

genesis With you. For you.



Charge on

A helpful guide to powering
an EV in Aotearoa



This is not another EV guide

The chances are, if you're considering buying an EV, you've seen a lot of information about models, specs and lead times.

But if you're not also swotting up on charging options, you may be missing an important piece of the puzzle.

A vital part of your EV journey should be understanding how you are going to power your vehicle. The charging part of the equation is an important one as it can affect your running costs, your decision about which vehicle will be best for your needs, the total cost of ownership calculations, battery life and efficiency.

There's a lot to think about, but once you've read this guide, you'll be well on your way to understanding the ins and outs of EV charging and what the next steps are for you.

We've gathered a wealth of information from various experts and sources to create this guide. However, it's important to remember that every individual's circumstances are different. Therefore, we recommend seeking guidance from a licensed electrician to guarantee you have all the necessary information for your specific situation. Genesis does not sell Electric Vehicles. This helpful guide consolidates key insights and information from diverse sources and experts focused solely on the charging process for EVs but is not an exhaustive overview.



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Knowledge is power

First things first: you need to know your CCS from your CHAdeMO.

This section is designed to help you get clued up before you get powered up.

An A-Z of EV charging

AC slow charging

AC (Alternating Current) slow charging is generally used in homes, multi-dwelling units, and fleet locations where the vehicles have plenty of time to charge. It usually takes 5-8 hours to fully charge a vehicle. A converter built into the vehicle transforms the AC into DC and feeds it directly into the battery.



Understand the difference between AC and DC charging by visiting wallbox.com/en_catalog/faqs-difference-ac-dc or scan the QR code alongside.

BEV

Battery Electric Vehicle.

Blue Commando Socket (IEC 60309)

These are the plugs that are used by campervans and are found in campgrounds all over New Zealand. You can buy an adaptor for this type of socket, which gives you access to slightly faster charging at many locations.

CCS (Combined Charging System)

A DC charging standard found in fast charging stations. It can use Combo 1 or Combo 2 connectors to provide power of up to 350 kilowatts and allows Type 1 and Type 2 plug-powered vehicles to access the same power supply.



CHAdeMO

“CHAdeMO” is an abbreviation of “CHArge de MOve,” equivalent to “charge for moving” and is a pun for “O cha demo ikaga desuka” in Japanese, meaning “Let’s have a cup of tea while charging.” It’s a popular EV fast charging (DC) standard for charging stations, compatible with many manufacturers.

Models with CHAdeMO inlets in New Zealand include:

- Nissan Leaf (including imports)
- Nissan e-NV200
- 2017 Mitsubishi Outlander

Combo 1

A variation of the Type 1 connector that is used in the US for DC charging and was also adopted for some European-origin EVs. Currently, fast charging stations in New Zealand are transitioning from CCS Type 1 to CCS Type 2 connectors.

Combo 2

A variation of the Type 2 connector that is used extensively across Europe. This is a recommended connector for fast (and possibly slow) DC charging in New Zealand, alongside the CHAdeMO.

DC fast charging

DC (Direct Current) fast charging is a method of charging an electric vehicle that is often referred to as “fast” or “rapid” chargers. It accesses higher power outputs (from 22 kW to 350 kW) and depending on the output, can add up to 400km in just 15 minutes.

Domestic 3-pin socket (S3112)

This is the standard socket found in New Zealand homes. For most people, this is how they charge their EVs overnight and supplies around 100km’s worth of power overnight.

Dynamic load balancing

A feature that keeps track of changes in energy use on your circuit and automatically allocates the available capacity to different appliances.



EV Charging Modes

If you’re wondering how to understand the ins and outs of different charging options a good place to start is getting to grips with modes. There are four main modes of charging an EV, conveniently named: Mode 1, Mode 2, Mode 3, and Mode 4. Each mode has its own advantages and disadvantages, and the power required for each mode varies.

Mode 1

Mode 1 charging is the simplest and most basic form of EV charging. This is the slowest form of charging, with a typical charging rate of around 2-3 kW. It is generally not recommended for everyday use and is best suited for occasional top-ups. In NZ Mode 1 charging is not allowed in anything but a domestic installation and even then it must be protected by a Type A Residual Current Device.

