonisation Fund Clean Heavy Vehicle Grant EV Hub Charging Fund EV Community/Rural Charging Fund	Gen Less EV campaign addresses barriers to purchasing EVs. Gen Less Move campaign educated NZ'ers about transport being our biggest carbon emitter. EECA insights share data, research, stories and lessons to shift consumers (and business) behaviours e.g. consideration of alternative transport modes	Vehicle Fuel Economy/emissions Label required to be displayed on light vehicles <3.5t at point of sale. PAS for EV chargers providing guidance on energy efficient and smart charging. Smart Chargers & MEPS for chargers, Demand Flexibility?

The ERP set transport targets and direction

The Emissions Reduction Plan includes three focus areas for transport:

- Reduce reliance on cars and support people to walk, cycle and use public transport
- Rapidly adopt low-emissions vehicles
- Begin work now to decarbonise heavy transport and freight

The Government is also committing to four targets for transport:

- **Target 1:** Reduce the light fleet total Vehicle Kilometres Travelled (VKT) by 20 per cent by 2035 through improved urban form and providing better travel options, particularly in our largest cities
- **Target 2:** Increase zero-emissions vehicles to 30 per cent of the light fleet by 2035
- **Target 3:** Reduce emissions from freight transport by 35 per cent by 2035
- **Target 4:** Reduce the emissions intensity of transport fuel by 10 per cent by 2035

EECA Funding

Low Emission Transport Fund $24m pa

To support the demonstration and adoption of low emission transport technology, innovation and infrastructure to accelerate the decarbonisation of the New Zealand transport sector

Public Charging Fund $95m 3 years

To support the deployment of super-fast charging hubs every 150-200km on main routes around New Zealand and provide targeted community and rural charging for remote centres.

Heavy Freight Decarbonisation fund $15M, 3 years

To support the demonstration of of low emission freight solutions to inform businesses and the wider freight and supply chain sector about what low emissions options are available and how they operate in practise.

Clean Heavy Vehicle Grant $30M, 3 years

To support the uptake of zero emissions heavy vehicles to early movers beyond demonstration stage to fleet seeding and gather insights into operational barriers to widespread uptake.

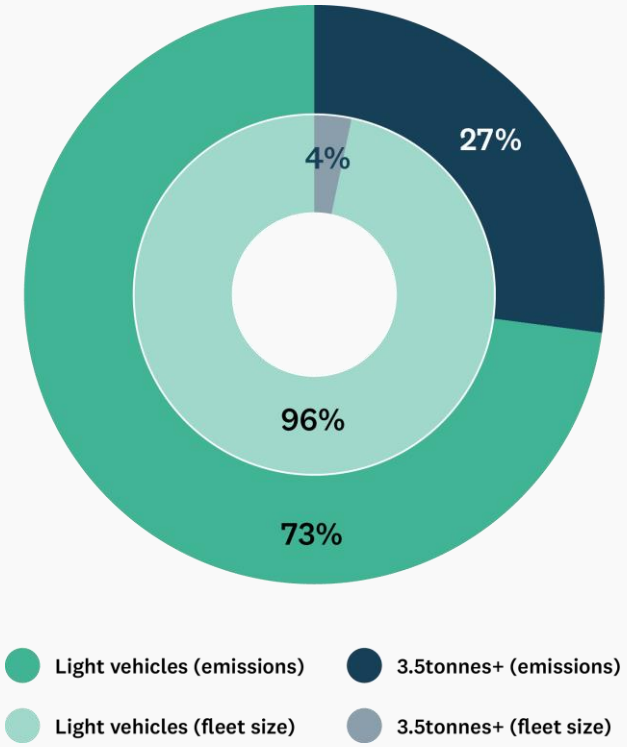
EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Clean Heavy Vehicle Grant (messages)

Objectives

- Continue to build the transport sector's confidence to invest in the adoption of zero-emission trucks, non-public transport buses and heavy vans beyond demonstration, by supporting integration of zero emissions vehicles into their fleets
- Gather insights into other operational barriers to widespread uptake and commercialisation, such as charging and refuelling requirements and behaviour change amongst operators
- Provide market signals to international original equipment manufacturers (OEMs), with the intent of encouraging supply of ZEHVs to New Zealand

