NZI **EV Fleet Guide**

A comprehensive EV adoption guide for business fleets.

Peace of mind
for NZ business

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Our experts

Jessica Rodger
NZI Senior Climate Reporting Lead

Jessica has over 15 years' experience in New Zealand and abroad helping businesses operate more sustainably. Joining NZI in 2020 Jessica has had a large impact supporting IAG's (NZI's parent company) sustainability objectives, including the roll-out of EVs across NZI's fleet and delivering IAG New Zealand's climate related disclosures.

Oliver Jepson
NZI National Motor Manager

Oliver, NZI's National Motor Manager, specialises in Commercial Motor Insurance, tailoring insurance and fleet risk management solutions to some of New Zealand's largest motor fleets. Oliver joined the NZI Motor team in 2017 and has over 20 years of insurance experience. Prior to joining NZI, he was the Head of Motor at Zurich New Zealand and has held various senior motor underwriting roles with Lumley Insurance and Vero Insurance.

Mike Radford
NZI Fleet Risk Manager

Mike is a key member of NZI's Fleet Risk Management team that works with business fleets to reduce accident risk and improve performance through data and analytics. As a qualified mechanic with over 30 years' experience working in the motor and insurance industry, Mike brings a wealth of technical knowledge and expertise to the team.

Andrew Greatbatch
NZI Risk Advisory Manager

Andrew leads NZI's Fleet Risk Management and Risk Consulting teams which work with businesses to identify hazards and support risk mitigation. As a trained civil engineer and former asset management consultant, Andrew is well versed in establishing best practise procedures and treats safety as paramount. With over five years' insurance experience, Andrew has seen many claims that impact businesses and the effect they have, and his teams are committed to helping reduce these losses.

Our experts

Sean Campbell
AutoSense Chief Operating Officer

Sean is passionate about reducing the risk on our roads through greater driver awareness and upskilling. As Chief Operating Officer at AutoSense, Sean has a unique insight into the adoption and use of EVs across New Zealand businesses and is committed to helping organisations achieve best practise.

AutoSense is one of NZI's Fleet Fit partners which offers safety solutions for heavy and light vehicle fleets, including online driver training, in-vehicle coaching, driving simulators, and Guardian by Seeing Machines to help guard against driver fatigue and distraction.

Zak Dean
NZI Electrical Inspector

Zak is a qualified electrician and electrical inspector with over 10 years' experience specialising in industrial and commercial maintenance. Zak's extensive background working across electrical safety provides a wealth of knowledge to support businesses reduce EV charging risks.

Toby Lancaster
NZI Electrical Inspector

A qualified electrical inspector, Toby has over 15 years' commercial experience working with standby/ mains sync generators, DC power systems, and telecommunications. He is excited about the potential for EVs to transform business and is committed to using his experience to help businesses successfully manage the technical aspects of adopting the technology.

David Sutcliffe
NZI Liability Portfolio Manager

David has 30 years' experience working across financial services and commercial insurance with an extensive background in underwriting and portfolio management. Specialising in liability insurance, David is well positioned to identify the insurance impacts around charging a business vehicle at an employee's home.

New Zealand businesses are switching their **Internal Combustion Engine** (ICE) fleets in increasingly large numbers to **Electric Vehicles** (EVs) and hybrids.

For commercial fleets, EVs and hybrids make a positive contribution to the environment. But they also make a positive impact on the bottom line. The combination of environmental and financial benefits are attractive to many businesses.

As with most technology advances, EVs and hybrids also raise questions for decision makers. Without clear answers to those questions, some are reluctant to commit to an EV fleet for fear of making a wrong choice.

This report helps answer some of those questions, to help you decide if adding EVs and hybrids to your fleet is right for your business and your people.

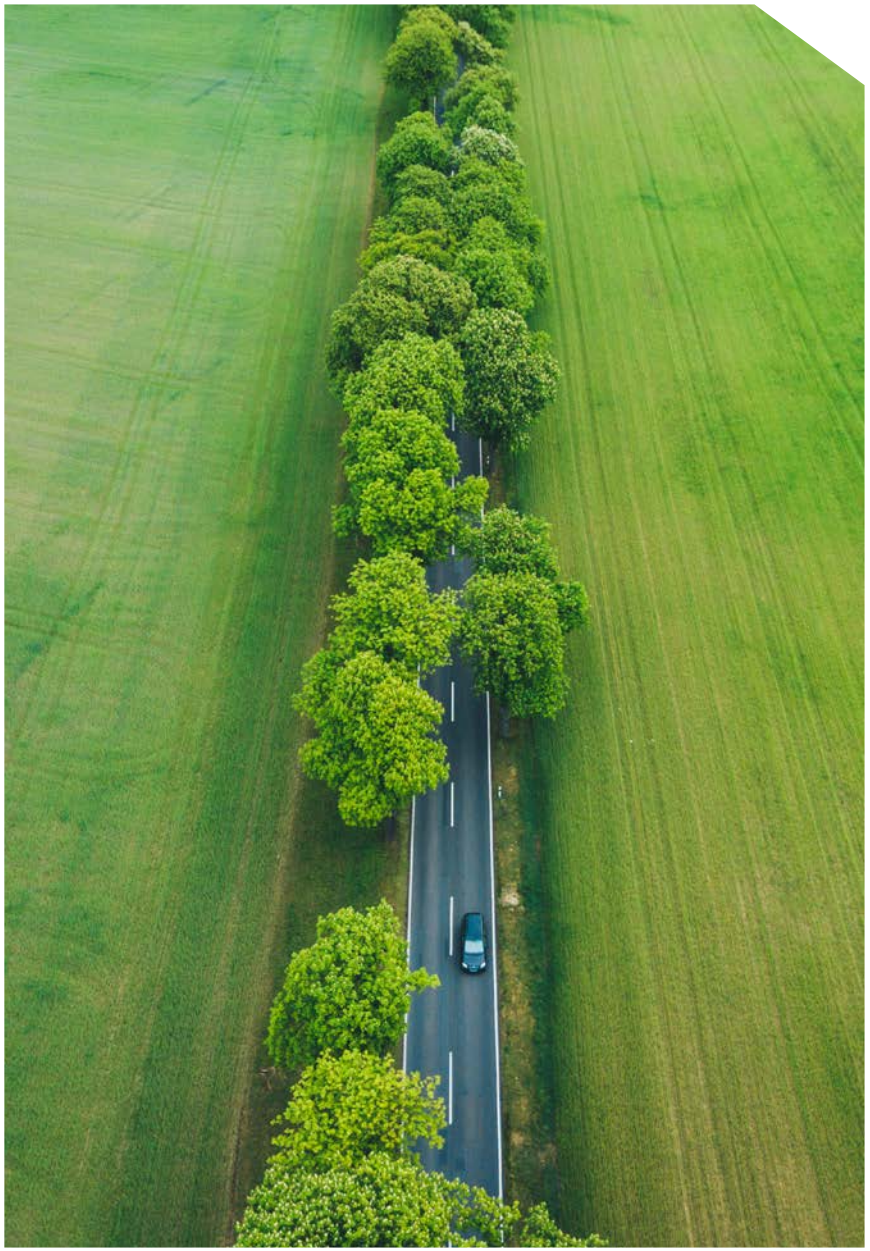
It covers the general benefits of EVs and hybrids and ways to assess their likely value to your organisation. It also addresses key steps in transitioning to EVs, including staff training, installing charging infrastructure and more.

As a founding member of the Climate Leaders Coalition, NZI is committed to reducing its carbon footprint and has been actively transitioning to a hybrid and EV fleet. This report shares our experiences and lessons learned so far.

We also interviewed fleet managers and drivers from around New Zealand to provide more insights into adopting EV and hybrid technology. Our intention is to shed light on the ways businesses are using these vehicles, and the lessons they have learned that could help others.

The research is supplemented by expert commentary from within NZI and from NZI's Fleet Fit partners.