Mode 2

Mode 2 charging is similar to Mode 1 charging using a standard 3-pin plug, but with an added layer of safety. It involves plugging the vehicle into a standard socket using the cable that comes with the car which has an integrated control box that regulates the charging process. The control box monitors the electrical supply and will cut off the charging process if there is a fault detected. This provides added protection against the risk of electric shock or fire. Mode 2 charging is suitable for charging low and medium-power EVs and PHEVs in a domestic setting only.

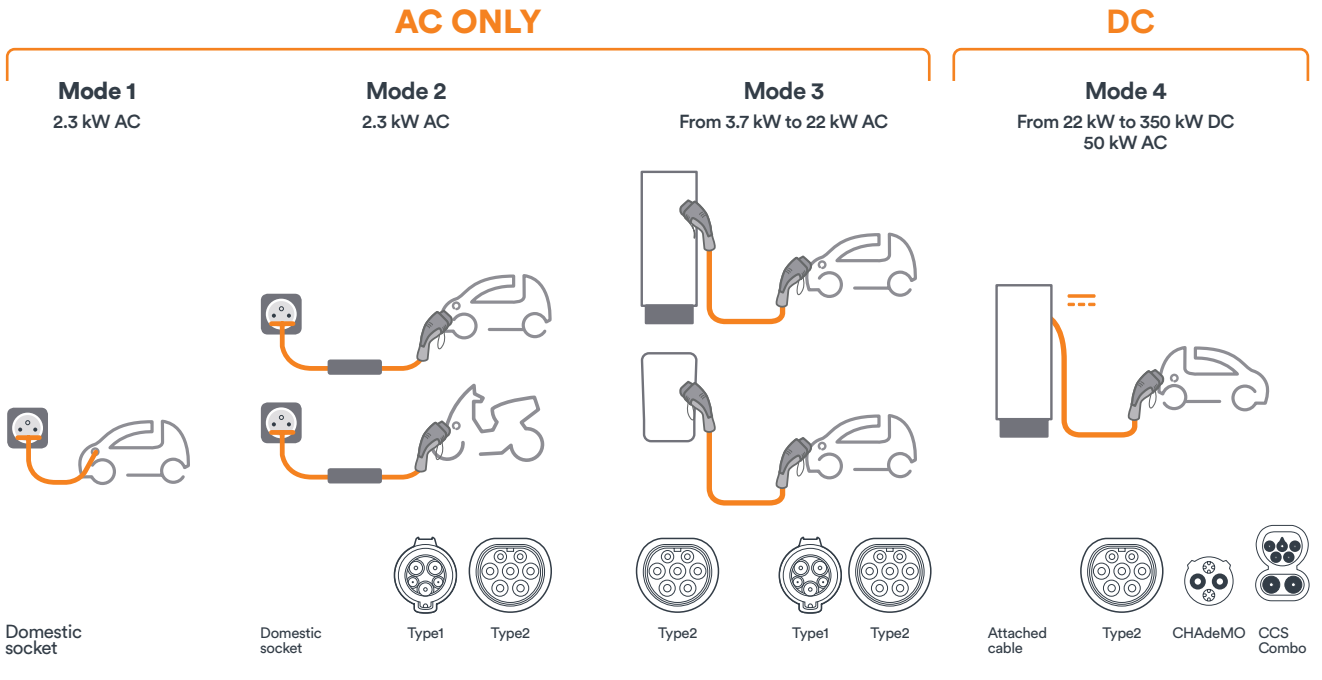
Mode 3

Mode 3 charging is the most common form of EV charging in public charging stations. It involves using a dedicated charging station with a Type 2 connector that is capable of delivering a higher charging rate than Mode 1 or Mode 2 charging. The charging station is connected to a dedicated power supply and is designed to communicate with the vehicle to ensure safe and efficient charging. Mode 3 charging is suitable for all types of EVs, including high-power EVs with large battery capacities.

Mode 4

Mode 4 charging is the fastest and most efficient form of EV charging and is also known as DC fast charging and is found at some public charging stations around the country. It involves using a dedicated charging station with a DC connector that is capable of delivering a high charging rate of up to 350 kW. This allows the vehicle to be charged to 80% capacity in as little as 30 minutes. However, not all EVs are capable of accepting DC fast charging, so it is important to check the specifications of your vehicle before using this mode of charging.

