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Vehicle-to-grid in New Zealand

Market insights from EECA's vehicle-to-grid trials

EECA ENERGY EFFICIENCY & CONSERVATION AUTHORITY
TE TARI TIAKI PŪNGAO

Acknowledgements

This report was developed as part of EECA's V2G trial programme. The findings draw on insights from the initial stages of the trial centred around the Queenstown Lakes District, gained by EECA and project delivery partners McKay Limited, Retyna Limited and Rewiring Aotearoa.

Contents

Executive summary

As New Zealand transitions to a more electrified, renewable energy system, improving the flexibility of electricity demand and supply is becoming increasingly important. Energy flexibility is vital for maintaining a secure, affordable and efficient electricity system.

As part of its role in supporting this, EECA (the Energy Efficiency and Conservation Authority) is investigating technologies that can increase energy flexibility, make better use of renewable electricity generation and improve use of existing electricity infrastructure. Vehicle-to-grid technology (commonly known as V2G) is one such opportunity, enabling electric vehicles (EVs) to function not just as transport, but also as a means of flexible energy storage.

V2G has the potential to deliver benefits for EV owners, electricity networks and the wider energy system. For households and businesses, it can reduce electricity costs, increase resilience and create new revenue opportunities – by enabling electricity export during peak periods and charging during off-peak periods, providing backup power during outages and improving use of rooftop solar generation. At a system level, widespread V2G adoption could help reduce peak electricity demand, improve integration of renewable energy, defer costly network upgrades and increase electricity system resilience.

While V2G has been successfully demonstrated internationally, New Zealand remains in the early stages of market development. The current market is constrained by limited availability of compatible vehicles and chargers, variable manufacturer support, limited electricity tariff structures and low consumer awareness. These barriers mean commercial deployment of V2G is currently confined to early trials and pilot projects.

To better understand how V2G can be deployed safely and effectively in New Zealand, EECA is undertaking a programme of V2G trials in collaboration with project delivery partners. The trials examine vehicle and charger compatibility, installation requirements, user experience, electricity market arrangements, and the value V2G can provide under local conditions. Initial trials are underway, centred around the Queenstown Lakes District, with an additional urban trial planned to assess performance across different network and user environments.

Early findings indicate that although the market is starting to develop, coordination across vehicle manufacturers, charger suppliers, electricity system participants (e.g., electricity retailers, aggregators, demand flexibility service providers, network companies), regulators and consumers will be essential for widespread adoption. Continued improvements in vehicle manufacturer support, charger availability and commercial incentives are expected to accelerate market development over the coming years.

EECA's ongoing trial programme will provide evidence to inform industry, government and consumers, supporting successful integration of V2G into New Zealand's future energy system.

Why V2G matters

As New Zealand's electricity demand increases and the country makes greater use of renewable electricity generation, managing when electricity is used is becoming increasingly important. Electricity networks and system operators face growing challenges with managing peak electricity demand and maintaining reliable electricity supply during periods of high demand or supply constraints.[1]

One way to address these challenges is through developing greater flexibility around when electricity is consumed, stored and supplied. Enhanced flexibility can support a more efficient and affordable electricity system by reducing pressure on the electricity network during peak periods, improving use of existing electricity infrastructure, and reducing the need for investment in new generation and network capacity.

EECA's report on the national potential of flexible electricity use[2] concluded that up to 1,800 MW of electricity demand could be shifted away from peak times through greater use of flexible technologies; equivalent to 25% of New Zealand's current peak electricity demand.

Electric vehicles (EVs) are increasingly being recognised as one of these flexible technologies. In New Zealand, most EV charging occurs at people's homes, where vehicles are typically parked and connected to chargers for extended periods.[3] This creates an opportunity to use EV batteries to store electricity when demand is low, then return it to the home, or a business or the electricity grid when demand is high.

Currently, most EV charging is one-way; with electricity flowing from the grid into the vehicle battery. However, newer two-way charging technologies enable electricity to flow in the opposite direction as well – from the EV battery back into anywhere connected to the grid, including to a home, another building or the wider electricity system.

This two-way capability is referred to as vehicle-to-grid charging (commonly known as V2G), and has the potential to provide economic and resilience benefits for EV owners, while also supporting a more flexible and resilient electricity system.

Potential benefits of V2G

The potential benefits of V2G extend beyond individual EV owners. V2G has the potential to provide value for households, businesses, electricity networks and the wider electricity system.

For EV owners, V2G has the potential to transform an EV from simply being a means of transport into a flexible energy asset that can lower electricity costs, support resilience, and integrate with home or business energy use.

For people who primarily charge their EV at home or a business premises, a V2G charging system can provide a range of benefits, including:

- lower-priced energy stored in the vehicle battery to be used during higher-priced peak periods
- charging vehicles during lower-cost off-peak periods
- better use of rooftop solar systems
- back-up power capability during outages
- participation in incentive schemes to export electricity back to the grid and help reduce peak electricity demand.