The report is part of a series, following on from our report on advanced driver-assistance systems. These reports are prepared with the insights from our dedicated Fleet Risk Management team, who work collaboratively with commercial fleets around the country. They help to create safer workplaces, improve driver performance, and help businesses leverage data and analytics to run more efficiently and mitigate risks.



A note on terminology

Terminology around vehicle engine technology is not always consistent. For the sake of clarity, the terms we use in this report, and their meanings, are as follows:

ICE means internal combustion engine only.

EV means an all-electric (battery-powered) vehicle. These are sometimes called BEVs, or battery electric vehicles, but we use EV in this report.

Hybrid means a vehicle that uses both a combustion engine and an electric (battery-powered) engine. Pure hybrids (such as the original Toyota Prius) use their combustion engine and braking energy to recharge their batteries, and cannot be plugged in. Plug-In Hybrid Electric Vehicles (PHEV) can recharge their batteries with both an external electrical power source and their combustion engine.

In this report when we talk about EVs we are usually including PHEVs, unless the context makes it clear that isn't the case.

Is going electric good for business?

Part One

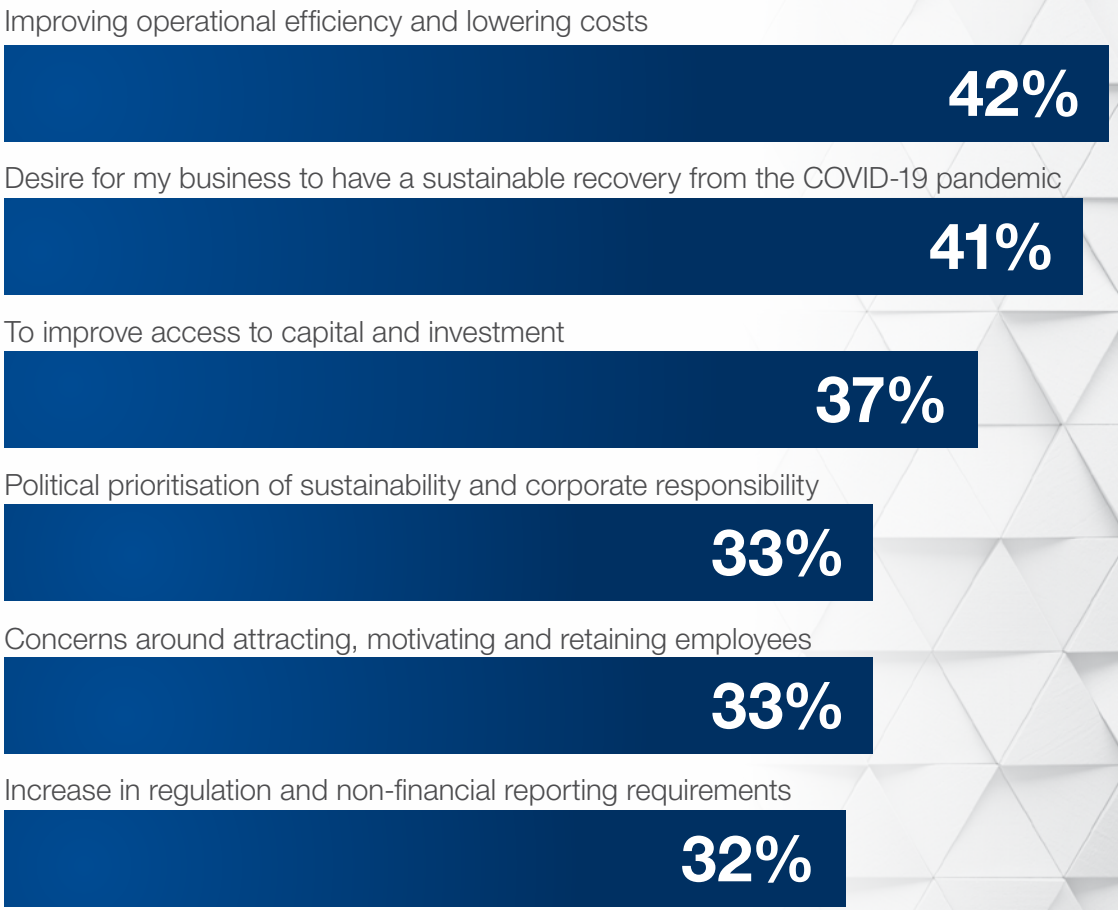
Peace of mind
for NZ business

Why would a commercially driven enterprise consider moving to EVs?

One reason is that companies are prioritising sustainability more than ever – not just in order to be good corporate citizens, either. The move is also about supporting positive business outcomes.

In their International Business Report, business advisory firm Grant Thornton found that the top six reasons for businesses prioritising sustainability were fairly evenly distributed between sustainability and the bottom line*.

Top six reasons why companies are prioritising sustainability

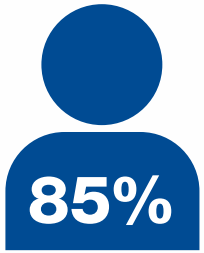


* Grant Thornton, Creating competitive advantage through sustainability. https://www.grantthornton.co.nz/insights/creating-competitive-advantage-through-sustainability/

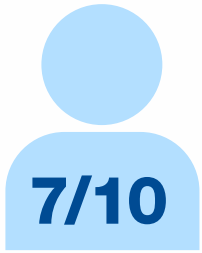
Jessica Rodger
NZI Senior Climate Reporting Lead

An NZI study confirms the importance of sustainability as a driver for change. From the fleet drivers we interviewed, 87% said sustainability was important to them, and 85% said it was important to the business. Further, 7 out of 10 fleet drivers felt more positive towards employers with EVs and/or hybrids as all or part of their fleet.

Opting for sustainability is one thing. The challenge is deciding the most effective actions to fulfil on that commitment. Moving to EVs is one of the more obvious choices, says Jessica Rodger, NZI's Senior Climate Reporting Lead

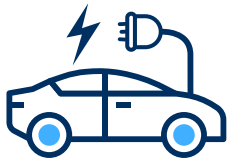


85% of fleet drivers said **sustainability was important to the business**



"7 out of 10 fleet drivers **felt more positive** towards employers with EVs and/or hybrids as all or part of their fleet."

The average cost of
powering a car 100 km



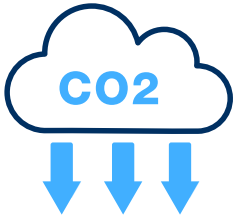
is **$5** for a home-charged EV

versus **$18** for a petrol car.

"Financially, EVs make a lot of sense," she says. "They are cheap to maintain. They're mechanically simple. And when the cost of fuel is high, it makes EVs even cheaper to run.

Second, says Jessica, businesses are aware that transport is an important lever in reducing New Zealand's overall CO2 levels. "About 20% of our greenhouse gas emissions come from transport. Because around 85% of New Zealand's electricity is from renewable sources, going electric makes a massive difference."

IAG, NZI's parent company is moving its fleet towards EVs and hybrids. So far it has seen an approximate 86% reduction in CO2 emissions from the portion of its fleet that is now electric.



IAG has seen an approximate **86% reduction in CO2 emissions** from the portion of its fleet that is now electric.

Oliver Jepson
NZI National Motor Manager

Another, less obvious, advantage is the wide range of Advanced Driver-Assistance System, or ADAS, features that are built into new EV and hybrid vehicles. “Most car accidents are caused by human error,” says NZI National Motor Manager, Oliver Jepson. “ADAS have been proven to reduce accidents and make driving safer.”

For all of that, however, concerns still exist around EVs.