It’s worth noting that the power output of each charging mode can vary depending on the charging station and the EVs capabilities. For example, some EVs may only be able to accept a maximum power output of 11 kW even if the charging station can deliver more power. The charging time will also depend on the EVs battery capacity, as well as the state of charge when charging begins.



EVSE

Electrical Vehicle Supply Equipment, which includes all the technology associated with charging an EV, like charging units, ports, software, and accessories.

Fast charging stations

Locations all over the country where you can top up your power supply – like “petrol stations” for EVs. You’ll often need to set up an account for the provider to use their chargers.

HEV

Hybrid Electric Vehicle. A car that has a small on-board battery that is charged kinetically by an Internal Combustion Engine. This type of vehicle cannot be charged by plugging into an electric supply.

J Plug SAE J1772

This is also known as a “Type 1 connector” and is standard technology in the US and Japan, but is not currently provided at New Zealand fast charging stations.

kWh

Kilowatt-hour. A unit of energy equivalent to the energy expended in one hour by one kilowatt of power. An EV battery size is measured in kWhs.

Lithium-ion battery

This is the current standard in EV batteries, offering good energy, density, power and fast charging capability.

Mennekes

The IEC 62196-2 Type 2 connector is often referred to as “Mennekes” after the company that designed it. This type of connector is used for charging electric vehicles and is the standard technology adopted by New Zealand.

PHEV (Plug-in Hybrid Electric Vehicle)

This is a type of vehicle that can be recharged by plugging a charging cable into an external electric power source, as well as being charged by its on-board internal combustion engine-powered generator.

Range

The distance you can travel on pure electrical power before the battery needs recharging (or for a PHEV, before the petrol supply and battery life have been depleted).

Rapid charging

This is another term for “fast charging” and is a type of charge that can be accessed at relevant charging stations.

Regenerative braking

Sometimes called “regen”, this is an energy recovery system used in most electric vehicles that can help charge the battery while the car is slowing down, extending the range.

SAE Combo

Another way of saying “CCS”, this is an enhanced version of the Type 2 plug, with two additional power contacts to support quick charging via an AC or a DC system.



SAE J1772

Also known as a “J plug” or “Type 1 connector”, this is the standard plug in the US and Japan but is not provided at New Zealand fast charging stations.

Single phase power

An AC power supply system has a single line carrying the load and is common in most New Zealand homes.

Smart charger

A home charging system that intelligently determines how and when an electric vehicle will charge, based on a variety of inputs.

SoH (State of Health)

This abbreviation refers to the health of the battery and is particularly important to understand for second hand EV purchases.

Tesla Supercharger

A modified version of the Type 2 (Mennekes) plug that is used exclusively by Tesla EVs.

Three phase power

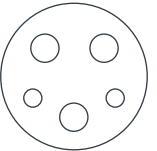
An AC power supply system that comprises three separate power wires carrying the load. Common in larger homes, rural and commercial properties.

3-Pin plug

The standard plug format found in New Zealand homes. Can be used to power EVs via a portable cable.

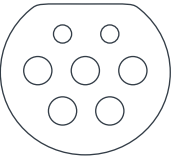
Type 1 plug (SAE J1772)

An EV plug for standard AC charging developed in North America and used mainly in the US and Japan.



Type 2 plug

A European EV plug for standard AC charging that’s been adopted by New Zealand. Also referred to as “Mennekes”.



TOU

Time of Use. Electricity rates may vary according to high- and low-peak use hours, so the rate charged to an EV customer is based not only on the amount of electricity used, but also on when the energy was used.

ZEV

Zero Emission Vehicle that emits no tailpipe pollutants from its onboard source of power.

MYTH



You need a smart charger for your EV

Technically, you don't as you can plug your EV in when you get home and leave it to charge overnight.

But if you want to charge as cost-effectively as possible, with potentially lower environmental impact, looking at a smart charger may be wise. Smart chargers can help you to balance your electricity load during off-peak times to ensure you're using more (sometimes, only) renewable energy resources at cheaper times of the day. The Genesis Energy EV plan means you can access discounted night rates and the EV IQ section of our Energy IQ app lets you track your usage.