[1] *Demand flexibility — a smarter grid* (EECA, 2026).
[2] *The full potential of flexible electricity use in New Zealand: Summary and insights report 2026* (EECA, 2026).
[3] *EV charging research* (EECA, 2025).

If large numbers of EV owners participate in flexible charging and electricity exporting, they could collectively provide substantial flexibility for New Zealand's electricity system during periods of high demand or supply constraints. For example, Drive Electric's *State of the Nation EV Report*[4] notes that if around 30% of New Zealand's light vehicle fleet became V2G enabled, the combined storage and export capability could be comparable to New Zealand's total current electricity generation capacity.

V2G can contribute to a range of system-wide benefits for the country, including:

- improved electricity system flexibility through shifting when electricity is consumed or supplied
- reduced peak electricity demand
- better use of renewable electricity generation
- reduced pressure on local electricity networks
- delayed or reduced requirement for investment in electricity network upgrades.

Together, these benefits could potentially reduce New Zealand's overall electricity system costs, by making better use of existing infrastructure and avoiding or delaying some new investment. Over time, this could contribute to downward pressure on electricity prices.

In some configurations, V2G technology could also provide additional resilience benefits by allowing EV batteries to supply electricity during grid outages or extreme weather events.

EECA's trial programme

Internationally, there is growing interest in how V2G charging could support more flexible energy use. Australia, for example, has identified V2G technology as an important component in its future electricity system management approach.[5]

For New Zealand, a recent study by Concept Consulting and Retyna found V2G could provide economic value of up to $2,000 per light EV per year, by enabling charging during lower-cost periods and exporting electricity during periods of peak demand.[6]

Although the technical capability of V2G has been demonstrated internationally, the New Zealand market remains at an early stage of development. Compatible vehicles, chargers, electricity tariffs and supporting market arrangements are only beginning to emerge.

To address this gap, EECA, together with its project partners, is undertaking a programme of V2G trials. The aim is to better understand how V2G can be deployed safely and effectively in New Zealand, the factors influencing its wider adoption, and the value V2G can provide to EV owners and the electricity system.

The trials focus primarily on light vehicles, and examine how V2G technology interacts with compatible vehicles, chargers, electricity retailers, electricity distribution businesses, installers and other industry participants under New Zealand conditions. Where available, the trials will include a range of compatible EV makes and models across residential and business applications.

[4] *State of the nation report: Electric transport in Aotearoa New Zealand 2026* (Drive Electric, 2026).
[5] National roadmap for bidirectional EV charging (EnX, 2025).
[6] *Power potential: New Zealand's vehicle-to-grid opportunity* (Concept Consulting & Retyna, 2025).

Overall, the programme aims to improve understanding of:

- technical performance and interoperability between vehicles and chargers
- installation requirements and practical deployment considerations
- customer experience and ease of use
- electricity market arrangements and commercial incentives
- the value V2G can provide to EV owners and the New Zealand electricity system as a whole.

The initial trials are being undertaken in the Queenstown Lakes district in partnership with Rewiring Aotearoa and other project partners. An additional trial is planned for an urban area of New Zealand to further understand how V2G performs under different electricity network and customer conditions.

This report draws on the early findings from these trials, together with broader market engagement, to:

- describe the current state of the New Zealand V2G market
- identify the key barriers to wider deployment of V2G charging
- highlight how the market is expected to evolve over the coming years.

As the programme progresses, future reports will share additional findings to support industry, government and consumers.

Understanding V2G

What is V2G charging?

Most EV charging in New Zealand is one-way, with electricity flowing from the electricity grid into the vehicle battery.

V2G charging is a form of two-way charging that enables electricity to flow in the opposite direction, from the EV battery back to anywhere connected to the grid, including homes, other buildings or the wider electricity network.

This means an EV can act not only as a means of transport, but also as a form of flexible energy storage. When parked and plugged in, the vehicle can store electricity in its battery during periods of lower power demand and return it when demand is higher.

V2G allows electricity to be supplied from the vehicle back to the grid. There are other forms of two-way charging, such as vehicle to home (V2H), vehicle to building (V2B) and vehicle to load (V2L). All of these forms are defined further in Appendix A.

How V2G differs from conventional charging

Many EVs and charging systems already support smart charging features, allowing users to:

- schedule charging for off-peak electricity pricing periods
- use timers through the vehicle or charger app
- respond to time-of-use electricity tariffs
- optimise charging alongside rooftop solar generation
- remotely monitor and control charging.

These technologies can help improve the flexibility of EV charging by managing *when* electricity is consumed. V2G also enables management of *where* electricity flows, by allowing electricity to be exported from the vehicle.

EECA is also advancing work to support flexible electricity use through conventional smart EV charging.[7]

How V2G charging systems work

Unlike conventional EV charging, V2G requires multiple technologies and organisations to work together to be successful. It is essential that the vehicle, charger, electricity retailer, aggregators or demand flexibility providers, electricity distribution business and regulatory framework are all compatible to ensure electricity can flow safely and reliably between the EV and the electricity network.