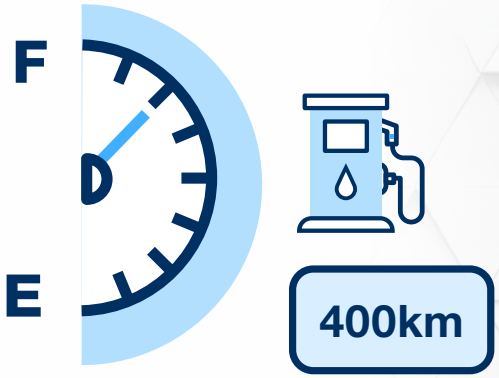
	EV Drivers (n=10)	**Hybrid Drivers** (n=41)	**ICE Drivers** (n=58)	**Overall** (n=109)
Charging	7	14	37	58
Range	9	14	29	52
Safety	3	16	11	30
Fire Risk	1	12	14	27
No Concerns	1	11	12	24

"The Board has made a decision about sustainability. And that is the overall goal. But there is a financial gain, you're not using as much fuel, it is cheaper lease costs. So financially, it is going to be a little bit cheaper."

- Mixed Vehicles Fleet Manager

NZI's research reveals that the main concerns for fleet drivers is around charging and range. Going hand-in-hand, these are expected concerns as technology moves away from the familiarity and ease of refuelling ICE vehicles. But this needn't be a major concern for most. Many modern EVs can travel over 400km on a single charge and technology is improving rapidly. For those long trips where an on-the-road charge is required, websites like ChargeNet can support planning, revealing charging sites across the length of the country.

The risk of fire is another common concern for 25% of fleet drivers. However, early studies in the US suggest that EVs are actually far less likely to cause a fire than ICE vehicles*. While it's true that an EV or battery fire is more difficult to extinguish than a typical ICE fire, when one does occur, it tends to start slowly, allowing vehicle occupants more time to reach safety. Any risk of fire can be further lowered by ensuring safe charging practices and placing EV chargers in appropriate locations.



Many, modern EVs can **travel over 400km** on a single charge

*AutoinsuranceEZ, Gas vs. Electric Car Fires [2023 Findings]. https://www.autoinsuranceez.com/gas-vs-electric-car-fires/

By 2030, New Zealand is predicted to be dealing with

30,000 used EV batteries.

A final question is what happens to batteries at the end of their useful life. By 2030, New Zealand is predicted to be dealing with 30,000 used EV batteries – a number that will certainly rise in later years. Many will be repurposed for a time as house solar storage units or electricity substation back-up. When they no longer fulfil that purpose, though, they will need to be dismantled and recycled.

Launched in 2019, New Zealand's Battery Industry Group is working to develop an accredited scheme to ensure the sustainable recycling of these batteries. While there is good reason to believe viable solutions await – Tesla, for example, has already announced its next generation of batteries will not use cobalt – much work still needs to be done, but technology is developing rapidly.

"One of the issues," says Jessica, "is that while battery recycling companies exist, they don't have much business yet because EV batteries are lasting longer than expected."

For most businesses, the case for EVs is stronger than the case for ICE vehicles. With the price of EVs likely to fall falling as adoption rates increase and more brands become available in the NZ market, the pendulum will only move even further towards electric.

NZI's **electrification journey**

Part Two

Peace of mind
for NZ business

Like so many New Zealand businesses, NZI and our parent company IAG are committed to operating sustainably and reducing our carbon footprint.

As a founding member of the Climate Leaders Coalition, it's an important part of providing leadership in the community. For that reason, we are among those businesses that have begun the transition to electric and hybrid cars. Our aim is to convert our fleet to electric vehicles and hybrids, and we're already well advanced towards that goal.

Making the transition is both exciting and challenging. "As with any major business decision, it's important know what it will take to fulfil on the commitment, and to plan – as far as possible – for what lies ahead," says Jessica Rodger, NZI Senior Climate Reporting to Lead. "Technology is evolving quickly, and we don't yet have all the answers, but existing and emerging technology should be factored into decision making."

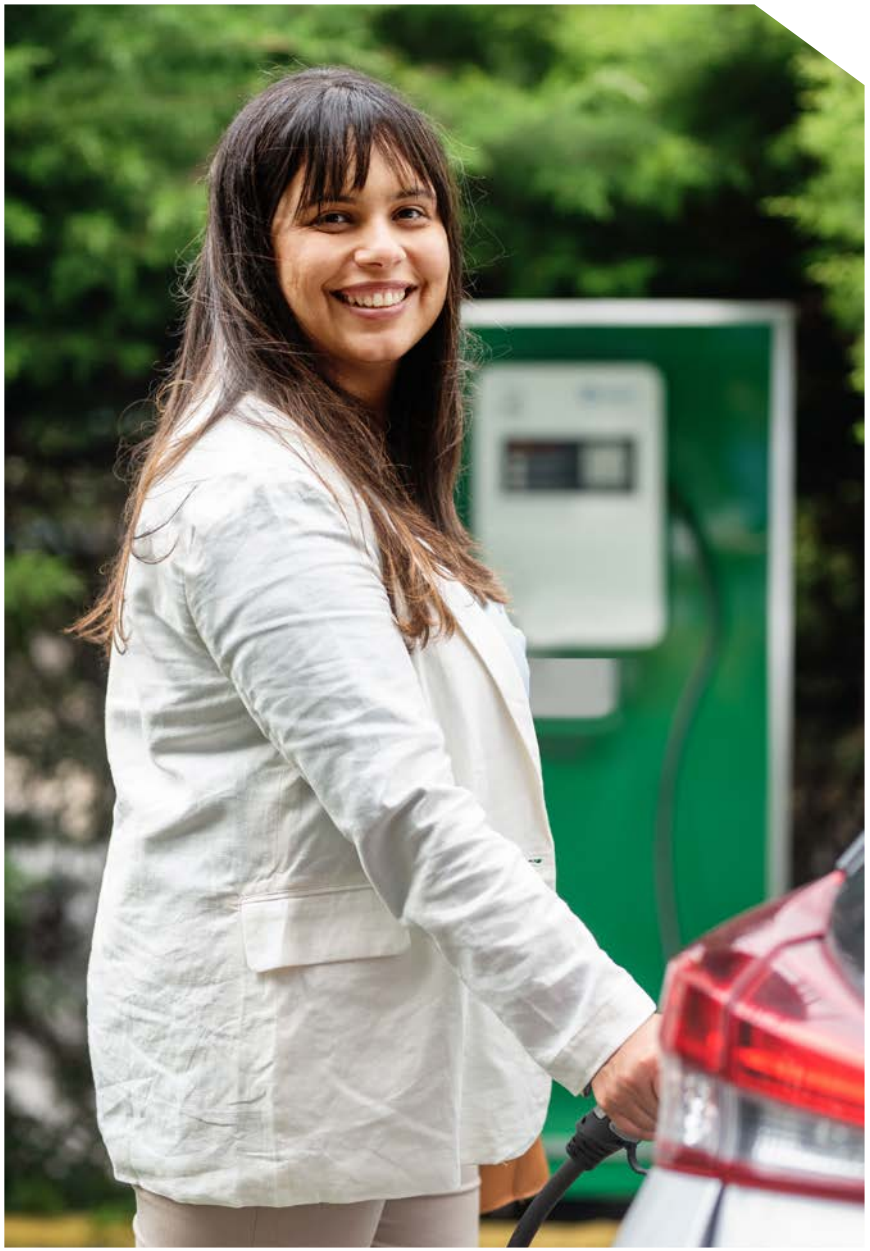
To help other businesses considering the move to EVs and hybrids, we'd like to share what we've learned so far.

How it all began

Initally, IAG ran a successful Electric Vehicle Early Adopter Programme. When it launched, six NZI volunteers took possession of EVs – three in Christchurch, one in Wellington and two in Auckland. “We kept our initial trial small to enable rapid insight,” explains Jessica.

We also created a partnership with LeasePlan, our vehicle lease supplier, for help with vehicle choices and home charging infrastructure. We had four big questions to resolve:

- Range and range anxiety
- Charging infrastructure
- Ongoing support and costs
- What carbon savings we would achieve



What we learned
Charging options

We installed home chargers for four of our Early Adopters, while the other two relied on office chargers and public charging stations.

“Chargers require careful planning. Safety must be the first priority”, says Oliver Jepson, NZI National Motor Manager. “This means being aware of current regulations and training people on the right ways to use them, whether at home or office-based chargers.” With office chargers, it’s also critical to ensure your available electricity supply will meet the power demand of your EV fleet, both now and as it grows.