- launched by the end of 2023, more detail will be released soon. Funding will be available for zero emissions trucks, non-public transport buses and heavy vans over 3.5 tonnes.
- From September, EECA will engage with industry to develop a publicised whitelist of vehicles eligible for the grant. The list will represent zero emission vehicles that are available, or manufacturers will make available, to the New Zealand market in the near future.
- Financial transaction at importer level



EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Heavy freight decarbonisation

ERP target: a 25% reduction in freight emissions by 2035

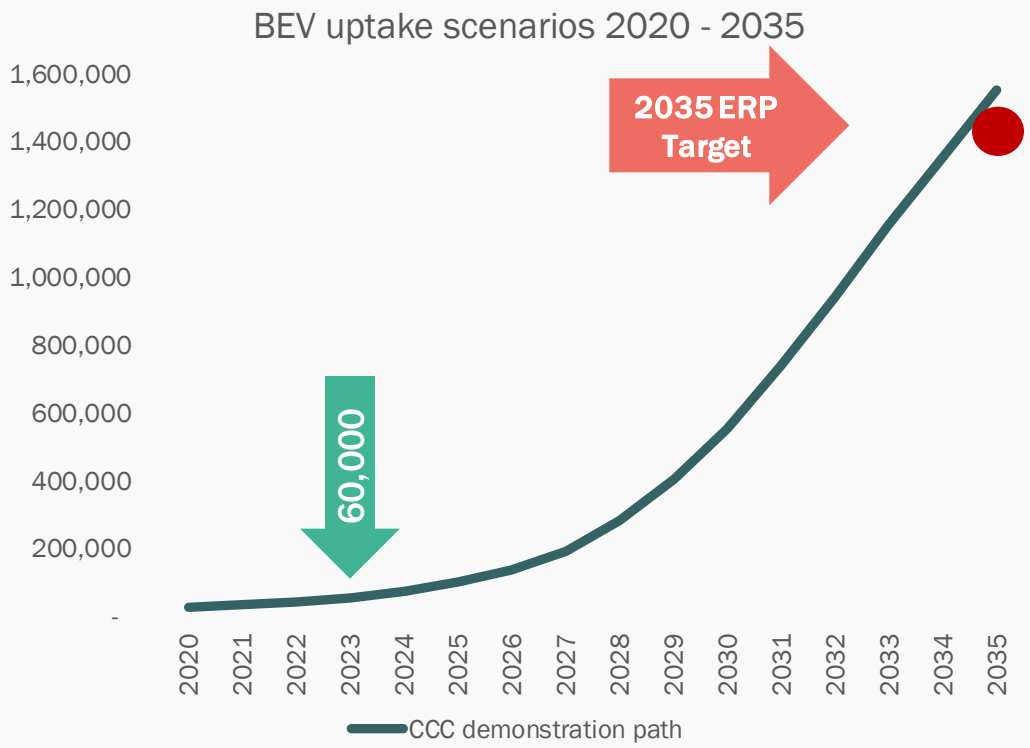
- Heavy vehicles emit almost one quarter of transport emissions; most HV are freight
- Overarching Te Manatū Waka National Freight and Supply Chain Strategy