At a high level, in addition to compatible hardware, V2G relies on standardised communication protocols that enable vehicles, chargers and electricity system participants to exchange information securely and reliably. Open standards are important to support interoperability between different manufacturers and service providers, thereby reducing the need for proprietary solutions and enabling a more competitive market. As V2G develops, communication standards (such as the Open Charge Point Protocol or OCPP) are expected to play an increasingly important role in coordinating charging and electricity export.

Electricity flows

The electricity grid provides alternating current (AC) electricity, while direct current (DC) electricity is used to charge an EV battery.

During conventional one-way charging, AC electricity from the grid is converted into DC electricity to charge the battery using a one-way converter. There are two forms of one-way charging: in AC charging, the conversion from AC to DC electricity occurs within the vehicle, while in DC charging it occurs within the charger, as shown in Figure 1.

Conventional one-way charging only requires electricity flow in one direction (from the grid to the vehicle), so a one-way converter is used.

For two-way V2G charging, electricity must also flow in the other direction, meaning a two-way converter[8] is needed, as shown in Figure 2. DC electricity from the EV battery needs to be converted back to AC electricity to match the grid's requirements, before it can be exported to a home, building or the wider electricity network.

As with one-way charging, the difference between AC and DC V2G charging is where the conversion takes place:

- AC V2G – the two-way converter is located within the vehicle.
- DC V2G – the two-way converter is located within the charger.

All two-way converters used in New Zealand, whether located in the vehicle or the charger, must comply with AS/NZS 4777.2[9] and be installed in accordance with AS/NZS 4777.1.[10] This series of standards (covering grid connection of energy systems via inverters) is the same standard that applies to solar photovoltaic (PV) systems exporting electricity to the grid.

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[7] *Electric vehicle (EV) charger requirements under review* (EECA, 2026).
[8] A two-way converter contains an inverter (DC to AC) and a rectifier (AC to DC).
[9] *Grid connection of energy systems via inverters, part 2: Inverter requirements* (Standards New Zealand , 2020), incorporating amendments 1 and 2.
[10] *Grid connection of energy systems via inverters, part 1: Installation requirements* (Standards New Zealand, 2024).

DC V2G chargers designed for use in homes and businesses are commonly much lower power than public one-way DC fast chargers. DC V2G chargers contain a two-way converter, so they are typically slightly larger and more expensive than AC chargers.

Figure 1. Electricity and information flows for one-way charging

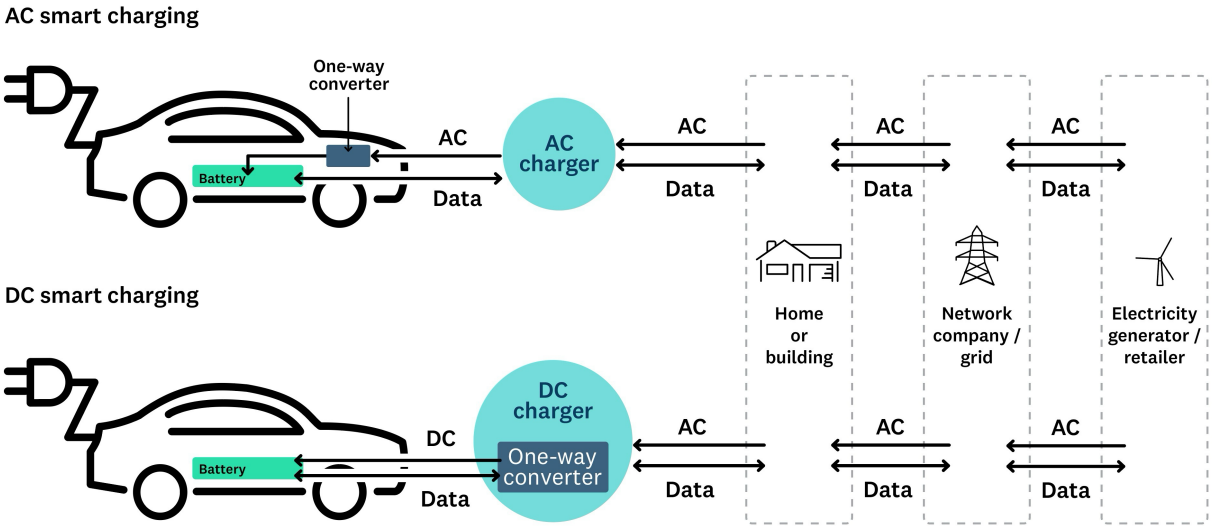
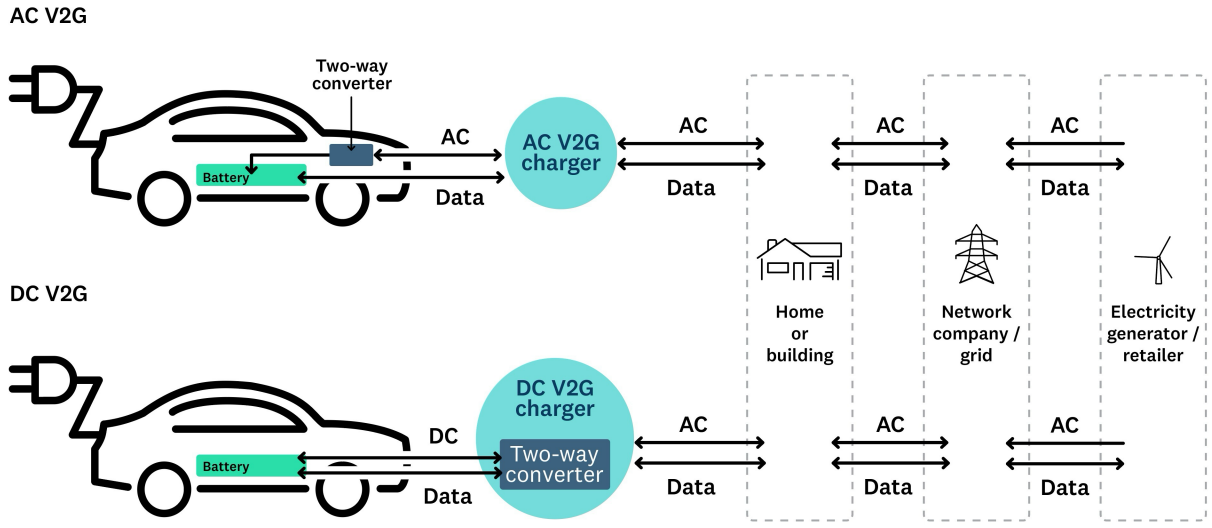