Chargers, adaptors and cables – explained

EV charging accessories guide for AC.

CABLES

Type 2 to Type 1 cable (and vice versa)

If your EV has a Type 1 port, you will need to buy a cable that plugs into a Type 2 charging socket, which is the standard charging port in New Zealand.



TIP

A coiled cable will store tidily in your boot but should stretch far enough to charge from either side of the car.

Type 2 to Type 2 cable

This cable can be used to charge an EV with a Type 2 port at a Type 2 charging station (standard in New Zealand). A socket may need to be installed in a suitable location to ensure you don't need to use an extension cable.

Portable charger with 3-pin plug

Available to fit Type 1 or Type 2 car sockets, with a standard 3-pin plug that can be used in any home socket, for slow charging. Plugging in to your regular

home power supply will put around 10km of range into your battery for every hour plugged in. That's approximately 100km overnight. A socket may need to be installed in a suitable location to ensure you don't need to use an extension cable.

Portable charger with caravan plug

This cable will allow you to plug into caravan charging stations, giving you more options and a slightly faster charge when you're on the move. You can also consider fitting a caravan charging socket into your home. A socket may need to be installed in a suitable location to ensure you don't need to use an extension cable.



TIP

No matter which cable you have remember to never plug it into an extension cord or multibox and never have it running across a footpath. You can use an adaptor to connect the charging cable to the car, but the manufacturers of both the vehicle and the cable need to have confirmed it is safe to use.



ADAPTORS

While it’s generally not necessary for most electric vehicle (EV) owners to use an adaptor, it’s always advisable to double-check to ensure compatibility.

Type 2 to Type 1 adaptor

If you have a car with a Type 1 socket but a Type 2 cable, this is the adaptor you need.

Type 1 to Type 2 adaptor

If you have a car with a Type 2 socket but a Type 1 cable, this is the adaptor you need.

HOME CHARGING UNITS

Smart wall chargers

These units are generally “intelligent”, in that they integrate with smartphones so you can schedule charging sessions remotely, monitor energy usage and optimise charging according to your household energy usage (i.e., dynamic load balancing).

“

We spent so long choosing the make, the model and the colour, but when we got our EV home we realised we didn’t have a clue how to charge it.

”

Wall chargers (non-smart)

A dedicated wall charger is a unit installed in your home specifically to charge your EV. It enables faster charging still, fully topping-up most EVs overnight at a rate of 30km range per hour. Costs for wall chargers can vary greatly. Do your research, investigate your options and shop around for the best unit for your vehicle.





The what's, why's and how's of home charging

From a convenience and cost perspective, it can make sense to do a good chunk of your EV charging at home.

And while anyone can plug any electric car into a regular wall socket, there are other options. It pays to do some research and talk to the experts about how you want to charge your vehicle and get your ducks in a row BEFORE you make a purchase.



The AA has some great advice on safe home charging. Read more about charging safely at aa.co.nz/cars/motoring-blog/charging-an-ev-safely-at-home/ or scan the QR code alongside.

Home charging. Can your house handle it?

While New Zealand's remote charging infrastructure is developing rapidly, over 80%¹ of EV owners in New Zealand charge at their own home. But first things first, you may be considering charging options that may not be possible with your current electrical set-up.

Your home charging options

You can simply plug your vehicle into a wall socket with a portable charger to charge it overnight; no further action is necessary. This will deliver around 1.2 kWh of charge, which is a slow and steady option that's usually okay for a combined hybrid or an EV with a relatively small battery (and lowish range) as it should take your car from flat to fully charged on an overnight setting.

But if you regularly do longer journeys, have a car with a larger battery and want a bigger range, you might require a bit more oomph from your charging system. In this case, you should investigate installing a dedicated charging unit. But be aware, not all households can handle this increase in output without upgrading their electrical systems.

Single phase vs three phase power

Most homes in New Zealand are wired with single phase power. This is an AC supply system that comprises one neutral wire and one power wire and is limited in the amount of output it can handle. For gruntier power supply (i.e. fast charging of EVs) you might require an upgrade to two or three phase power supply, which comprises two or three separate power cables.