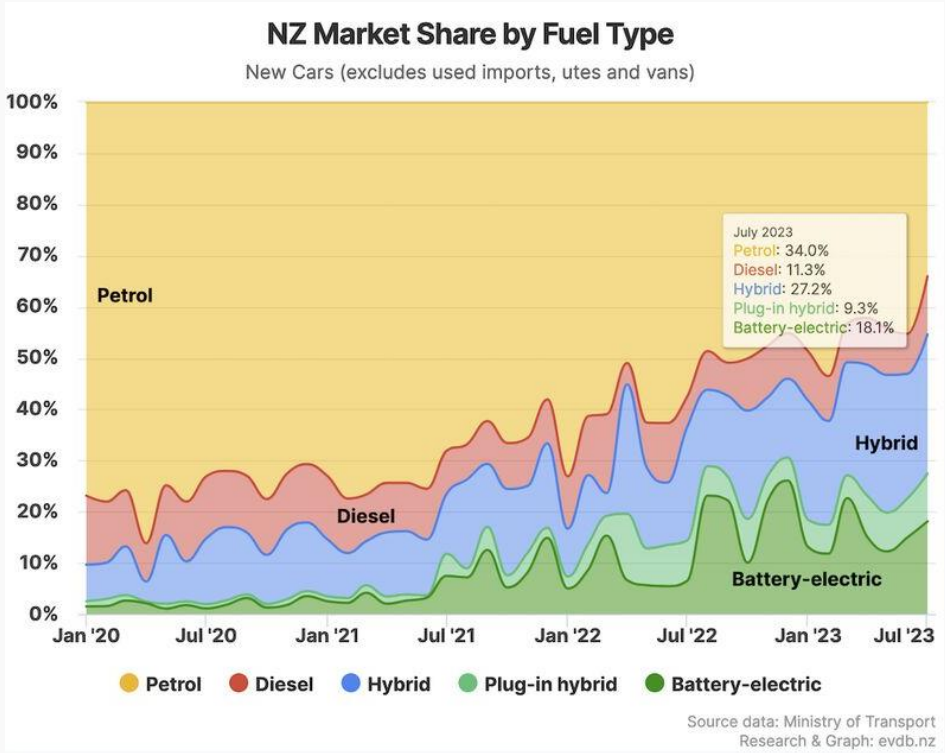
Objective – to support, remove barriers or accelerate emissions reduction in road freight

- Demonstrate technologies to encourage wider take-up
- Improve and share market knowledge - freight sector market scoping report – October 2023, feasibility studies, case studies
- Co-invest and de-risk- co-funding $15M plus LETF plus Clean Heavy Vehicle Grant scheme
- Market engagement to uncover opportunities and barriers

We are on track

Rapid EV uptake is needed





"Every new car purchased today is likely to still be in the fleet in 2045"

In 2019 New Zealand used:	6.9 billion litres of petrol and diesel	3.2 billion litres of petrol	3.7 billion litres of diesel

Our Vision:

Aotearoa New Zealand's electric vehicle charging infrastructure supports the transition to and use of low-emissions transport by being accessible, affordable, convenient, secure and reliable for all.

1. All light vehicle users can safely and conveniently access and use EV charging when and where they need it
2. New Zealand's EV charging infrastructure system can endure over time, and can proactively identify, respond to, and accommodate future changes where appropriate
3. New Zealand's EV charging market is dynamic, innovative, cost competitive and responsive to consumer need, and is open to new diverse suppliers
4. New Zealand's EV charging system is underpinned by reliable, secure and safe power supply and infrastructure
5. New Zealand's EV charging system is underpinned by integrated and streamlined cross-sectoral planning and standards

Scope:

- Public and private charging infrastructure and charging considerations (e.g. home, journey and destination charging).
- A focus on light vehicle EVs, while also accommodating and recognising other vehicle modes and zero-emission energy sources.
- Prioritising a vision which serves all New Zealanders (those existing and future users of light electric vehicles) to support a Just Transition.

Key Policy Objectives for Electric Vehicle Charging Infrastructure

Minimising stress on the electricity network	Improving the equity of, and access to, residential charging for all	Accommodating for geographic variation in charging needs and energy supply	Planning for coverage and capacity	Improving standardisation and interoperability
• Managing increased pressure on the residential distribution network during peak hours. • Utilising vehicle and electricity supply data to identify and plan for electricity network requirements (e.g., upgrades)	• Ensuring access to chargers for those in rental accommodation, in locations with challenging topography and for those in multi-unit dwellings/ apartments without access to off-street parking. • Roll-out and solutions for EV charging on marae.	• Managing seasonal demand peaks for public EV charging. • Ensuring the installation of public charging in remote locations. • Ensuring rural communities, especially those with low population density, have appropriate charging provision and grid connection.	• Meeting coverage AND service quality needs over time. • Monitoring expansion of the public EV charging network in line with emissions budget targets and EV uptake forecast levels. • Implementing a consistent/ practical planning and approval process.	• Ensuring chargers are efficient and safe. • Ensuring billing systems are convenient and simple to use. • Support and enable data sharing where appropriate (e.g. EV charger and/or network providers).