Figure 2. Electricity and information flows for two-way V2G charging



The V2G ecosystem

Successful V2G depends on more than just a compatible vehicle and charger. It requires coordination between multiple participants to enable the safe and reliable exchange of both electricity and information.

The main parties are as shown in Figure 3 and listed in Table 1.

Figure 3. Parties involved in V2G

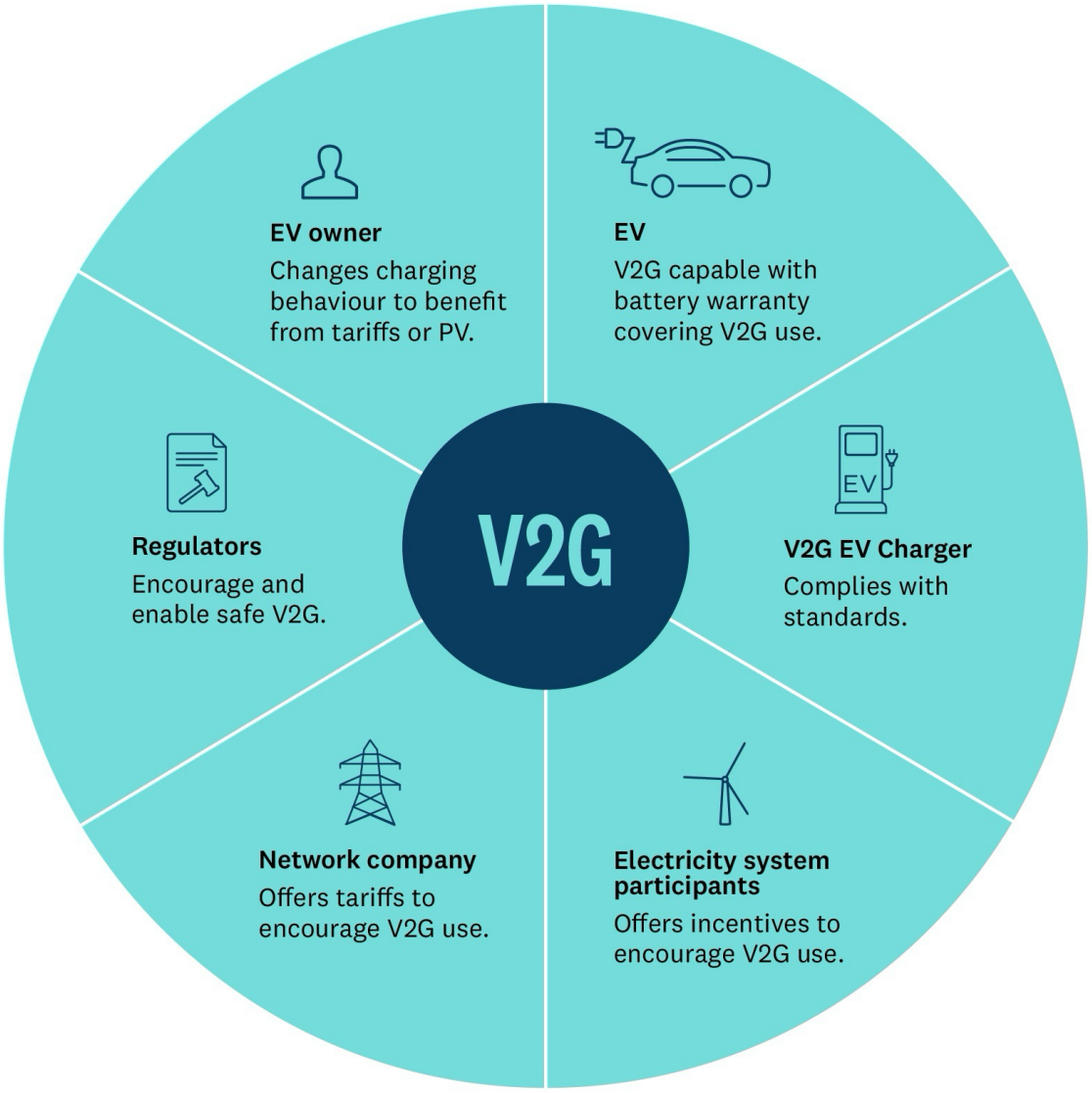


Table 1. Parties involved in V2G

Party	Role in V2G	Parties in the Queenstown trial
EV manufacturer	Provides V2G capable vehicles, enables V2G through software where required and provides battery warranty support.	For example, BYD Atto 3, Polestar 2
V2G charger supplier	Provides a certified V2G charger that safely charges and exports electricity.	For example, StarCharge Halo
Electricity retailer	Enables customers to buy and sell electricity (by adding export functionality to their smart meters, if required), and offers tariffs to incentivise V2G use, including passing on tariffs from the electricity network company. May work with aggregators or demand flexibility service providers.	For example, Octopus Energy, Genesis
Aggregator/demand flexibility service provider	Can coordinate and manage large numbers of V2G-enabled vehicles, optimising when they charge and export electricity. Manages flexibility services across many participants and facilitates participation in electricity markets or incentive schemes.	Not currently involved
Network company (electricity distribution business)	Approves applications for electricity export, provides a network tariff that incentivises V2G use and manages the local electricity network.	Aurora Energy, Powernet
Regulator	Sets the market, technical and safety requirements for V2G equipment and installations.	WorkSafe, EECA, Electricity Authority
EV owner	Chooses compatible equipment and uses V2G to optimise charging and exporting in order to maximise financial and energy benefits, for example by integrating with roof-top solar PV or batteries. Where configured, may also use V2G to provide backup power during a grid outage.	Various households and businesses of different types

As the V2G market develops, additional service providers may emerge, such as entities that coordinate cybersecure transactions between all the different parties.

The current state of the New Zealand market

Internationally, V2G technology is transitioning from research and demonstration projects to early commercial deployment. The technical capability of V2G has been proven overseas, which presents New Zealand with the opportunity to learn from the deployment of V2G in other markets, such as Europe and Australia.[11]