For example, we currently have over 280 vehicles in our fleet. A major question for us is how to provide enough charging stations to support our vehicles as they transition to EVs. We are researching different options for this.

“Charging multiple vehicles on site is one of the key challenges of transitioning to EVs,” says Jessica. “Insufficient charging infrastructure can put an EV transition programme at risk. To add to the complexity, most businesses lease their premises, which makes installing that infrastructure more complex. It involves multiple stakeholders, and questions about long-term ownership and return on investment.” Home charging is also an option to consider, but it won’t suit everyone. “Renters, for example, may not have permission to install the necessary equipment, and others may not have suitable off-street parking. That said, our users with home chargers love it,” explains Jessica. “It’s simple, convenient, and means your fleet can be recharging during downtime, not when the vehicles need to be on the road. You need to put together a suitable remuneration structure to ensure your staff aren’t paying for the company’s energy use, but that’s a minor challenge.”

> “If you can keep a cell phone charged you can keep enough charge in an EV. Just remember A, B, C – Always Be Charging. If your car is sitting doing nothing it should be charging if possible.”
>
> - Robert Nicholls, NZI Business Development Manager and EV Early Adopter

What we learned
Range and range anxiety

Range anxiety is a key barrier to widespread acceptance of EVs. Almost 50% of fleet drivers NZI surveyed confirmed this, however we found that it was different for urban and provincial users once drivers were familiar with the vehicles.

“Our urban Early Adopters started out with some range anxiety, but it quickly evaporated as they discovered their cars’ range easily met their day-to-day needs,” says Jessica.

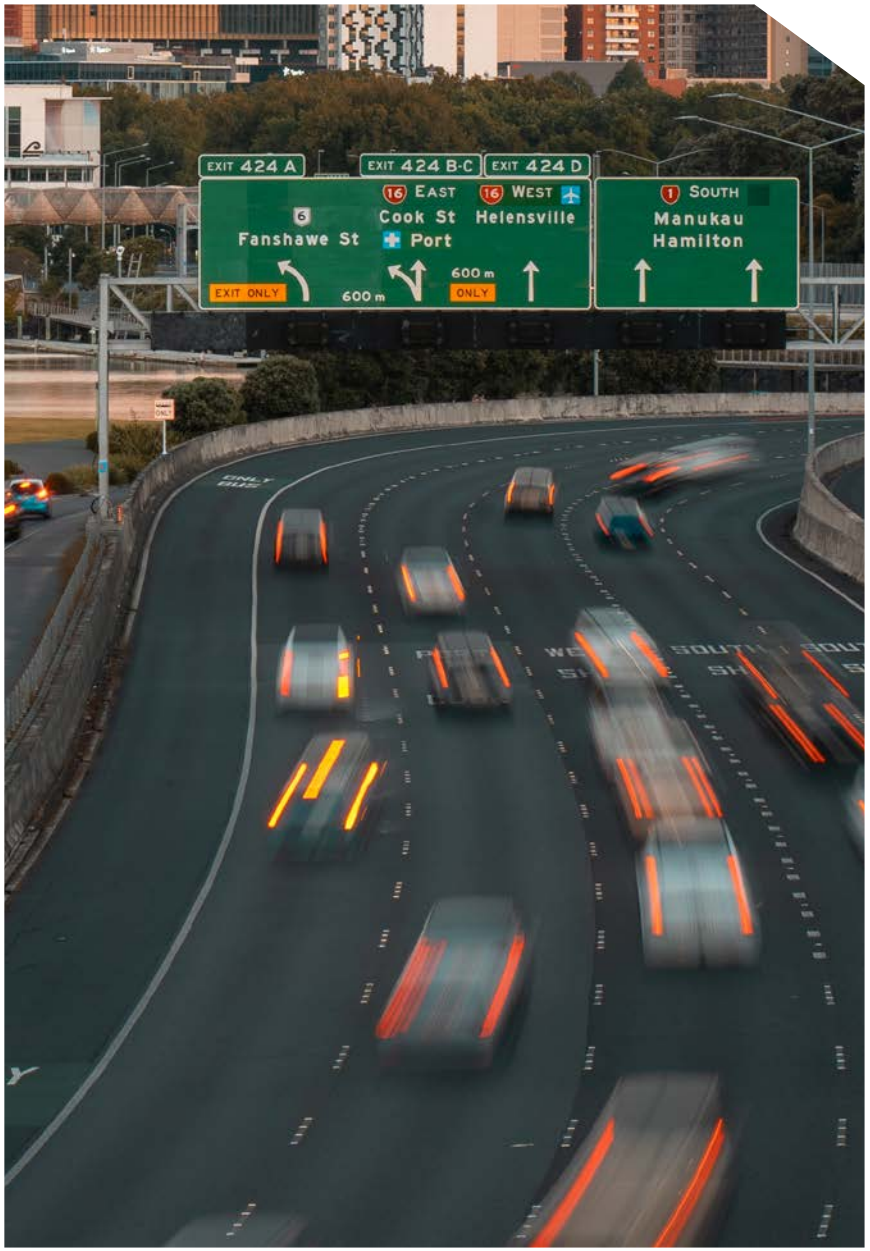
But users who needed to travel longer distances needed to plan their travel carefully, to allow for recharging along the way. They found that apps like Chargenet PlugShare were useful, giving them a map of nearby charging stations.

> “It can feel like a big change and you worry that you’ll run out of battery, but the reality is, it’s just another car with a slight difference to it. You’ll soon be in the flow of it and I’m sure you’ll love it!”
>
> - Loren Greig, NZI Senior Business Development Manager and EV Early Adopter

What we learned
Carbon emissions

We've been delighted with our results. Our EVs have reduced carbon emissions by approximately 86% per driver. The remaining 14% is from the portion of New Zealand's electricity still generated by non-renewable sources.

> "Less air pollution and they are quiet. No trips to the service station to spend lots of dollars on fuel."
>
> - Judy Franklin, NZI Business Development Manager and EV Early Adopter



What we learned
Running costs

Canstar Blue, the independent customer satisfaction research and ratings business, compared the energy costs of six similarly-sized vehicles: three EVs, and three petrol-powered vehicles. They found that driving an EV cost an average of 77% less per 100km, and that has been our experience too confirms Jessica. “It’s too early yet to report on our own experience regarding maintenance. But because EVs have fewer moving parts, we’re confident that servicing costs will be much lower too.”

> “Reducing emissions to help the environment. The cost of power is much lower than the cost of petrol and I no longer have to visit a service station!”
>
> - Malanie Gibson, NZI Senior Business Development Manager and EV Early Adopter

A positive result

"Results achieved have been beyond expectations. We're thrilled that our people love driving the EVs so much, and the numbers we're seeing make a lot of business sense. **The early results have given us the confidence to add more EVs and hybrids to our fleet**, to the point that **83% of our fleet** is at least partially electrified (currently mostly hybrid, but also EV). We've also been sharing learnings with other corporates through the Sustainable Business Council's Clean Car Accelerator Group and look forward to doing even more to support others who are considering the transition to electric vehicles."

- Jessica Rodger, NZI Executive Manager - Sustainability

Data over instinct every time

Part Three

Peace of mind
for NZ business

Mike Radford
NZI Fleet Risk Manager

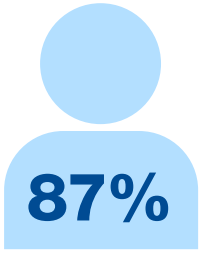
Of fleet drivers we surveyed, 87% say sustainability is important to them, and more than 7 out of 10 feel more positive towards employers with EVs and/or hybrids as part or all of their fleet. Little wonder, then, that so many businesses are seriously considering – or have begun – transitioning into EVs or hybrids.

That said, one of the biggest things we've learned in our transition to EVs and hybrids is the importance of solid research and objective analysis.

NZI Fleet Risk Manager Mike Radford says before making any decisions, ensure you have a robust process to decide what vehicles and infrastructure options are best for the tasks at hand.