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Charging considerations

- User convenience v power location
- EECA funding distorting market competition and uptake
- Speed of connection and operation
- Role of large battery storage
- Charger Reliability
- Charger performance standards
- Charger Billing and interoperability
- Holiday hotspots
- Driver Behaviour
- MCS deployment implications

It's not all cars

- Commercial Vehicles
  - Urban delivery trucks (100-200kWh batteries)
  - Long haul (500-900kWh batteries)
- Airports
  - Short haul planes
  - Ground vehicles
  - Taxis
  - Rental cars
  - Car park facilities
- Bus Depots
- Passenger Ferries
- Port facilities
  - Inc Shore to ship power

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Public charging co-funding

Objectives

- Super-fast charging hub every 150-200km ~30 around NZ
- Remote Community and rural charging populations focused on 2,000+
- Get fast chargers into the ground; build it and they will come - encourage wider take-up
- Support the wider community – resilience, equity and access
- Improve and share market knowledge, encourage new entrants
- Uncover opportunities and help overcome barriers – highly competitive market, EECA as broker

Co-Funding support 3 year programmes

- Super-fast charging hubs $80M
- Remote Community charging $15M
- Urban infill opportunity charging $30M

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Aligning charging options with user convenience and needs

Where I am going to be for 4 hours or more

Private charging

- Home and workplace charging is the most convenient and cheapest

3-11 kW AC

Where I am going to be for 30 mins to 2 hours

Public destination charging

- Businesses like supermarkets and gyms can create loyalty solutions and convenience

25-50 kW DC

When I am in a hurry

Public journey charging

- Users often plan one or more stopovers midway on long journeys
- Charging time 10-45min

150-300 plus kW DC

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

80% of all charging at home

Problem:

Large numbers of EVs charging at the same time is projected to compound peak demand issues.

Solution:

Controlling peak demand through DR/DF/smart charging.

Challenge:

Currently no financial incentive for individuals to purchase a smart charger (though significant national incentive).