In New Zealand, the market is in the very early stages of development. Compatible vehicles, chargers, electricity tariffs and supporting market arrangements are beginning to emerge. At the same time, the market is evolving rapidly as vehicle manufacturers introduce V2G-capable models, charger manufacturers expand their offerings and electricity sector participants begin developing commercial services and pricing arrangements.

The successful deployment of V2G in New Zealand will depend on multiple parts of the market developing and working together; while progress is being made, several factors continue to limit wider uptake of V2G technologies.

Market barriers and opportunities

To support EECA's trials, EECA and its project partners have engaged with vehicle manufacturers, charger suppliers, electricity retailers, electricity distribution businesses, installers and other industry stakeholders to understand the current state of the New Zealand V2G market.

This engagement identified both encouraging signs of market development and a number of barriers that currently limit wider uptake of V2G technologies. The key barriers and opportunities identified through the engagement are as follows, and are summarised in Table 2.

- **Vehicle compatibility and manufacturer support** – there is currently limited availability of V2G capable vehicles, as well as varying levels of support from the original equipment manufacturers (OEM), battery warranty coverage and software compatibility.
- **Charger availability and cost** – only a limited range of V2G chargers is currently available in New Zealand. Equipment costs remain relatively high while the market is still developing.
- **Electricity market arrangements** – electricity tariffs and incentive schemes that fully recognise the value that V2G can provide to the electricity system are still emerging in New Zealand.
- **Standards and regulation** – standards, regulations, open communication protocols and industry guidance continue to evolve to support the safe and interoperable deployment of V2G in New Zealand. These standards and regulations will influence the availability of compatible vehicles and chargers, the degree of interoperability across the electricity system, the availability of electricity tariffs encouraging V2G and installation capability.
- **Installation capability** – installing V2G systems is generally more complex than installing conventional EV chargers.
- **Consumer confidence and awareness** – consumer understanding of V2G remains limited. Concerns about battery degradation, warranty coverage, upfront costs and maintaining sufficient charge for travel continue to influence purchasing decisions.