"There's often a disconnect between what a business thinks its staff need and what staff actually need," he says. "Lots of businesses are keen to jump into EVs, and choose vehicles based on anecdotal information.

The better approach is to think through your needs, and then do a little research on the options that tick your boxes. That way you choose the right vehicles for both your business and your drivers."



87% of fleet drivers we surveyed say **sustainability is important to them**

"Sustainability is very important. It's right up there for us. The requirement is that we walk the talk as far as sustainability is concerned. So we look at all options throughout our business to be able to achieve that. And it definitely is a driving factor with EVs."

- EV Fleet Manager

Mike recommends thorough research and analysis before deciding on the models and number of vehicles to be bought or leased. The place to start? Understanding current usage, such as:

- Which vehicles travel the greatest distance
- Which vehicles have low usage that could be better utilised as a pool vehicle or removed from the fleet
- Which travel on unsealed roads or even go off road

One of the best tools for such analysis is GPS data. In its early days, GPS was used to simply track vehicles' whereabouts. Today, however, it is a powerful means of understanding driver behaviour and how vehicles across a fleet are being used. It is also used to streamline fleet operations and reduce costs. Some GPS services even provide a pool booking system.

A company leasing its vehicles may already have GPS installed, and those who don't should seriously consider it.

"Using data is much more reliable than anecdotal decision making and also gives the business time to share its thinking with staff, hear their feedback, and ensure their support for whatever decisions are made," says Mike.

For businesses insuring their fleet with NZI, NZI's Fleet Fit Partner, CCS Logistics, may be able to support you with that analysis. CCS Logistics' Fleetscore programme can shed light on vehicle use as well as a range of other metrics that can help improve fleet performance.

> “We started our transition around 2016 to becoming 100% EV in our passenger fleet. We could have taken people on the journey a little bit better, just with respect to them understanding why we’re doing what we’re doing and what that actually means for them.”
>
> - EV Fleet Manager

Time spent analysing fleet data can provide savings by understanding vehicle utilisation. “When businesses fully understand their vehicle usage, they can see opportunities to reduce fleet numbers without sacrificing efficiency or staff satisfaction.”

In addition, he says, a careful, considered approach allows time for staff training and forums where people can get answers to questions around range, charging and other unfamiliar aspects of non-ICE vehicles.

“Don’t leave anyone behind is a powerful mantra,” he says. “When you bring your people with you, they’ll be the ones who make the transition succeed.”

Finally, one of the most easily overlooked considerations is vehicle charging. Will they be charged at work, at employees’ homes, with publicly-available chargers, or with some combination of these? If so, what will the exact mix be? What will installation and any associated works cost? “These questions are best answered with a lot of thought and number crunching,” says Mike.

Charging an EV:
A little planning goes a long way

Part Four

Peace of mind
for NZ business

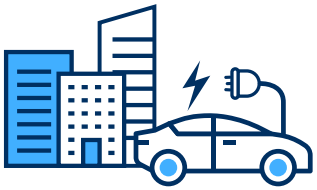
One of the biggest differences between ICE vehicles and EVs is one that's hard to miss. Refuelling an ICE vehicle is usually quick and easy, but recharging an EV takes a little more time and planning.

"In the excitement about EV technology, it's easy to jump in first and do the planning later," says NZI Risk Advisory Manager, Andrew Greatbatch. "Especially where charging is concerned, however, a lack of planning at the beginning can create some challenges."

Andrew's team of electrical inspectors, fleet risk managers and risk consultants work with NZI's commercial clients to reduce risk and avoid interruptions to business.

"When a client tells us they're considering EVs or hybrids, one of the first questions we ask is what sort of charging requirements they'll have," he says. "Often they'll say all charging will be done at the business or at public facilities, but on closer analysis it can become clear that more thinking is needed."

Charging at work



Andrew Greatbatch
NZI Risk Advisory Manager

If vehicles are charged at work, you need to consider the number of chargers needed, their cost, their load on electrical infrastructure, the time each charge takes on average, and the availability of chargers at peak times. In addition, new installs can create questions about who pays for any shared infrastructure. Costs can quickly accumulate before the first charger is even installed.

If a business needs multiple EV chargers, electrical switchboards may need upgrading and sub-circuits may need to be added, says NZI Electrical Inspector Zak Dean who works with businesses to identify electrical hazards. It's also easy to underestimate demand: A single-phase wall mounted unit can draw up to 7.4kW, or the rough equivalent of an oven or heat pump. A charger this size would effectively take ten hours to charge a 74kW battery from completely empty to full.

Given many manufacturers recommend not charging batteries above 80% frequently and not discharging below 20% a more typical charge time may be around 6 hours, a significant load, especially when multiplied out across an entire fleet.

This is an area where Andrew's team can help ensure a business makes good decisions to support the success of their fleet over the long term.

One important aspect of planning is fire safety. EV charging fires are very unlikely, but businesses should still take precautions to help prevent them, and to contain the spread as much as possible.

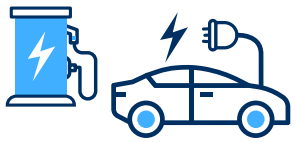
> “Most of our branches are on established industrial sites and even the underground infrastructure isn’t there. You’ve got all of these companies standing around waiting for someone else to go first, because whoever goes first has to pay for the entire underground infrastructure for that development.”
>
> - EV Fleet Manager

For any premise, that means early detection systems as well as ready access for the fire department. It is also critical to place charging facilities well away from combustible material, says Zak, and in some premises, sprinkler systems and other containment measures may need upgrading. Another potential fire risk is overloaded electrical circuits. “One of the first things to do in considering EVs is have a qualified electrician test your infrastructure to see that it’s up to the job. If it’s not, you might have to upgrade it to make sure it can cope safely with the extra load.”

In addition, he says, it’s important to keep pace with WorkSafe guidelines. For example, all chargers must be protected with a Residual Current Device (RCD), but the type of device required is subject to review. The easiest way to stay up to date is via the WorkSafe website.

Once charging facilities are in place, a qualified person should routinely check them on an established schedule, and in line with WorkSafe requirements. “Train your people in what to do if they notice a potential issue, too,” says Andrew. “What kind of things could be an issue worth reporting? Who should they report it to?”

Using public facilities

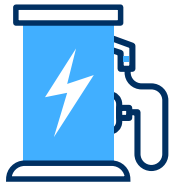


If vehicles are charged at public stations it will usually be during the workday, so the time that takes must be considered. For many people, a few extra minutes to recharge versus refuelling is of little consequence. For busy sales teams, however, time spent charging can equate to lost sales opportunities.

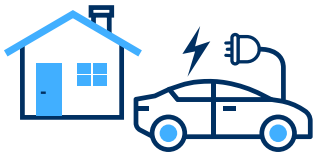
Either way, you can help your staff by providing them with good advice on finding facilities, and providing robust reimbursement policies (or charging cards), as you would if they were buying fuel.

In addition, train your staff on how to use public facilities, which will likely differ from those they use at work or home. Remember, EVs don't need to "fill up" every time they charge. A 50kW fast charger at a charging station can provide up to 66km of range in 15 minutes.

A 50kW fast charger at a charging station can provide up to **66km** of range in **15 minutes.**



Home charging



"With so many employees keeping their work vehicles at home, home charging and its implications must be considered too," says Andrew.

Because home chargers are still uncommon, employers may need to manage installation of the charger. "There is a duty of care to do this safely," says Zak, "and that goes beyond engaging a qualified electrician. It also includes ongoing maintenance – you need to be up to date with WorkSafe requirements here – and training in safe charging practices for the employee."

In many situations however, home charging may not be entirely straightforward. For example, where an employee is renting or lives in an apartment or does not have off-street parking. Or if they live in an older house where the wiring is not up to standard for EV charging. In these situations you need to assess the costs and challenges on an individual basis to consider if each property is suitable for a charger to be installed and safely operated. "The question of what happens to a home charger if the employee resigns or moves house must also be thought through," says Andrew.