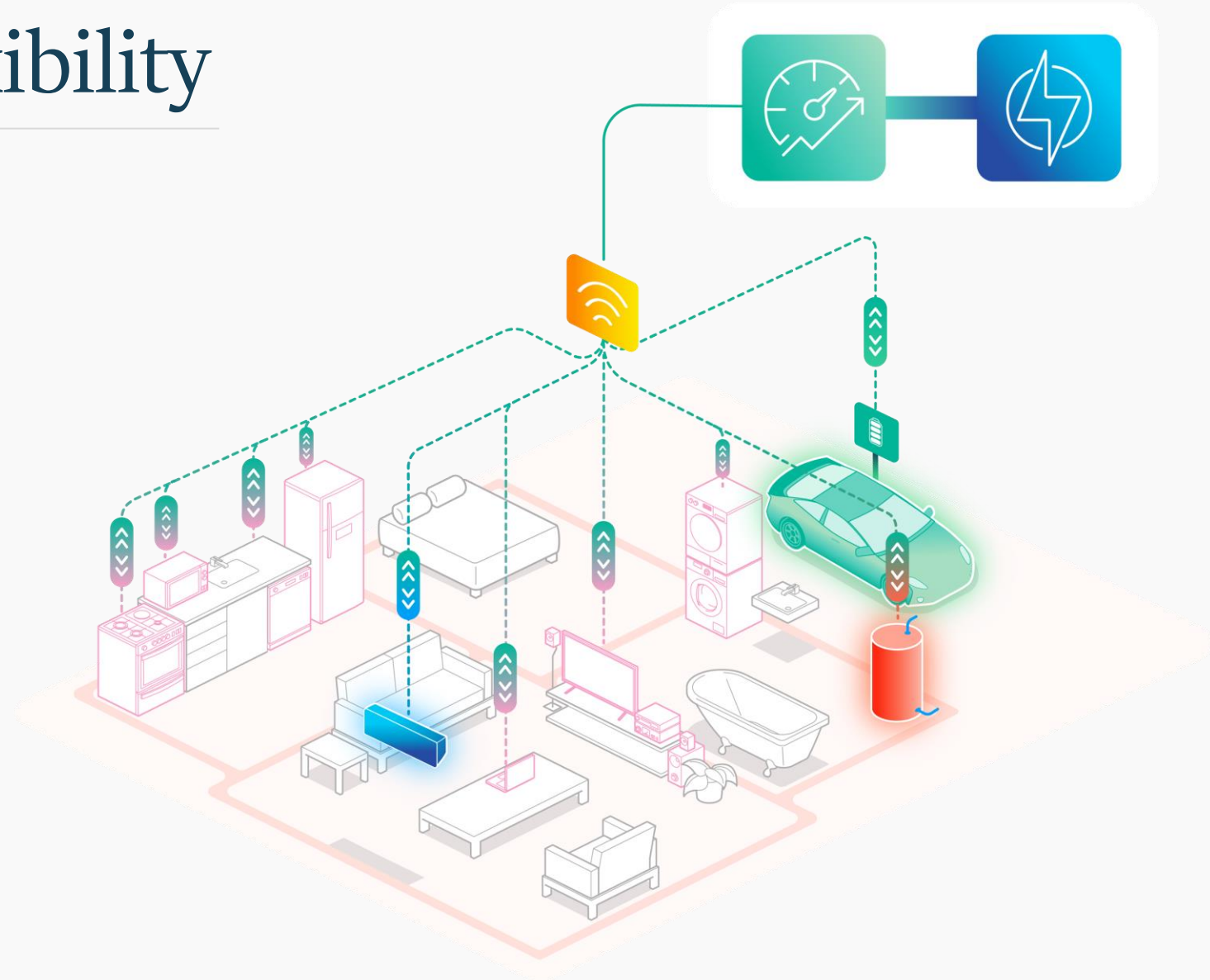
So we need to think about what levers we can pull to change behaviour / increase smart charger uptake.

EECA work underway:

- Behaviour Change programme
- White List
- Potential Smart Tick
- Potential regulation (MEPS)

We're working with industry on these options, and considering levers they can use to motivate behaviour change too (e.g. others in system providing discounts/subsidies; EDBs setting connection standards as Vector has).