[11] *Barriers to consumer adoption of vehicle to home and vehicle to grid in Australian jurisdictions: Final report* (Oakley Greenwood, 2026).

Table 2. Summary of the current state of barriers and opportunities

Area	Current state
Vehicle compatibility and availability	Limited OEM support
Chargers	Limited products, relatively high cost
Electricity markets	Tariffs and incentives emerging
Standards	Continuing to evolve
Installation	Capability developing
Consumers	Limited awareness, understanding and confidence

In the following sections of the report, we examine each of these areas in more detail and describe how the New Zealand V2G market is expected to develop over the coming years.

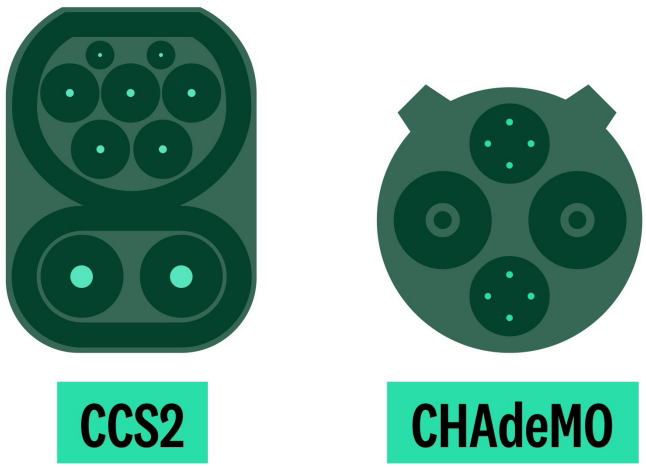
Vehicle compatibility

Charging standards

Light EVs in New Zealand typically use charging connectors that meet one of two charging standards, as shown in Figure 4.

- **Combined charging system combo 2 (CCS2)** – a DC connector type used for all new light and heavy EVs sold in New Zealand, and the dominant charging standard nationally and internationally. CCS2 vehicle inlets also support AC charging, with the upper part of the inlet accepting a 'Type 2' AC charging connector.
- **CHAdeMO** – a DC connector type used in Japan and commonly found on used EVs imported into New Zealand from Japan. These vehicles also have a separate inlet that accepts a 'Type 1' AC charging connector.

Figure 4. CCS2 combined AC and DC charging connector and CHAdeMO DC charging connector



The type of charging connector that an EV has determines which V2G charging stations it can connect to.

Current OEM support for V2G

Vehicle manufacturer (OEM) support is currently one of the key factors influencing the pace of V2G deployment in New Zealand. While many EVs may be technically capable of V2G charging, successful V2G operation requires more than just compatible hardware. It also depends on manufacturer support through vehicle software, communication protocols and battery warranty coverage.

In New Zealand, OEM support for V2G currently varies across vehicle makes and models. Some manufacturers support V2G under specified conditions, some limit support to approved trials, some require software activation before V2G use can be enabled, while many others do not currently support V2G or have not confirmed that battery warranties still apply when used for V2G charging.

This variability reflects ongoing efforts by manufacturers to assess the potential impacts of V2G charging and increased battery cycling on battery health.

At the time of publication, Tables 3 and 4 summarise the vehicle models for which OEM support for V2G use has been confirmed in New Zealand, and the conditions under which this support is provided.

It should be noted that some EVs currently available in New Zealand, which may be technically capable of V2G, are not included in these tables; this is because the manufacturer has not confirmed either support for V2G operation or battery warranty coverage. Similarly, some listed vehicles may have the technical capability to support different V2G architectures, but the tables reflect the V2G pathway currently supported by OEMs in New Zealand.

For vehicles with CCS2 charging connectors, OEM support in New Zealand is currently limited and generally confined to approved trials.

By contrast, vehicles with CHAdeMO charging connectors already have established V2G capability.

Table 3. CCS2 vehicles with OEM support for V2G

EV make and model	Warranty position	Conditions
BYD – Atto 3	Supported for approved trials only.	Software update by authorized BYD service agent required to enable DC V2G capability. Individual vehicles must be approved by BYD NZ.
Farizon – all models	Supported for approved trials only	Individual vehicles must be approved by NordEast (New Zealand distributor) for DC V2G only.
Geely – EX5, Riddara RD6	Supported for approved trials only	Individual vehicles must be approved by NordEast (New Zealand distributor) for DC V2G only.
Polestar – all models	Supported for approved trials only	Individual vehicles must be approved by NordEast (New Zealand distributor) for DC V2G only.
Volvo – EX30, EX90	Supported for approved trials only	Individual vehicles must be approved by NordEast (New Zealand distributor) for DC V2G only.
Zeekr – all models	Supported for approved trials only	Individual vehicles must be approved by NordEast (New Zealand distributor) for DC V2G only.

Table 4. CHAdeMO vehicles with OEM support for V2G

EV make and model	Warranty position	Conditions
Mitsubishi – Outlander PHEV	Supported	Must be used with a CHAdeMO DC V2G charger.
Mitsubishi –Eclipse Cross PHEV	Supported	Must be used with a CHAdeMO DC V2G charger.
Nissan – Leaf, eNV200 (all used import vehicles fitted with CHAdeMO version 1.2 or later)	Nissan New Zealand does not provide warranty coverage for used import vehicles (irrespective of V2G use)	Must be used with a CHAdeMO DC V2G charger.

EECA and its project partners are continuing to work with vehicle manufacturers and importers to determine if additional vehicle makes and models are V2G capable, and whether OEM support

and battery warranty coverage will be provided. This includes Kia New Zealand, which has indicated that it is actively working to enable participation of its vehicles in V2G trials.

Market outlook

The outlook for CCS2 V2G-compatible vehicles in New Zealand is expected to improve as manufacturers introduce vehicles that implement the latest CCS2 communication standard; namely ISO15118-20,[12] which has been designed for V2G charging.

Some manufacturers have indicated that new models of their vehicles entering the New Zealand market from 2027 onwards will support V2G. For example, BYD has indicated that all new models introduced from mid-2027 onwards are expected to be V2G capable and V2G use will be covered in their standard vehicle warranty.

The number of CHAdeMO vehicles in New Zealand is expected to gradually decline. Japanese vehicle manufacturers are transitioning from CHAdeMO to CCS2 for new vehicles sold in their domestic market, meaning fewer CHAdeMO-equipped vehicles are expected to enter the New Zealand fleet as used imports. While CHAdeMO has established V2G capability today, future market growth is expected to be centred on CCS2.

Considerations for V2G use

Until broader OEM support becomes available, vehicle owners should only use V2G where both the vehicle manufacturer and charger manufacturer support the configuration. While some overseas EV makes and models using the earlier ISO15118-2 communication standard have been shown to work with some DC V2G chargers, interoperability cannot be assumed. Using unsupported vehicle and charger combinations may affect vehicle operation, battery warranty and insurance coverage.

V2G charger market

Current charger availability

The V2G charger market in New Zealand is at an early stage of development, and the range of commercially available chargers is currently very limited. While the number of products available internationally continues to grow, only a few currently meet New Zealand's regulatory requirements and are supported by local suppliers.

V2G chargers installed in New Zealand must comply with the relevant electrical safety and grid connection requirements. This includes compliance with AS/NZS 4777, which sets out requirements for grid-connected inverters (Part 2) and their installation (Part 1), as well as with other applicable standards for EV charging equipment.

The New Zealand manufacturer or importer of the charger must also provide a New Zealand Supplier Declaration of Conformity (commonly known as a SDoC) demonstrating compliance with the relevant standards. The New Zealand distributor of the charger should also be able to provide technical support if required.

The current New Zealand market presents a mismatch between vehicle manufacturer support and charger availability. While CHAdeMO vehicles have established V2G capability, there are currently no CHAdeMO V2G chargers that meet New Zealand's regulatory requirements. Conversely, while CCS2 DC V2G chargers that meet the requirements are available, support for CCS2 V2G vehicles remains limited and is confined to approved trials.

Table 5 lists the chargers available in New Zealand that meet the regulatory requirements at the time of publication, and any conditions for their use.

[12] *ISO 15118-20:2022 Road vehicles — vehicle to grid communication interface: Part 20: 2nd generation network layer and application layer requirements* (ISO, 2022).

Table 5. V2G chargers available in New Zealand that meet the requirements

Charger make and model	Type	Conditions for use
StarCharge Halo	CCS2	DC V2G
SigenStor EV DC	CCS2	DC V2G. Only for use with SigEnergy home energy systems.

Market outlook

The current version of AS/NZS 4777 only permits AC V2G charging using specific combinations of EVs and AC V2G chargers that have been demonstrated to comply with the standard.

To date, no vehicle manufacturers have demonstrated that their onboard AC/DC converter (inverter) complies with AS/NZS 4777 for use with a specific compliant AC V2G charger.

An update to AS/NZS 4777 is currently underway and is expected to facilitate interoperable AC V2G systems in the future, which is likely to increase the range of V2G chargers available in the New Zealand market.

Internationally, development of CCS2 and CHAdeMO V2G products continues. However, manufacturers are increasingly focusing on CCS2 as the primary charging standard globally. As a result, future investment in V2G charging products is expected to be concentrated on CCS2.

Considerations for V2G use

EECA maintains an approved list of smart EV chargers,[13] which identifies chargers that have been assessed against EECA's smart EV charger specification. Some chargers on this list also have two-way charging capability. While EECA has not assessed the two-way functionality of these chargers, the list provides a useful reference for products available in the New Zealand market that meet the broader smart charger specification, and will continue to be updated as additional chargers are assessed against the specification.

Additional equipment

Additional equipment requirements

Compared with conventional EV chargers, V2G systems generally require more complex installation and integration with a building's electrical system. Depending on the application, this may include integration with communications infrastructure (such as WiFi connectivity), and existing solar PV, battery storage, or home or building energy management systems. Where backup power functionality is required, some systems may require switching equipment, such as an automatic transfer switch.

These additional equipment requirements contribute to higher installation costs and greater system complexity than conventional EV charging.

Use of charging adaptors

WorkSafe's *Electric Vehicle Charging Safety Guidelines*[14] state that charging adaptors should only be used where they are specifically intended for the purpose they are being used for and are supplied by either the vehicle manufacturer or the charger manufacturer.

Adaptors that convert between different charging standards (for example, CHAdeMO and CCS2) are available for purchase online but should not be used for V2G applications. Although these adaptors may physically connect a vehicle and charger, they do not provide the compatible

[13] Electric Vehicle Smart Charger Approved List | EECA
[14] *Regulatory guidance notes: Guidelines for safe electric vehicle charging* (WorkSafe, 2026)

communication software required for two-way charging. The use of adaptors outside of WorkSafe's guidelines may create safety risks that could affect vehicle warranty or insurance coverage.

Electricity tariffs and incentives

Current tariff offerings

Electricity retailers in New Zealand already offer export tariffs for customers who export electricity from roof-top solar PV systems to the grid.

Emerging battery flexibility programmes build on this concept, by rewarding electricity exported or discharged from batteries during periods of high electricity demand or network congestion. V2G extends this concept to EV batteries, enabling EV owners to participate in these arrangements.

Tariffs and incentive schemes that reward flexible battery operation are at an early stage of development in New Zealand. A small number of electricity retailers and electricity distribution businesses are trialling tariffs and incentive schemes to better understand how V2G can support the electricity system while providing value to EV owners.

One example is a trial involving Octopus Energy (an electricity retailer) and Aurora Energy (an electricity distribution business in the Queenstown Lakes area). Under the trial, additional export payments are being offered to customers during peak demand periods, at rates of an additional 5–20c/kWh above the standard Octopus export tariff. In Arrowtown, where the electricity network experiences greater peak demand constraints, Aurora is offering an additional 70c/kWh above the standard export tariff.[15]

EECA and its project partners are also working with electricity retailers to develop and trial V2G pricing tariffs that encourage EV charging and electricity export at times that provide the greatest value to consumers and the electricity system.

Market outlook

As V2G deployment increases, electricity retailers and electricity distribution businesses are expected to introduce a broader range of commercial tariffs and incentive schemes reflecting local network conditions and electricity system needs.

Ongoing flexibility projects and market trials are helping electricity sector participants develop and test new commercial models for flexible electricity demand and export. As these programmes mature and more V2G-capable vehicles enter the New Zealand market, tariffs and incentive schemes that reward flexible battery operation are expected to become increasingly mainstream.

Outlook and conclusion

The V2G market is at an early stage of development in New Zealand. While the technical capability of V2G has been demonstrated internationally, commercial deployment in New Zealand is currently limited by the availability of compatible vehicles and chargers, electricity market arrangements and OEM support.

Despite these barriers, the market is continuing to develop. Vehicle manufacturers are beginning to introduce CCS2 vehicles designed to support two-way charging; charger manufacturers are expanding their product offerings internationally; and electricity sector participants are trialling tariffs and incentive schemes that recognise the value V2G can provide to the electricity system.

However, widespread deployment of V2G will depend on several parts of the market developing together. Greater OEM support, broader battery warranty coverage, increased charger availability,

[15] *Octopus labs: Queenstown Lakes battery flexing with Aurora* (Octopus Energy, 2026).

evolving technical standards and commercially attractive electricity tariffs will all be important to enable wider adoption.

EECA's V2G trials will help build practical understanding of how compatible vehicles, chargers and electricity market arrangements perform under New Zealand conditions. Future reports will share findings from this work, including lessons from installation and operation, customer experience, and updates on the evolving New Zealand V2G market.

The next report, which will cover trial design, the first installation lessons and early customer experience insights, is expected to be published in late 2026.

Appendix A. Two-way charging terminology

Table 6 defines the common terminology used to describe different forms of two-way charging.

Table 6. Two-way charging terminology

Term	Definition	Typical use cases
V2G (vehicle to grid)	Electricity is exported from the EV to anywhere connected to the electricity grid.	Supporting peak demand, or optimising and reducing peak energy use.
V2H (vehicle to home)	Electricity is supplied from the EV to a home, without the charging system being connected to the grid.	Reducing the home's peak electricity use, optimising electricity use, or providing back up power.
V2B (vehicle to building)	Electricity is supplied from the EV to a commercial building, without the charging system being connected to the grid.	Reducing the building's peak electricity use, optimising electricity use, or providing back up power.
V2L (vehicle to load)	Electricity is supplied directly to a device or equipment.	Portable or temporary power supply, for example to individual appliances, tools or camping equipment.

Collectively, these are sometimes referred to as vehicle-to-everything (V2X) charging.