Some home charging installation companies will provide a free electrical audit of your home to assess what kind of system it can currently handle, and whether you will need to upgrade your switchboard to accommodate your preferred charging system. Otherwise your best bet is to talk to your electrician to understand the situation at your house.

Upgrading your circuitry to accommodate a faster charge

You need to factor in that the cost of the charging unit itself may not be all you need to pay. You may be required to spend a few thousand dollars more if extra work and components are required to ensure your home's circuitry can handle the additional output safely.

A safe earthing arrangement is a significant part of the installed system. Before a charging station is allowed to be connected to an electricity supply, the installer needs to issue a certificate of compliance and an electrical safety certificate.

A "smart" wall charger will not only charge your vehicle at a faster rate, but you can also optimise your charging to protect your battery.

¹ genless.govt.nz/for-everyone/on-the-move/consider-electric-vehicles/charging-an-ev/

Here's a great plan

Genesis Energy EV

Jump on board with Energy EV

A special plan that's only available to EV drivers, Genesis Energy EV is our way of saying thanks for doing the right thing.

Between 9pm and 7am, you can charge your EV, crank up the heat pump, run the gaming console, and disco-light the lounge with the kids – all at a 50% reduced rate*. We want to reward you for being a future thinker.

Why choose Genesis Energy EV?

- 50% off your household electricity rates 9pm – 7am*
- Charge your EV for the equivalent of 41c per litre**
- Take your home rates on the road with our EVerywhere add-on
- Price certainty with our 12-month term
- Innovative and exclusive EV tools in Energy IQ app

Sign up today, at genesisenenergy.co.nz/for-home/products/electric-vehicles or scan the QR code below.



* Product offering is subject to change at any time – see the website for the latest product information. Night rates on the Energy EV plan apply between the hours of 9pm - 7am, 7 days a week and only to the Genesis variable rates portion of your plan. The Energy EV plan night rates are 50% lower than the day rates. Night rates do not apply to the daily fixed portion of your plan or to any appliances under a controlled meter configuration. You'll be on board for free Power Shout Hours. Your energy prices are fixed for 12 months. If you cancel your plan or your plan is otherwise terminated before your 12-month term ends, you may be charged an early termination fee of \$150. Read the full terms at genesisenenergy.co.nz

** This cost is based on calculations provided by EECA (Energy Efficiency and Conservation Authority).

Safety first

Considerations for home charging an EV

Setting yourself up for home charging is about more than just choosing the right system for you and your requirements. You also need to think about the safety implications, so you can rest easy knowing you're protecting the people who live in your home.

Here are a few safety rules to be aware of.

Rule 1

Make sure your smart charger is properly installed

Smart charging units must be installed by a registered electrician. They will need to:

- Install a separate sub-circuit
- Make sure the cable to the socket is capable of supplying the amount of power that can be delivered by the unit
- Ensure both the unit and the installation meet New Zealand electrical safety standards, including the incorporation of the correct electrical protections
- Test the unit and provide a Supplier Declaration of Conformity to prove that the system meets New Zealand electrical regulatory standards

Rule 2

Beware imported equipment

Any charging equipment that is supplied with an overseas imported EV will need to be certified for safe use in New Zealand or replaced with gear that is. It's not advisable to use adaptors to convert equipment for local technology as the cables have not been designed for our electrical infrastructure.



Rule 3

Complete your home charging safety checklist

Once you've got the right equipment safely installed, you'll need to think about how you charge safely on a regular basis.

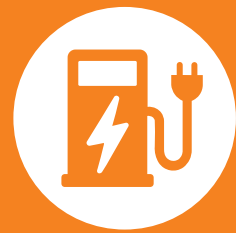
- Never use extension cables
- Never stretch a charging cable across a footpath
- Do not use devices to connect the charging cable to the power supply (e.g. multi-boxes, double plugs or travel plugs)
- Only use adaptors that are certified for safe EV charging use in New Zealand
- Never use modified charging equipment (e.g. cables that have been refitted with a New Zealand plug) unless properly certified
- Get your equipment checked regularly by the manufacturer or a registered electrician

“

We ended up having to run a cable through our son's window when we first got our EV home. In hindsight, we should have got that sorted **BEFORE** we brought the car home.

”





Getting your head around charging on the move

While charging your vehicle at home is often more cost-effective and convenient, there will inevitably be times that you need to top up on the road. Thankfully, New Zealand's public EV charging infrastructure is getting more and more sophisticated, with hundreds of public charging stations around the country and growing.

This section is designed to help you understand the types of public chargers that are available to EV owners, as well as the equipment you'll need to access them.

Powering up on the move: your questions answered

In recent years, consumers have made their need for standardised charging equipment very clear. That's why New Zealand has opted for a single type of charging technology (in alignment with Europe), to make it easier for every kind of EV owner to power up at public charging stations all over the country.

Here are some key things to know.

Q

Where can I find a public charging station?

There are hundreds of public EV charging stations around New Zealand. Our government, and various private organisations, have invested heavily in an electric vehicle charging infrastructure. Some petrol stations and public parking providers are also starting to install EV charging options at their sites. This means that you're likely to have more and more options when it comes to charging an EV on the road in future.



For a current map of public charging station locations, visit the Waka Kotahi website at journeys.nzta.govt.nz/ev-chargers or scan the QR code alongside.

Q

Are there different kinds of public charging stations in New Zealand?

Well yes...and no. New Zealand has opted for standardised Type 2 technology at its public charging stations, to make it easier for all EV owners to access the same services. This means that certain cars (in particular, those imported from Japan or the US) may not be compatible with our technology. This problem is easily solved with the right equipment.

The exception to the standardisation rule is Tesla, who have their own super charging stations which are not compatible with other types of EVs.

Here's a great plan

Go EVerywhere

Take your Genesis EV plan rates with you EVerywhere

Get your home rates on the road with our Genesis EVerywhere add-on. This New Zealand first lets you charge on the road and pay like you're at home. Feel the freedom of being able to go EVerywhere and save up to 70% on ChargeNet*, New Zealand's largest nationwide EV charging network.

- **Freedom to explore more**
Enjoy fast charging with your home energy rates at 280+ ChargeNet stations.
- **Rates roaming**
Why pay more than your great home charging rates when you're out on the road?
- **Convenient billing**
Combine your Genesis and ChargeNet bills onto one easy bill.

Sign up to EVerywhere at genesisenergy.co.nz/for-home/products/electric-vehicles/everywhere and your home rates travel with you. Or scan the QR code below.



The EVerywhere add-on is available to residential customers for private use only. Must have active Genesis Energy EV plan and ChargeNet account linked to Genesis. Applies to power charging costs only, other ChargeNet costs excluded. Participating public ChargeNet stations only. Availability depends on location. A fair use policy applies. Terms and conditions apply.

* Individual savings on ChargeNet public charging stations may differ. Applies to costs of power consumption only. All other ChargeNet costs excluded. Some charging stations have an idle fee for leaving your car for more than 5 minutes after your session is complete. See which stations have idle fees in the ChargeNet app. Customers are advised to view the ChargeNet charger map for stations within range of their planned journey.



There are also differences in how fast a charging station can repower your car, depending on its electrical output and the charging capability of your car. You can see the charging times associated with different types of charging stations at a glance on page 31.

FAST CHARGING STATIONS

There are multiple types of fast charging stations. 300 kW stations are capable of adding hundreds of kilometres of range back into your battery, in a comparable length of time to refuelling a combustion engine.

We're talking up to 400kms of range in just 15 minutes (depending on the charging capability of your vehicle). 50 kW chargers can add around 100km of range in 15-30 minutes. The cost of charging at a fast charging station is usually up to \$10 per 100km of charge¹.

SLOW CHARGING STATIONS

These charging stations can be found at locations where people tend to spend more time - e.g. shopping centres. Because the charge is slower, the cost is either low or the service is offered for free. However, refuelling at a slow charging station can take several hours so it's a good idea to do this while you get on with other things.

¹ driveelectric.org.nz/consumer/the-cost-of-an-ev/

The electric-powered roadie

Planning and executing longer trips

When it comes to weighing up the pros and cons of an electric vehicle, a big part of your decision will be about its range. Charging at home every night to zip around town is one thing, but what about a road trip across hundreds or even thousands of kilometres? The good news is, with a bit of planning, you can travel the length and breadth of New Zealand while reducing your travelling costs and impact on the beautiful environment you're exploring.

Here are our top five tips to make your electric-powered roadie a breeze.

Tip 1

Sign up to EEverywhere

EEverywhere is a New Zealand first that lets you charge on the road and pay like you're at home. Feel the freedom of being able to go EEverywhere* and save up to 70% on ChargeNet¹, New Zealand's largest nationwide EV charging network.

Tip 2

Get your accounts in order

It's a good idea to sign up for an account with the different public charging providers. While many of them will allow you to pay as you go, some of the providers with the largest footprint of chargers will require you to create an account. Save yourself time and stress and do this before you leave home.



Planning our first roadie just added to the fun. We ended up stopping off in places we would never have visited if we'd been travelling in a petrol car...and made new friends along the way.



Tip 3

Stop and take it in

Remember that public charging is not your only option when you're away from home. You can break your journey and look for accommodation options with a charging station, or even ask friends whether you can plug into their electrical supply for a night (just make sure you shout the takeaways!). It's not a necessary part of travelling in an EV, but you might start to find that the odd stop-off adds to the fun.

Tip 4

Drive smart

Did you know that you could increase your range just by the way you drive? By accelerating smoothly, driving slower, braking sparingly and keeping your tyres optimally filled, you can get more kilometres out of your battery. You can find out more about getting the most out of your charge on page 28.

Tip 5

Planning makes perfect

Before you leave, make sure you check your route. Choosing routes with less traffic, even if they are a little longer, distance-wise. This is because driving steadily at slower speeds, without stopping and starting, will maintain your battery life and increase your range.

A roadie in an EV is a real adventure. Not only will you feel great about seeing our natural environment while helping to protect it, you will help forge the path for the adoption of electric vehicles in New Zealand. Just be prepared to have your brain picked by friends and acquaintances as they switch to electric!

* EEverywhere terms and conditions apply.

¹ genesisenenergy.co.nz/for-home/products/electric-vehicles/everywhere

Appy travels

There are several EV charging apps available for use in New Zealand

When it comes to charging your EV at public charging stations, as with most aspects of modern life – there’s an app for that! Let’s take a look at some of the most popular options.



Plugshare

Plugshare is an international company with an app that can be used in New Zealand. It provides a community sourced map to give EV drivers access to information about public charging stations, including maps, reviews, availability and charging speeds. You can create and plan a trip on your desktop before you leave home, entering details like your vehicle’s range and preferred route, then save this to access at any time on your journey.

ChargeNet

Designed “to make the EV charging experience easier and more accessible than ever before”, ChargeNet has developed an app to help you locate their EV charging stations on the move.

You can:

- Find charging stations
- View live availability
- Check charging pricing
- Activate and monitor charging stations

The downside is that it will only point you in the direction of their owned stations but as they boast a charging station for every 75km of New Zealand highway, that may not pose too much of a problem.

Get even more value out of your ChargeNet sessions with Genesis’ EVerywhere – if you’re a Genesis Energy EV customer simply add on EVerywhere to take your home charging rates on the road and you can track your sessions and savings through the Energy IQ app. For more information on EVerywhere see page 22.

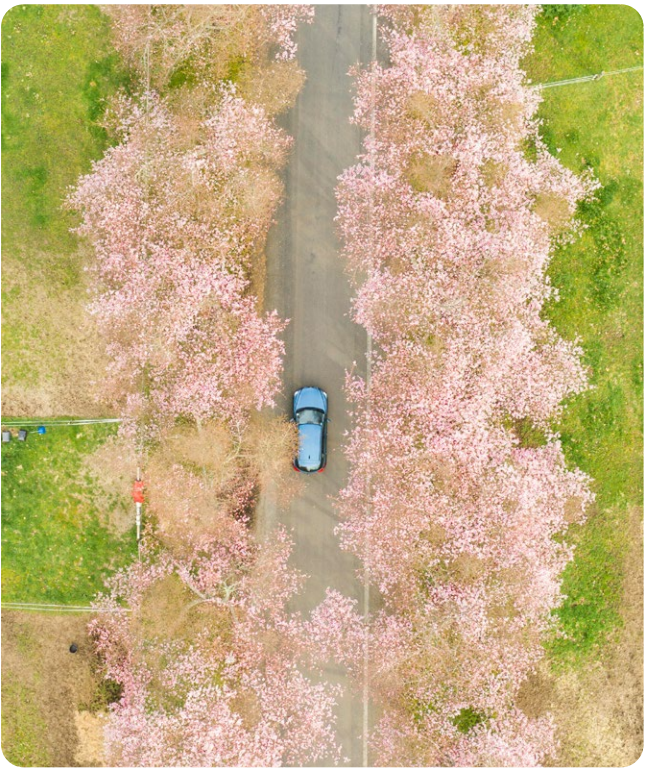
Openloop

This app is part of a wider ecosystem that is designed to simplify the EV charging experience for customers, unlocking greater value and flexibility across home and public charging. The app allows users to see public charging stations in their vicinity and pay for their power via their Openloop account.

AA Charge Finder

Not strictly an app but an online tool built by the AA, in collaboration with Waka Kotahi New Zealand Transport Agency. This tool can help you locate charging stations that meet the strict requirements of the EVROAM database. It is designed to remove stress and range anxiety by pinpointing safe and reliable charging options for Kiwis on the move. The drawback is that this service is delivered online, so its effectiveness is dependent on being able to access the internet.

So now you have a few options up your sleeve, why not jump online and explore them – before you hit the road.



Charge on

Driving tips to increase your range

Just like driving a petrol car, you can increase your kilometres per kW by how you handle your EV on the road. There are several ways you can get more out of a single charge, for better economy and fewer charge stops.

- 1

Hit 100 before you leave home

Make sure your vehicle is 100% charged before you set off on your big adventure. It's also a good idea to warm up or cool down your car to your preferred temperature while you're still plugged into a power source, if possible.
- 2

Drive smooth and steady

Aggressively speeding up and slowing down negatively impacts the economy of any car, whether powered by petrol or electricity. This is more noticeable in an EV so extra care should be taken to accelerate smoothly to reach a steady cruising speed. Use "eco" mode to automatically modify your speed wherever possible.

- 3

Brake smart

Regenerative "smart" braking is a feature in most electric vehicles that allows you to harness the energy produced when the driver brakes. It converts this energy into electrical power and uses this energy to charge the vehicles battery. Additionally it can make the braking process smoother by providing added resistance, ultimately enhancing the stopping force provided by using the traditional brakes.
- 4

Check your tyres

From a safety perspective, it's always sensible to check your tyre pressure before you set off on a long journey, but it's equally important for keeping energy consumption low. Ever ridden a bike with flat tyres? If so, you'll know that it takes a lot more energy to reach, and stay at, speed. It's no different with an EV.



- 5

Remove any extra weight

Roof boxes and racks all add to the weight your EV is carrying and decreases its range. Keeping luggage to a minimum and removing any racks that are not required will help you to get more out of a single charge.
- 6

Factor in the weather

Heating always consumes more energy than cooling, so winter trips will drain your charge faster. Be aware that heated seats use less energy than air conditioning, so this might be a feature you look for when you're thinking about buying an EV.
- 7

Plan your route

The fastest way from A to B is not always the most range-friendly. Sometimes, it can be more power-efficient to take a slightly longer route with less traffic, so that you can maintain a steady cruising speed rather than stopping and starting regularly.



Time to charge

Use the handy comparison chart alongside to figure out how long it could take to charge your EV using the different charging options available to you.



Charging station type		Time to add 32 kilometres	Range added per 10 min charge
	3.7 – 7.7 kW	91 Minutes	4 Kilometres
	7 – 7 kW	47 Minutes	7 Kilometres
	22 kW	15 Minutes	22 Kilometres
	50 kW	7 Minutes	49 Kilometres
	350 kW	1 Minute	343 Kilometres

Source: EECA Guide to buying an EV - genless.govt.nz/for-everyone/on-the-move/consider-electric-vehicles/why-buy-an-ev/
Times and ranges are approximate only, and will vary depending on the vehicle make and model, and battery state of health.



Electric vehicles are an exciting way to save money and reduce your carbon footprint. With the extended network of charging stations across Aotearoa, coupled with the ever increasing variety of electric vehicles available to New Zealanders, EVs are becoming a more compelling choice for Kiwi drivers.

We hope this guide has helped you make the choice to switch to electric.