Demand flexibility

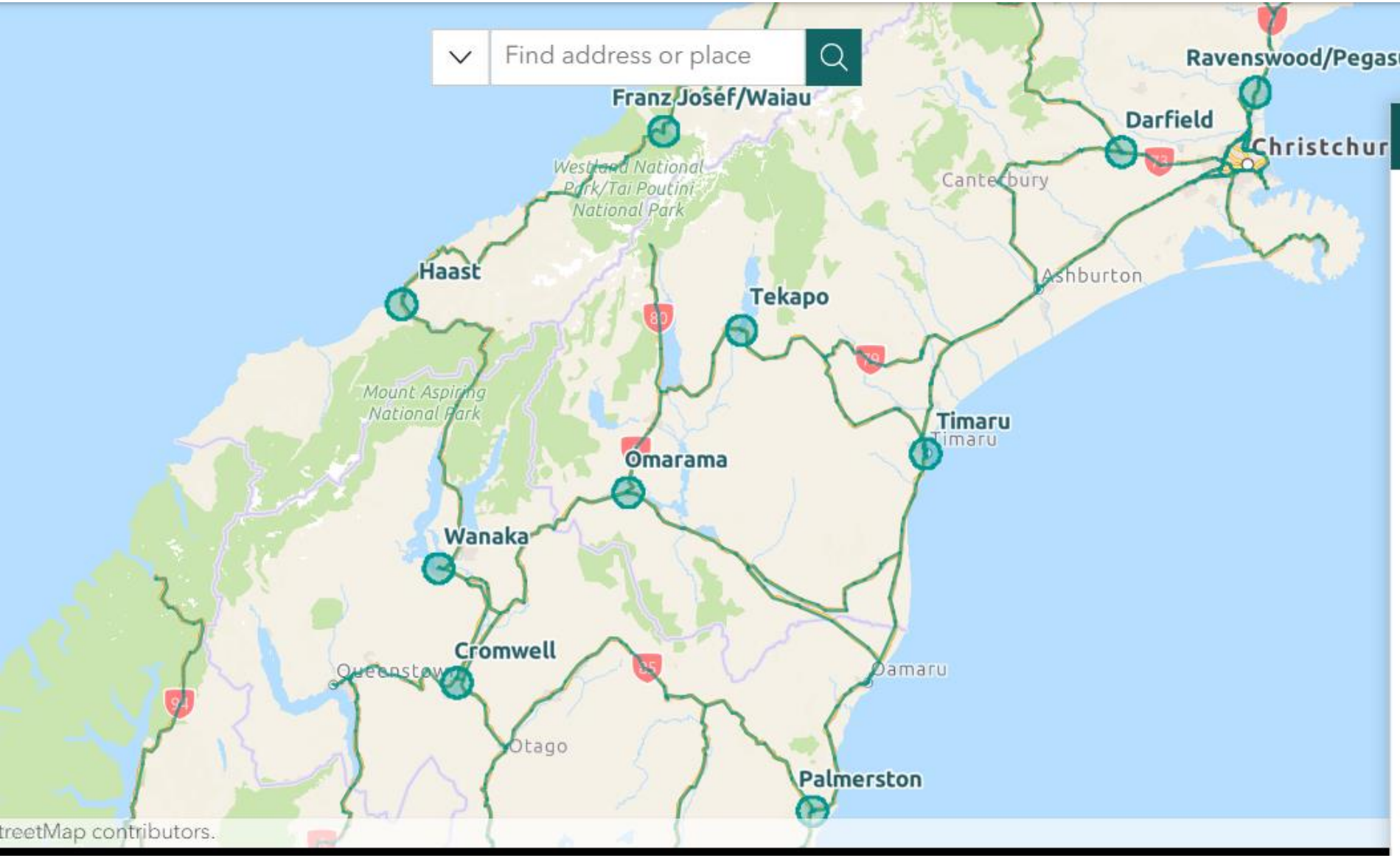


EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Journey charging sites

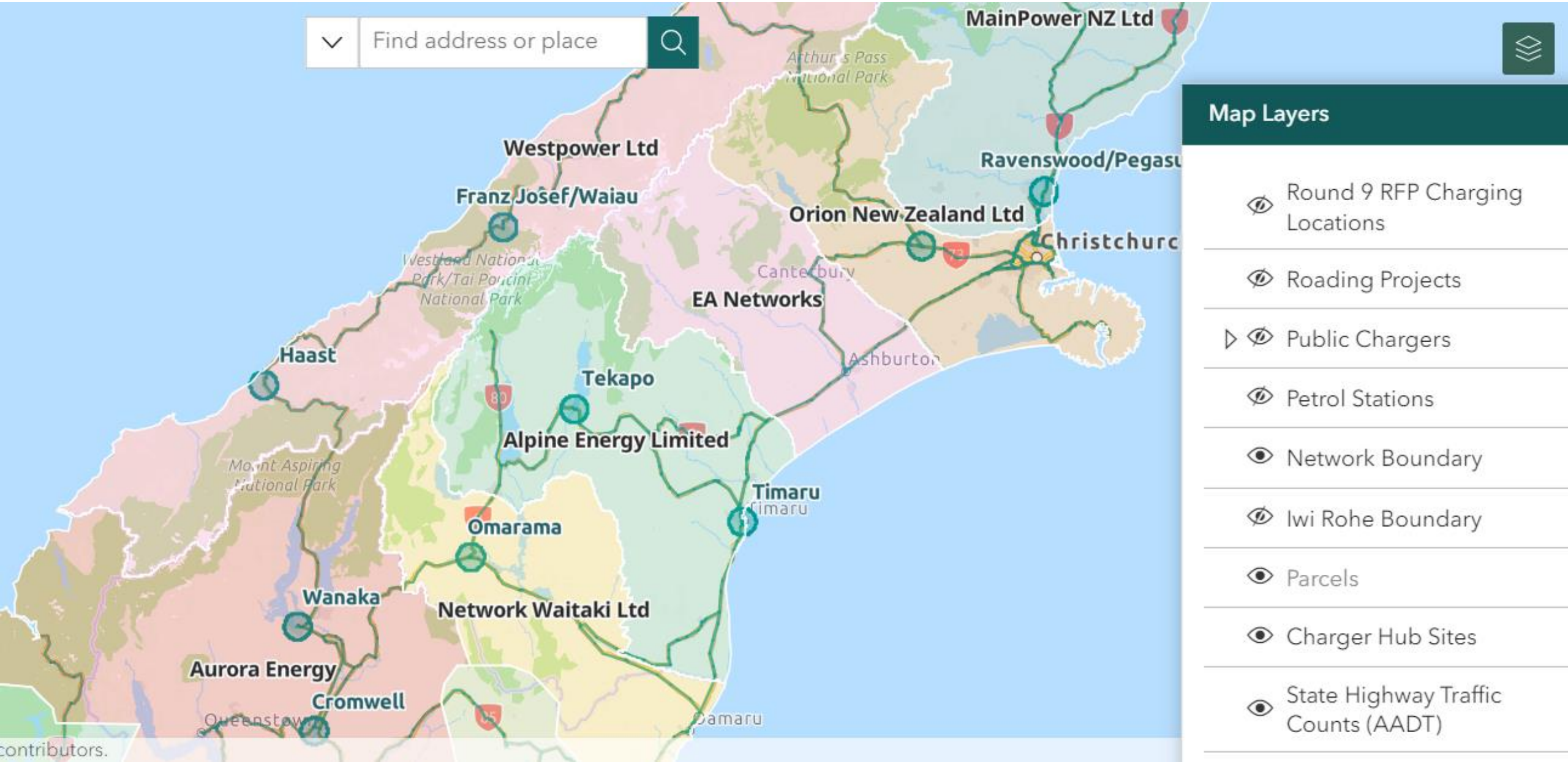
- Conveniently located, distributed model
- Familiar services
- Designed to eliminate queues
- futureproofed
- Located between main centres 150-200km spacing
- Up to 20 simultaneous charges
- Billing Roaming
- Accommodate commercial vehicles and trailers