Training staff on charger use is another good idea, as is a clear and workable policy for reimbursing staff for the cost of home charging. "Ensuring charging facilities are well maintained and correctly operated is one of the best ways to reduce the risk of something going wrong. It helps give your staff peace of mind and supports your duty of care," says Andrew.

One issue that can evoke concern is the potential of an EV's battery catching fire during charging; Our own research shows that about a quarter of fleet drivers think about this. In reality EVs appear to be at much lower risk than other vehicles, suggesting that driver education to dispel these myths may be helpful in providing employees with greater levels of comfort.

"It's definitely an expensive affair. It's a case of, do we really need this? How many EVs do we have? And how many charging stations is feasible to have? …I think we now need electric vehicles, but we need charging facilities. And we need data and monitoring and all that stuff as well."

- Mixed Vehicles Fleet Manager

In addition, Andrew recommends installing an early detection device close by where possible. "Traditionally, people have avoided placing them in garages because of the potential for other, benign events, to trigger an alarm. However, that inconvenience may be worth putting up with for a bit a bit more assurance," he says.

"The only way to get a definitive answer around charging is to do a complete needs analysis for your business – and do it before committing, not after."

One NZI client who has taken planning seriously is a leading retirement living provider looking to install communal EV chargers for residents. "We were impressed with their proactivity, seeking good advice from NZI and using that advice to minimise risk," says Andrew.

"For most businesses, the case for transitioning away from an all-ICE fleet is compelling," he says. "The challenges of that transition shouldn't deter businesses from embracing EVs, but it should sound a warning to do the thinking and planning up front so that any transition has the best possible chance of success."

“We’ve got home chargers on 40% of our passenger vehicle fleet. We do have a workaround for team members who are renting who need a home charger. We require permission from the landlord explicitly to be able to install the home charger. We make it clear that if the team member left or relocated property, then we would be uplifting the charger, putting in a backing plate and capping the wires so that it was all done safely.”

- Mixed Vehicles Fleet Manager

Staff training essential to EV uptake

Part Five

Peace of mind
for NZ business

When you add EVs to your fleet, it's essential to give your drivers the right training. Research shows, however, that attitudes to training vary across organisations.

New Zealand businesses are embracing electric vehicles (EVs) yet some are surprised when their new vehicles aren't being used as expected. Often because their people are unsure how to drive them, or worried about being stranded with a flat battery.

Although driving an EV is not that different from driving a traditional internal combustion engine (ICE) vehicle, it's different enough to make some people anxious, says Sean Campbell, Chief Operating Officer of NZI Fleet Fit partner and road safety and training company, AutoSense.

As a result, companies making the transition to EVs need to get their staff on board with training and support. Otherwise, their investment may not have the full ROI or environmental impact they expect.

Engage staff early to win acceptance

Sean Campbell
AutoSense Chief Operating Officer

There are a few common barriers to acceptance, but the biggest are questions about charging and the phenomenon dubbed "range anxiety".

NZI research shows that more than half of those who drive a business fleet vehicle have questions about charging infrastructure at the business, who pays for charging done at home, and the availability of public charging stations.

Similarly, just over half of those surveyed expressed concerns about the range of EVs, with a number reporting hearing negative stories about early EV models.

Without engaging staff early, it's impossible to know to what extent concerns like this could affect uptake. Having the conversations early allows concerns to be aired and, often, alleviated.

For example, many people are unaware that newer EV models often have ranges of over 400km, which is easily enough to handle all but the heaviest of daily travel requirements.

"Familiarising staff with the new technology and giving them the opportunity to get comfortable with it is a critical step to good adoption," says Sean. "When people don't know the facts, they tend to assume the worst. Providing them with information they can trust often changes their perception dramatically.

"Once that happens, knowledge and driver skills then complete the training circle."

> "When people don't know the facts, they tend to assume the worst. Providing them with information they can trust often changes their perception dramatically."
>
> - Sean Campbell, COO, AutoSense

Formal training a must

Many large organisations switching to EVs or hybrids are turning to formal training to ensure their people can use the vehicles confidently and safely.

That trend is not universal, however. NZI's research reveals that just under half of fleet EV drivers receive training yet all who received training reported it as beneficial. While the vast majority of those still driving ICE vehicles report that if their employer were to switch to EVs or hybrids, they would want training.

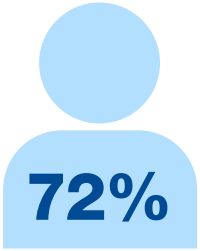
Some organisations assume that people will happily – and safely – learn by trial and error, says Oliver Jepson, NZI National Motor Manager. The flaw in this thinking was highlighted in a 2021 report from Waka Kotahi on Advanced Driver Assistance Systems (ADAS) – such as blind spot monitoring and lane keep assist – that partially automate key driving tasks*.

"Trust in ADAS technologies is a key determinant of their use," said the report, adding that trust is greatest for drivers already using the technology. In other words, "if someone is unfamiliar with the technology, they are less likely to be willing to simply give it a go," says Oliver.

NZI's own research supports these findings. NZI commissioned a study of the commercial driving sector** that found a small but significant proportion of drivers regularly disabled safety technology, including traction control, stability control and lane departure warnings.

*Consumer awareness, understanding, and use of advanced driver-assistance systems currently available in vehicles on New Zealand roads. Waka Kotahi, December 2021. The report can be downloaded from https://www.nzta.govt.nz/assets/resources/research/reports/685/685-consumer-awareness-understanding-and-use-of-ADAS.pdf

**Improving Road Safety Through Technology: Implementing and leveraging technology in New Zealand's commercial driving sector. NZI, 2022. The report can be downloaded from https://www.nzi.co.nz/content/dam/insurance-brands-nz/nzi/nz/en/documents/misc/nzi-improving-road-safety-technology-2022.pdf



"nearly three quarters **(72%) of drivers had not received any driver training** as part of their employment"

"Without proper training, people are likely to resist new technology, no matter how good it is."

- Oliver Jepson, NZI National Motor Manager

This is not surprising. The same research found that nearly three quarters (72%) of drivers had not received any driver training as part of their employment, and 57% of fleet drivers said they received no training from the dealership when taking on a new vehicle.

"Without proper training, people are likely to resist new technology, no matter how good it is," says Oliver. "Businesses must include training in their planning if they hope to succeed."

Training available through AutoSense and others

NZI has partnered with AutoSense to help ensure businesses wanting to take their employees on the journey have options to do it effectively. The training consists of an interactive session designed to familiarise the trainee with the features and safety considerations specific to their vehicle.

In addition to this training, Oliver and Sean recommend:

Workplace charging: For many EV drivers, the workplace will be the main place they charge their vehicle. It also gives staff the confidence of "a full tank" whenever they leave the premises.

Identify "innovation champions" among your team: Every workplace has people who are good at explaining technology to others and encouraging them to use it. Sean, says "without champions, any great idea is unlikely to flourish."

Adopt an "any question is a good question" policy: As with any new technology, it can be difficult at first for people to separate fact from fiction or rumour. That can lead to many questions that to an expert may seem naïve. All questions are valid, however, and should receive an accurate and respectful answer.

Case study:
Knowledge and confidence are key to success

A major government department approached road safety specialist and NZI Fleet Fit partner, AutoSense. As part of a drive to meet sustainability targets, it was switching its fleet to EVs and hybrid vehicles where possible. But the move met with resistance from the department's own people.

They were anxious about the vehicles' range, and also uncertain about how to properly operate the vehicles. "Staff lacked confidence in the vehicles and in their own ability to use them," says Sean. "This led to lower utilisation in contrast to the traditional ICE vehicles in the fleet."

AutoSense's solution was to develop e-learning modules specific to the class (EV or hybrid) and to the make and model of each person's assigned vehicle. The company liaised with the vehicle manufacturers or their local representative to ensure all information was accurate and up to date.

Then, step by step, they helped people become accustomed to these new types of vehicle.

The first step was to understand each person's familiarity with EVs, with a simple questionnaire.

Then instructors gave small groups of drivers a run-down of their new vehicle: a chance to sit at the wheel and understand the different controls, a briefing session on the vehicle's technology and features, and then a Q&A session. For many, that was all they needed. Others also benefited from a supervised drive, to experience the vehicle first hand.

As people completed their training, AutoSense collated and reported the results, along with any need for further or more specialised training. So far, over 2500 staff have completed the training, with a significant increase in vehicle use. As a result, the investment in EV technology is supporting the government department's effort to reduce carbon emissions.

"We are looking at doing some online driver training courses. And we're perhaps introducing an EV option there. I know early on, we did do a lot of comms and a lot of training just to get that transition away from ICE vehicles."

- EV Fleet Manager

"So, we send them [our staff] into the dealer, when they pick up their EV, and then the dealer provides them the overview of this, how to use the vehicle, tips and hints and stuff like that. I think there's some gaps there that we probably need to fill as well."

- Mixed Vehicle Fleet Manager

Is your **business infrastructure** EV ready?

Part Six

Peace of mind
for NZ business

Preparing to transition to EVs is a smart move. Even smarter is to look well into the future and think about the right environment to support your fleet – not just for the first few weeks, but over many years.

What is that “right environment”? At a minimum, says NZI Electrical Inspector Toby Lancaster, “businesses contemplating a new build, site upgrade, or moving into an existing premise should consider ambitions for future fleet size and ensure the site can provide for safe and adequate EV parking and charging.”

Upgrading or building new premises: safety comes first

Toby Lancaster
NZI Electrical Inspector

The number one rule with an upgrade of existing premises or a new build, says Toby, is to ensure the site is designed for safe charging.

That's not quite as straightforward as you might think. According to Toby the risk is still emerging, particularly in New Zealand where the number of EVs in the country is low in comparison with other parts of the world, and there is limited guidance on risk management and best practise.

Nonetheless, good and obvious safety practices can still be followed. "That means placing chargers in a safe location and building fire containment into the design," says Toby. "Above ground charging is usually best, but if that's not an option then fire containment sprinklers are recommended. If possible, the surrounding structure should also incorporate fire retardant materials."

In addition, chargers should be close to building entrances and easily accessible to emergency services. Smoke detectors are also strongly recommended (flame detectors if chargers are on a rooftop). International best practice includes linking detection devices to cut off power to chargers should they be triggered.

Recommended measures include:

- Place charging equipment on **a raised island with barriers** to protect against impact damage.
- Keep vehicle charging bays **generously spaced.**
- Provide **fire-rated separation** between bays if possible. Concrete and brick walls are ideal; otherwise, fire-rated material.
- **Avoid** placing chargers on or near a floor slope where a fuel spill could exacerbate a fire. If that's unavoidable, make sure **adequate drainage** exists to deal with any spill.
- **Create a site plan** for emergency services to enable them quick access to the site and fire-fighting facilities if needed.
- Only have **qualified technicians** install charging equipment. Ensure they install chargers **in strict compliance** with manufacturers' recommendations.
- Ensure chargers are **maintained according to manufacturers' recommendations.**
- Provide residual-current device **(RCD)** protection and ensure it will activate for **AC and DC** fault currents.

Moving premises: Don't just consider what you need now, but what you might need in the future

Zak Dean
NZI Electrical Inspector

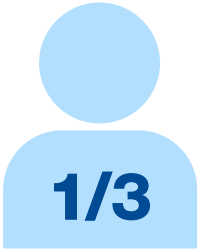
Because most businesses will likely include EVs among their fleet in future, any move to new premises should plan for the infrastructure that will be needed, even if you have no immediate plans to move away from ICE vehicles.

That starts with asking a few key questions.

The first is, how many EVs do you see yourself having in your fleet? An educated estimate at the higher end is safest, with allowance for future expansion as well.

The next question is whether the electrical infrastructure can support your anticipated fleet. As a rule of thumb, the typical wall mounted EV charger draws 7.4kW. "Some premises will be fine with only a little bit of work," says NZI Electrical Inspector Zak Dean. "Others will need their switchboards updated, and some will need a lot of work before they can support a fleet of EVs."

NZI's Electrical Inspectors work with customers to identify electrical hazards with the goal of reducing the risk of electrical fires. When considering a new premise, Zak and Toby recommend having a registered electrician conduct a thorough analysis of the site's electrical infrastructure. "Reviewing the switchboard and running a Periodic Verification (PV) test can be an effective way to get a gauge whether the premises could support your ambitions," says Zak.



About a third of fleet drivers **charge their EVs at home**

9 out of 10 EV drivers **charge at the business**

Helping to support your requirements is the ability to charge off site, either at public charging stations or at your employees' homes. NZI research shows that about a third of fleet drivers charge their EVs at home which may provide enough range for most. However, even those who charge at home also use the work charging station at least some of the time – in fact, 9 out of 10 EV drivers charge at the business.

Home charging is both good and bad news for employers. It means potentially fewer chargers are needed at the business premises where home charging is sufficient for the day, but installing chargers in employees' homes comes with its own challenges (see Chapter 4: Charging an EV: A little planning goes a long way). "You've got to do the thinking up front," advises Zak.

Besides electrical infrastructure, other considerations include parking spaces, appropriate distance between charging bays, safe distance from combustibles and waste materials, and adequate fire prevention.

"The hardest part of owning an EV is charging it," says Zak. "If you've thought about how to manage that, you're halfway there."

Don’t overlook maintenance of your EV chargers

Just as it is critical to plan how you’ll charge the EVs in your fleet, it is equally important to ensure EV charging facilities are properly maintained over time, regardless of whether they’re located at work or at an employee’s home.

Toby and his colleague Zak Dean say the number one rule with charging is to follow the manufacturer’s instructions.

“The adherence to guidelines varies among companies,” says Zak. “I’ve seen some that are outstanding and others that are creating risk to their business and staff through poor processes.”

Critical elements include:

- Ensuring a clear space around chargers for maintenance work
- An emergency plan that everyone is familiar with
- Having one person responsible for maintaining equipment (whether they carry out or commission the work).

A key challenge is maintaining standards over time, says Zak. “When people install something new, they’re excited. Six months later, a forklift runs over the cable because it wasn’t properly put back, and now there’s a risk.”

They recommend appointing one person in the business to oversee and be responsible for maintenance, thus reducing the likelihood of damage being ignored or overlooked. That person should also be aware of, and implement, manufacturers' recommendations regarding frequency of periodic verification.

They also recommend staying up to date with Standards New Zealand recommendations for EVs, which differ for residential versus commercial premises. While much of the material is aimed at technicians, it's written in a clear style that provides excellent guidance for a non-specialist needing to oversee maintenance.

For both on-site and home-based charging, staff training is critical. There are a number of unsafe practices that can do harm, such as using an extension lead or portable socket outlet, or using a single socket to charge more than one vehicle at a time.

"Most unsafe practices can be avoided through common sense," says Zak, "but not all. It only takes one mistake from one person to create unnecessary and potentially costly risk. In any case, it's a mistake to assume people will figure out how to use equipment. More likely, they'll be put off."

For anyone charging at home, a quick visual inspection before each charge is smart. "Look for damage to the cable and, if there is any, get it repaired or replaced before using it."

Above all, says Toby, plan, plan, plan. "We've seen entire companies buy EVs without thinking about charging them," he says. "That means they also haven't thought about charger maintenance.

"New Zealand doesn't yet have a lot of EV specialist mechanics or electricians," adds Zak. "I'd like to see the numbers grow and with it more support for businesses wanting to set up their charging correctly."

"We're just trying to get our heads around how [safety guidelines are] going to work for us. We are looking at putting our first EV on the road next year, perhaps, but we have to work through how we manage the charging infrastructure on-site."

- Mixed Vehicles Fleet Manager

The ins and outs of **EV insurance**

Part Seven

Peace of mind
for NZ business

EVs are new and different, so it's easy to expect they need special thinking around insurance.

However, insuring EVs and charging equipment is much the same as any other business vehicle or asset, says NZI Liability Portfolio Manager, David Sutcliffe. As an insurer, NZI does not require customers to notify us if an employee is charging a business vehicle at home, for example.

However, he says, it is worth remembering some important points about insuring business assets in general.

"Let's say an employee is charging their work EV at home and there's a house fire. Their home and contents insurance will cover their own assets. But the car and the charger is owned by the business, so they're covered by the business' own insurance."

But what if the EV or the charger caused the fire? It's a rare circumstance, but the employee's insurer may attempt to recover some of their losses from the business.

"Such situations are rare, but they do happen," says David. "The employee's insurer may look to the charger's installer or manufacturer. Depending on the contractual relationships involved, they could even look to the employer."

David and NZI Risk Consulting Manager Andrew Greatbatch agree that the best approach is to treat home chargers like any other business asset that has the potential to be damaged or cause damage.

"Do the responsible things," says Andrew, who works with commercial clients to reduce risk. "Use a qualified installer and set up regular maintenance to help ensure charging equipment is working safely. These simple steps go a long way in helping ensure a business meets their duty of care."

Andrew recommends conducting regular maintenance in line with WorkSafe's guidelines and using a qualified technician. Fresh installs should be completed by registered installers who can certify that the install has been done correctly.

Liability insurance for complete peace of mind

David Sutcliffe
NZI Liability Portfolio Manager

"Installing EV charging equipment can be a good time to review your liability insurance to make sure you are properly covered," says David. "If your charging equipment did cause damage to another person's property then defending a possible legal action could be expensive regardless of the outcome. Broadform liability insurance (also known as General liability) is designed to cover your legal liability for injury or damage as well as defence costs, so it's a good protection against that possibility."

"WorkSafe considers an employee's garage as a workplace for the purpose of charging a business owned EV, so employers should consider the risks of harm it may pose and their health and safety responsibilities," advises David. "As part of their review of these risks, they may need to consider insurance protection. Statutory liability policies protect businesses against defence costs and reparations if there is a prosecution under the Health and Safety at Work Act."

The bottom line? Treat EV charging equipment just like any other equipment your employees use. Insure it as you would other equipment, and install and maintain it to make sure it's safe to use.

Conclusion

Peace of mind
for NZ business

NZI is upbeat about the future of EVs within the New Zealand light commercial fleet. The interviews we conducted, the anecdotal evidence we've heard from so many of our clients, and our own experience as we move towards transitioning our own fleet to EVs – all of it paints a picture of technology that promises much and is already delivering.

In preparing this report we made three telling discoveries:

- Enthusiasm for, and even acceptance of, EVs is far from widespread. Despite the importance businesses and employees place on sustainability, and the positive perception fleet drivers associate with employers using EVs and/or hybrids in their fleet, many fleet managers remain hesitant to change.
- Transitioning to an EV (or partial EV) fleet is not simple. It takes research and planning and will likely require patience and capital expenditure as well.
- A successful transition to EVs cannot happen without employee buy-in and training.

The widespread adoption of EV commercial fleets may be an inevitable part of our future, and it may also be largely positive – but it may not be a smooth or easy path for everyone and does require a careful, considered approach.

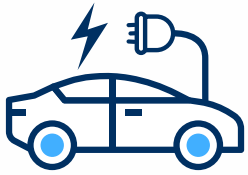
One highlight of our research was discovering how much fleet managers already appreciate this, while also being willing to face the challenge.

One of the biggest motivators for fleet managers to integrate EVs into the fleet is a commitment to doing "the right thing." In fact, "sustainability" is a word we heard repeatedly during our research. Companies want to be good citizens, as do their employees. It's not that our interviewees were indifferent to the cost savings and other benefits that EVs promise, but that those were not what had them most excited.

From our own experience, transitioning NZI's fleet to EVs and working through these challenges was the right decision. The EV portion of our fleet is providing approximately an 86% reduction in CO2 emissions compared with ICE vehicles. It is worth bearing in mind that a complete transition can be a long process, with factors such as upfront costs and driver resistance important to work through.

For businesses to manage the change effectively they need to understand their current and likely future vehicle usage patterns if they are to make wise choices. Likewise, an understanding of the infrastructure needed to support charging needs is required, as well as sound safety practices that are clearly communicated to everyone (not just fleet drivers).

NZI's team of Property Risk Consultants, Fleet Risk Managers and Electrical Inspectors already provide support to customers on identifying hazards and managing risk. That work is beginning to include more and more conversations around EV charging, and we welcome the opportunity to help our customers make the transition with confidence.



NZI's EV fleet is providing approximately an **86% reduction in CO2 emissions.**

Assessing your business's needs

Helping you incorporate hybrid and EVs into your fleet.

Peace of mind
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Define your needs.	Yes	No	N/A
Have you confirmed how new vehicles will be used? Define how far they will travel, how often they will be used, whether four-wheel drive is required, etc.	☐	☐	☐
Based off how vehicles will be used, do you know what type of vehicles are required (EV/hybrid)?	☐	☐	☐
Will the vehicles be pool cars, shared between specific employees, or dedicated to one staff member?	☐	☐	☐
Will vehicles be charged at business premises?	☐	☐	☐
Are any staff members requiring an EV charger installed in their home?	☐	☐	☐
Is there a plan or training in place to support employees use the new vehicles?	☐	☐	☐

Identify how vehicles will be used to inform decision making.

Charging at the business premises.	Yes	No	N/A
Do you own the business premises and are aware of any legal obligations?	☐	☐	☐
Do you have any subtenants that could be impacted by the additional electrical load required by EV chargers? And have you discussed your plans with them?	☐	☐	☐
If you are leasing the property, has the owner/property manager been advised of your intention to install chargers?	☐	☐	☐
If there are other associated tenants, have they been advised of your intentions?	☐	☐	☐
Has a registered and licensed electrician assessed your infrastructure and deemed it suitable for the number and type of chargers required?	☐	☐	☐
As part of the assessment, have any required upgrades been identified and actioned?	☐	☐	☐
Has a licensed installer provided a quote to install the number of chargers required?	☐	☐	☐
Has a regular maintenance plan and annual Periodic Verification (PV) testing been discussed with a licensed professional?	☐	☐	☐

Charging EVs at a business premise provides a lot of certainty around installation, maintenance and cost. However, charging multiple vehicles can create a significant stress on electrical systems and needs to be managed carefully.

Minimising risk at the business premises.	Yes	No	N/A
Are vehicles able to be charged outside? NZI recommends assessing the risk of fire spread if charging internally.	☐	☐	☐
If charging underground or in a building, is there a sprinkler system or type 3 automatic fire alarm installed? NZI recommends assessing how firefighting is likely to happen if a fire were to develop in an underground carpark. Install sprinkler protection where possible.	☐	☐	☐
Will charging facilities be appropriately distanced from combustible items?	☐	☐	☐
Is the nearest fire hydrant located within 70 metres of the chargers?	☐	☐	☐

EV charger at a staff member's home.	Yes	No	N/A
Is the employee's property suitable for installation of an EV charger? WorkSafe has guidelines to consider.	☐	☐	☐
Does the staff member own their home and will allow you to install and own the charging facilities?	☐	☐	☐
If the property is rented, has the landlord approved an install of the charger and agreed what will happen to it if the employee no longer requires it or leaves the property?	☐	☐	☐
Has a registered and licensed electrician conducted an electrical assessment of the property and whether the facilities can handle the additional load of an EV charger?	☐	☐	☐
As part of the assessment, have any required upgrades been identified and quotes provided/actioned?	☐	☐	☐
Has a regular maintenance plan been set up?	☐	☐	☐
Has staff training been considered? NZI recommend training staff on correct charging practises and how to identify damaged/malfunctioning equipment.	☐	☐	☐
Has a reimbursement policy been considered for staff members to ensure the business is covering the cost of the charging?	☐	☐	☐

EVs are unlikely to cause a fire while charging, however steps should still be taken to manage risk.

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