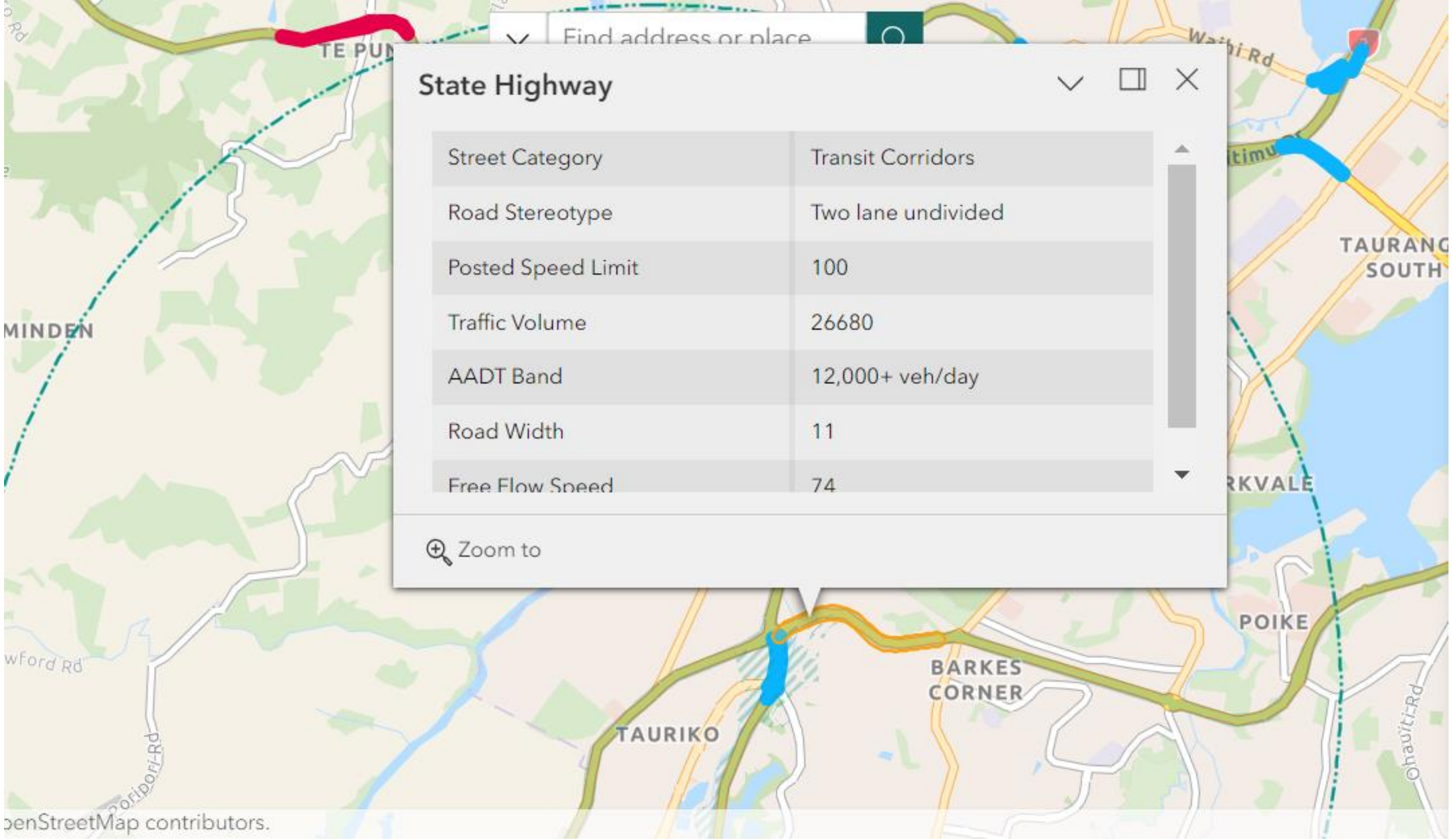
EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY



Map Layers

- Round 9 RFP Charging Locations
- Roading Projects
- Public Chargers
- Petrol Stations
- Network Boundary
- Iwi Rohe Boundary
- Parcels
- Charger Hub Sites
- State Highway Traffic Counts (AADT)


Find address or place
MainPower NZ Ltd
Arthur's Pass National Park
Westpower Ltd
Ravenswood/Pegasu
Franz Josef/Waiau
Orion New Zealand Ltd
Christchurc
Westland National Park/Tai Poutini National Park
Canterbury
EA Networks
Ashburton
Haast
Tekapo
Alpine Energy Limited
Mount Aspiring National Park
Timaru
Omarama
Wanaka
Network Waitaki Ltd
Aurora Energy
Cromwell
Queenstown
Oamaru
contributors.
Map Layers
Round 9 RFP Charging Locations
Roading Projects
Public Chargers
Petrol Stations
Network Boundary
Iwi Rohe Boundary
Parcels
Charger Hub Sites
State Highway Traffic Counts (AADT)


Find address or place
State Highway
Street Category
Transit Corridors
Road Stereotype
Two lane undivided
Posted Speed Limit
100
Traffic Volume
26680
AADT Band
12,000+ veh/day
Road Width
11
Free Flow Speed
74
Zoom to
TE PUN
MINDEN
TAURANG
SOUTH
RKVALE
POIKE
BARKES
CORNER
TAURIKO
wford Rd
Waihi Rd
penStreetMap contributors.

Ngā Mihi

Stay in the loop of latest developments (@EECA_nz, LinkedIn)

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY