



Foodstuffs launches electric van fleet

The first of 28 all-electric delivery vans for Foodstuffs New Zealand's fleet are on the road.

Fourteen are now on the go and the rest will be ready by the end of September, spread around stores from north of Auckland to Dunedin.

Foodstuffs paid \$500,000 and received the same amount from the Energy Efficiency and Conservation Authority's (EECA) low emission vehicles contestable fund for the project to bring the Nissan e-NV200 vans from the United Kingdom.

Vehicle importing specialist Nichibo took care of the delivery logistics and the vans now sport New World, Pak'n Save and Four Square livery.

They have a 120km range but will mainly do deliveries in individual super-market areas.

At a launch ceremony in Christchurch on August 4, the van keys were

handed to New World Lincoln owner-operators **Helen** and **Kyle Burnett** by Selwyn MP **Amy Adams**.

The Burnetts hosted the launch

because they're keen sustainability and energy efficiency advocates - they even have two wind turbines in their carpark.

Adams, a new EV owner herself, couldn't make a speech because of laryngitis so Foodstuffs and EECA representatives did most of the talking.

"The EECA funding is designed to encourage innovation and investment that will

accelerate the uptake of electric and other low-emission vehicles (LEVs) in New Zealand that might not otherwise occur," Foodstuffs New Zealand managing director **Steve Anderson** says.

Sustainability is very important for Foodstuffs which has successfully introduced several policies such as waste minimisation, he says.

Using e-vans will bring fuel savings,

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EECA chief executive Andrew Caseley is ready for a test ride in the Pak'n Save e-van.

Attitude change a must for some dealers

She can talk the torque, especially about electric vehicles (EVs).

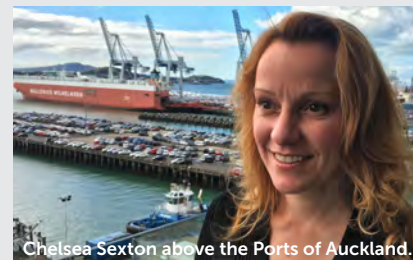
Californian EVangelist **Chelsea Sexton** returned to New Zealand for two-and-a-half weeks in July and August on her fourth visit, speaking at engagements around the country.

There would have been more but planned sessions with the Motor Trade Association (MTA) were cancelled due to a lack of interest and, in Christchurch's case, because of a clash of events.

That "lack of interest" is among the problems Sexton is grappling with in her fight to get automotive dealers interested and talking about an electrified future.

After all, they're going to be affected by the changes, she says.

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Chelsea Sexton above the Ports of Auckland.

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New Foundation sponsors

EVTalk welcomes our latest foundation key sponsors - electricity retailer and generator Mercury and Provident Insurance.

A year after the Mercury brand was launched, the company is thinking boldly about energy possibilities and inspiring Kiwis with renewable electricity and ideas to make energy more wonderful.

Mercury is on a mission to achieve energy freedom for New Zealand through the electrification of transport, encouraging its custom-

ers and Kiwis to choose e-bikes and electric vehicles.

Chief executive officer **Fraser Whineray** believes the adoption of plug-in EVs is New Zealand's biggest green growth opportunity.

Mercury is doing its part.

After committing in 2014 to having 70% of its fleet electric by 2018, it's well on its way to achieving that with one of the largest EV business fleets in the country.

Last year Mercury and Air NZ

engaged with business leaders from more than 30 companies to pledge the conversion of at least 30% of their company vehicle fleets to plug-in EVs by 2019.

That has the potential to take around three million kilograms of carbon emissions out of the environment every year.

Mercury is inspiring customers with e-bikes as a tangible example of energy made wonderful, partnering with retailers to offer customers discounts of up to \$500 off their purchase. ■

Provident Insurance is a leader in automotive warranty and insurance.

Its range of products includes mechanical breakdown insurance, credit contract indemnity, guaranteed asset protection, motor vehicle insurance and now hybrid and electric vehicle breakdown insurance.

Based in Auckland's Takapuna and led by **Steve Owens**, Provident has grown quickly and aggressively, earning the business of more than 460 registered motor vehicle traders throughout the country.



It's a position Owens is justifiably proud of.

He credits Provident's success to the team he has built around him and the culture they have developed, based on the four core values of passion, integrity, competence and commitment.

Listening to and understanding the needs of the New Zealand automotive market, Provident has developed and deployed market-leading initiatives that have, and will

continue, to drive its growth.

Innovation and technology will continue to be key drivers to the success of the company.



Steve Owens

Partnering with EVtalk and the AutoMedia Group team is an opportunity Provident felt appropriate to further build and maintain its market-leading presence as the market for electric

vehicles continues to evolve. ■

Nichibo steps up to help deliver e-van fleet

All the hassles involved in importing Foodstuff's e-van fleet from the United Kingdom were handled by Nichibo Japan.

Nichibo has been facilitating vehicle exports from Japan to 35 countries for more than 20 years.

So, with just a slight change of gear, it was able to supply Foodstuffs with 28 Nissan e-vans on order from the UK.

Nichibo sourced the vans, organised the deal, managed the shipping process, sorted the registration and took care of other tasks from signwriting to delivery.

"Foodstuffs saw Nichibo as an end-to-end solution to ensure the most streamlined procurement solution,"

Nichibo New Zealand marketing manager **Steve Vermeulen** says.

"We worked closely with our key logistics and compliance partners to take any complexity out of the process for Foodstuffs."

Nichibo New Zealand director **Robert Young** says the company endorses electric vehicles (EVs) and shares Foodstuffs' passion for EV technology and its environmental benefits.

"With an abundance of clean energy production, EVs are an ideal solution for New Zealand and we're proud to say imported models are enabling this transition to new technology," Young says.

"Ahead of leadership in this space,



Nichibo New Zealand director Robert Young, left, and marketing manager Steve Vermeulen are pleased to have helped Foodstuffs get its e-van fleet delivered.

however, we as a group also have set key sustainability objectives around our EV division.

"Nichibo has stringent policies around the battery health of the vehicles we import; we have identified some partners to assist in the end-of-life upcycling of the battery and we have set a target of zero batteries we provide ending up in landfill."

The company's involvement in the Foodstuffs project will total about seven months at its conclusion.

It is already working with other national fleets. ■

Scoozzi, is that an electric scooter?

Avoiding traffic congestion and parking problems are among the advantages offered by fold-up electric scooters.

Henry Tan of Scoozzi and Bikeme in Auckland has been selling the e-scooters for about two years and says they've never been so popular.

"It's spreading like crazy, especially in New Zealand's four main centres," he says.

He sells mainly Inokim (Israeli-designed), E-Twow (Belgium) and JackHot

(United States) scooters through Scoozzi, a division of Bikeme which Tan first established as a bicycle shop in Orewa in 2010 and later opened in Albany.

Most of the scooters are made in China.

They are an alternative transport option providing portability (you can take them folded up on public

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Electric scooters like these JackHot models from the United States are popular with families.

Attitude change a must for some dealers

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Many used car dealers here already have or are adding EV specialists to their staff but some new vehicle dealerships seem to be lagging behind in that regard.

"Many know how to sell cars so they consider there's no difference selling EVs," Sexton says.

But EVs bring different questions from potential customers so Sexton says it's more of an "attitude thing" some dealers need to overcome.

"There are different degrees of acceptance and willingness."

Some believe any rapid and popular uptake of EVs is too far into the future to be overly concerned about it.

There's no doubt an EVolution is coming but just when is still uncertain. A few of the optimistic reckon 2020 could be the turning point – less than three years away.

But a Bloomberg New Energy Finance (BNEF) report released on July 19 picks EVs to outsell petrol and diesel models by 2040. That will reflect a rapid fall in lithium-ion battery costs, it says.

BNEF expects 530 million plug-in cars on the road within 23 years – that's a third of all cars worldwide.

Sexton says much of the present debate is based around "electrified"

cars which can be misleading.

These are not necessarily all-electric battery/plug-in types but include a variety of hybrids, initially more popular because of their extended range.

Then there's the price comparison. A new EV still costs much more than a new internal combustion engine vehicle, although its running costs are a lot less.

EV prices will come down as more automakers get on board, perhaps with increased robotic factories and other production technology helping that.

Some buyers might be swayed by the EV's clean, green, zero emissions status.

But Sexton reckons it's the little things that will count with potential EV customers. Like being able to use special lanes to avoid urban congestion, and parking and charging incentives to name a few.

Partnerships are already developing, such as electricity companies offering deals to EV customers, especially around overnight charging.

Government incentives help too.

So where's all this going?

"Wait and see," Sexton says.

Forecasts are all very well but it's a matter of having a certain number of EVs by a certain date, she says.

And what makes her such an authority on the subject? Well, she started selling

cars at 17 to pay for her university study.

Then in 1996 a friend suggested she might find a special General Motors group interesting and she was recruited to it to help develop and market the United States' first large scale production electric car, the EV1.

When leases expired on it 10 years later, the cars were taken back and crushed.

But not Sexton's dream of an EV future which features in the film *Who killed the electric car?* which she says started as a comedy.

She toured New Zealand when the film arrived here, then came another called *Revenge of the electric cars*. Now a third, dubbed *Generation EV*, is on the cards, subject to finance.

Sexton has joined in The Better NZ Trust's "Leading the Charge" EV road tours and is familiar with New Zealand's surging interest in EVs.

She's been to Norway, considered the world leader in EVs but has yet to be invited to speak in Australia.

As for returning to New Zealand, Sexton has little doubt she'll be back again soon.

She says people here are keen to fund her visits and hear what she has to say.

More on pages 15 and 16. ■

Charging ahead with Chargemaster

Chargemaster is bringing world-leading technology to New Zealand to help power its electric vehicle (EV) charging infrastructure.

It's supporting the government's ambitions to transform the country from fossil fuel dependence for transport to locally generated renewable electricity, a broad goal supported by most political parties.

Chargemaster is concentrating mainly on bringing in intelligent AC charging for light vehicles (residential, public and fleet) and electric bus and heavy vehicle charging.

After a comprehensive global scan, it has selected Dutch-based company Heliox for heavy vehicle charging (bus, mining and port vehicles) and Austria-based Keba for intelligent residential, public, fleet and commercial charging.

Heliox is an established European market leader, with more than 85% of the total electric bus charging market.

Keba has a proven AC charging solution for light vehicles, with more than 35,000 chargers sold globally. With significant intelligence built-in, Keba is also an approved charger for six leading EV car manufacturers.

Tranzit Coachlines recently announced the mid-2018 roll-out of new electric buses in Wellington.

The technology is proven in Europe with more than 1300 electric buses delivered or on order in 25 European cities.

And that's just the tip of the iceberg, Chargemaster chief executive **Nigel Broomhall** says.

In China in 2015 more than 170,000 electric buses were operating, he says.

In the city of Shenzhen alone, 4887 fully electric buses were running. By the end of 2017, all of the city's buses will be fully electrified, in accordance with municipal government requirements,

making a total 16,493 e-buses.



Nigel Broomhall

Broomhall says the Asia-Pacific region is the electric bus manufacturing leader.

Although the European market is one of the leading regions for electric bus research and development - including vehicle technology - Asia-Pacific is home to some of the biggest producers of both buses and batteries,

he says.

Broomhall, a former electricity industry senior executive with more than 16 years' experience in New Zealand, Australia and Europe, is supported at Chargemaster by chairman **Mark Gilbert** and two directors.

Chargemaster believes New Zealand has sufficient renewable energy to fuel the country's transition to EVs.

But although its electricity grids are strong enough to cope, they won't if all the EVs are charging at the same time, Broomhall says.

"This increased peak electricity demand, if not done intelligently, could mean electricity networks need to spend more on strengthening them.

"It could also mean we need more generation to feed these peak periods - and that means more cost for all of us."

Chargemaster's mission is to provide customers with the highest quality, value-for-money intelligent chargers which are higher capacity (charge faster), smart (know to charge when costs are lower), have fleet communications in-built and have electricity meters included for public charging.

Its products range from cables for electric cars to wall boxes, public



Chargemaster is bringing intelligent AC charging for electric buses and other heavy and light vehicles.

The team has extensive experience in the automotive sales and parts industry, as well as in the electricity industry.

chargers and even bus chargers.

See www.chargemaster.co.nz for details. ■

The EVolution is here

Electric vehicles are no longer just a "thing of the future".

Since the Government announced last year it would commit to a goal of 64,000 EVs by 2021, substantial progress has been made and the number of registered EVs has hit 4000.

New Zealand's first electric vehicle showcase, **evworldNZ**, is bringing together the EVangelists, experts and EV curious to shine a spotlight on the sustainable transport future.

The public is invited to attend the expo on September 9 at the Vodafone Events Centre in Manukau. Conference, in association with ChargeNet NZ, is organising the event.

It's laying on a full EV experience with rides on or drives of a range of electric vehicles.

An industry day on September 8 will help guide and develop businesses wanting to develop their commercial fleets.

The expo will feature vehicle manufacturers, ebikes and scooter stands along with seminars delivered by industry experts to assuage the concerns of the EV curious.

A common fear among EV owners centres around driving range.

The average Nissan Leaf (the most accessible EV model) has a range of 120km-180 km, making it ideal for city driving but potentially challenging for the classic Kiwi road trip.

A Hyundai Ioniq or BMW i3 now sit in the 200-250 km range and other, more high-end vehicles can reach up to 500km.

But battery technology is improving rapidly as is the rollout of public EV charging stations.

ChargeNet, a nationwide network of EV charging in-

frastructure, is going a long way towards curing that range anxiety.

"ChargeNet NZ has built the only nationwide network of rapid DC charging in Australasia," chief executive **Steve West** says.



Steve West

"In the last two years ChargeNet NZ has made it possible to travel from Kaitia to Bluff in an electric vehicle."

Seminars at **evworldNZ** include the Ministry of Transport's own "EV tsar" **Brent Lewers** who will be talking on the future of the car and how to jump on board the EVolution.

Energy, Efficiency and Conservation Authority transport manager **Liz Yeaman** will be elaborating on the cost side of EV ownership.

IeroSpace's **Ira Munn** will be at the event to demonstrate the 3D printing of electric vehicles, which could be the next opportunity for affordable EVs.

He will be printing an EV live at the



event and estimates a brand new one can be printed for as little as \$10k. Sounds ridiculous? Check it out at **evworldNZ**.

As well as the main event, the evworldNZ Champions Awards will highlight the heroes working tirelessly to make the EV future a reality.

There are five categories: Most EV Friendly Town, EV Champion, SME-EV Award, Fleet Champion and EV Sector Sales and Service Champion, all of which will be open to votes from the public. To vote or to make a nomination for an award, go to **evworld.nz/awards**.

The **evworldNZ** expo is a chance to view, experience and hear about the EVolution with all the key stakeholders under one roof.

For more information on the free seminars and expo, go to **evworld.nz** where you'll be able to pre-register for one of two great EV prizes, including the use of a brand-new Hyundai Ioniq or an e-bike to take home for keeps. ■



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Electrification trial a winner for Waste Management

Waste Management's ultimate aim is to power its entire vehicle fleet by electricity.

The company has started with its nationwide fleet of almost 300 light vehicles. They include 21 EVs, from imported Nissan Leafs to the brand-new Hyundai Ioniq.

But it's the electrification of its truck fleet that has the company really going places.

As part of a trial to electrify its trucks, the company has partnered with Dutch company Emoss to convert five from diesel to electricity.

"We've got over 800 trucks. It's a very big part of our carbon footprint," sustainability manager **Adam Weller** says.

"There's more than 10 million litres of diesel we use per year. The particulates are not good for your health. EVs give us the opportunity to remedy that."

The company also has funding from the Energy Efficiency and Conservation Authority to build a workshop to convert and service the electric trucks at its Mt Wellington headquarters, Weller says.

"After seven to ten years our diesel trucks are no longer fit for purpose. The engine wears out first but the body is okay."

"When we start converting our old trucks to electric, they'll still be out on the road getting more life out of them. It's far more efficient."

It's hoped that the workshop will be up and running by the end of the year.

Waste Management has one electric

truck on the road at the moment.

It has been collecting rubbish from Countdown supermarkets around Auckland since late 2016.



Fleet technical manager **Jitesh Singh** says the truck is popular among staff and the public alike because it is silent and quick off the mark, which surprises other motorists "in a good way".

"The driver that drives it absolutely loves it. It's extremely hard to get him off that truck. He understands the art of driving the truck and he understands the vehicle."

At the current conversion rate, two more electric trucks will be on the road by the end of this year and another two in 2018. Among the trucks being converted are the Isuzu FRR600 and the Hino FM8J.

Range anxiety is not a problem, Singh says.

"We are not going from Auckland to Wellington in these things.

"Our rubbish trucks are stopping and starting, creating lots of regenerative energy. There's an opportunity there."

Once more become available, Singh says the company will develop a set of charging points for the trucks, which take between three and four hours to power up.

As for the thinking behind going electric, Singh says it fits with the company's ethos.

"Sustainability is what we do. It's also a lot more economical to run an electric vehicle than a diesel vehicle. Diesels are at their most inefficient at low speeds, while EVs use less energy at low speeds."

"There's a win-win for the environment and for us." ■



Foodstuffs launches electric van fleet

Continued from page 1

with the vans costing the equivalent of 30c a litre versus \$2 a litre in fuel.

Anderson says the move to electric vehicles will not only lay the foundation for Foodstuffs transport but send a message to other businesses to "take the plunge into the future".

The van rollout complements EV fast-charging stations being installed at some of the stores. These can also be used by customers while they shop and may be free initially in many cases.

Fast-charging points are already installed at New World supermarkets in Warkworth, Kumeu, Te Kuiti, Otaki

and Northwood.

Foodstuffs New Zealand sustainability manager Mike Sammons says the stations will become increasingly use-

ful to customers as more New Zealanders transition to EVs.

The vans are highly visible and Sammons expects they'll be a talking point, encouraging more businesses and people to introduce EVs.

"This is the dawning of a new age of transport."

He says the Foodstuffs' e-van fleet project started about 10 months before the launch and he paid tribute to those involved, including EV project manager **Sigurd Magnusson**.

"Also, a big thanks to the UK govern-

ment for subsidising these vehicles, possibly not expecting them to turn up in New Zealand, and also engineering the pound to fall before we bought them."

EECA made the project possible, Sammons says.

"For Foodstuffs, this is just a small part of our efforts to reduce our carbon footprint and make our business more environmentally sustainable."

EECA chief executive **Andrew Caseley** says anyone can apply to the authority's contestable fund but applications must meet set criteria and have a public benefit.

The Foodstuffs e-van fleet will create more visibility around the use of EVs and encourages others to take them up, he says.

More people will develop an interest in EVs and become owners or users once they see the success of the Foodstuffs venture, Caseley says. ■



Checking out one of the electric vans are Foodstuffs sustainability manager Mike Sammons, left, and national managing director Steve Anderson at New World Lincoln in Christchurch.

NEW EV CAR TYPES

MAKE	MODEL	TYPE	PRICING RRP est.	APPROX RANGE KMS
Tesla	Model S	BEV	\$113,695	450 - 570 km
	Model X	BEV	\$129,145	415 - 540 km
Renault	Zoe 22 kwh	BEV	\$68,900	220 km
	Zoe 40 kWh	BEV	\$68,900	300 km
	Kangoo van	BEV	\$74,990	160 km
Hyundai	Ioniq	BEV	\$59,990	220 km
	Ioniq Elite	BEV	\$65,990	220 km
BMW	i3 Full Electric	BEV	\$75,700	200 km
	i3 - Range Extender	PHEV	\$86,900	200 km + 150 km
	i8	PHEV	\$281,200	37 km + 400 km
	225xe	PHEV	\$69,800	41 km + 550 km
	330e	PHEV	\$91,600	40 km + 550 km
	530e	PHEV	\$136,400	50 km + 600 km
	740e	PHEV	\$202,700	48 km + 550 km
	X5 xDrive40e	PHEV	\$152,700	30 km + 800 km
	X5 xDrive40e	PHEV	\$152,700	30 km + 800 km
Mitsubishi	Outlander	PHEV	\$60,990	50 km + 500 km
Audi	A3 Sportback e-tron	PHEV	\$69,900	45 km + 600 km
	Q7 e-tron	PHEV	\$158,400	54 km + 800 km
Mercedes Benz	C350 e Sedan	PHEV	\$96,290	31 km + 700 km
	C350 e Estate	PHEV	\$99,790	31 km + 700 km
	E350 e Sedan	PHEV	\$143,890	30 km + 600 km
	GLE500 e	PHEV	\$153,290	30 km + 700 km
	S500 e	PHEV	\$255,000	30 km + 700 km
	S500 e	PHEV	\$255,000	30 km + 700 km
Porsche	Cayenne S e-hybrid	PHEV	\$177,800	20 km + 750 km
Volvo	XC90 T8	PHEV	\$134,900	44 km + 600 km

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PHEV - Plug-in Hybrid Electric Vehicle

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USED EV CAR TYPES				
MAKE	MODEL	TYPE	PRICING RRP EST.	APPROX RANGE KMS
Nissan	LEAF Generation 1	BEV	\$10k - \$16k	120 km
	LEAF Gen 2 - 24 kWh battery	BEV	\$15k - \$27k	135 km
	LEAF Gen 2 - 30 kWh battery	BEV	\$25k - \$42k	170 km
	e-NV200b van	BEV	\$21k - \$34k	140 km
BMW	i3 Full Electric	BEV	\$40k - \$45k	200 km
Mitsubishi	i-Miev	BEV	\$10k	100 km
	B-Miev Van	BEV	\$13k - \$15k	100 km
Renault	Zoe 22 kWh	BEV	\$30k - \$50k	220 km
	Zoe 40 kWh	BEV	\$40k - \$45k	300 km
Hyundai	Ioniq	BEV	\$48k - \$60k	220 km
	Ioniq Elite	BEV	\$55k - \$66k	220 km
Kia	Soul EV	BEV	\$32k - \$37k	150 km
Volkswagon	e-Golf	BEV	\$42k	200 km
Tesla	S P85	BEV	\$150k	350 km
	S 90D	BEV	\$155k	420 km
	X 90D	BEV	\$188k	410 km
Mercedes Benz	C350 e Sedan	PHEV	\$83k	31 km + 700 km
	GLE500	PHEV	\$134k - \$140k	30 km + 700 km
Toyota	Plug-in Prius	PHEV	\$25k	26 km + 800 km
Audi	A3 Sportback E-Tron	PHEV	\$50k	45 km + 600 km
BMW	i3 REX	PHEV	\$50k - \$53k	200 km + 150 km
	225xe	PHEV	\$60k	41 km + 550 km
	330e	PHEV	\$58k - \$80k	37 km + 550 km
	X5 xDrive40e	PHEV	\$140k	30 km + 800 km
	i8	PHEV	\$150k - \$170k	37 km + 400 km
Mitsubishi	Outlander	PHEV	\$41k - \$64k	50 km + 500 km
Volvo	XC90 T8	PHEV	\$130k	44 km + 600 km

BEV - Battery Electric Vehicle
PHEV - Plug-in Hybrid Electric Vehicle

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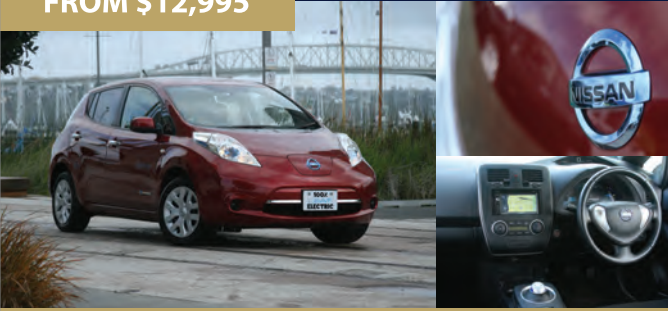
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Intelligent EV chargers a smart move

Ed Harvey has been taking things apart and putting them back together since he was eight.

It's no surprise then that he's still doing it many years later, this time as part of his business EVNEX.

It creates intelligent and connected EV chargers designed to "talk" between the electric vehicle, the house and the electricity networks so consumers can make informed choices about the best times to charge their vehicle and more.

Harvey's aim is to make EV chargers simpler to use, cheaper and more connected.

For instance, line companies could incentivise EV owners to stop charging their electric cars during times when grids are getting overloaded, he says.

The utilities might then be able to send a signal to those with chargers operating to get them to temporarily stop. A smartphone application could be used to convey the messages to consumers.

"It's about giving consumers the ability to choose."

For example, rather than leaving the EV charging when power prices are higher, consumers will be better informed about lower rate periods and when electricity generation is most renewable.

End users want aggregated data so Harvey says it's also about getting all the information on one screen so people can easily read and understand it and respond accordingly.

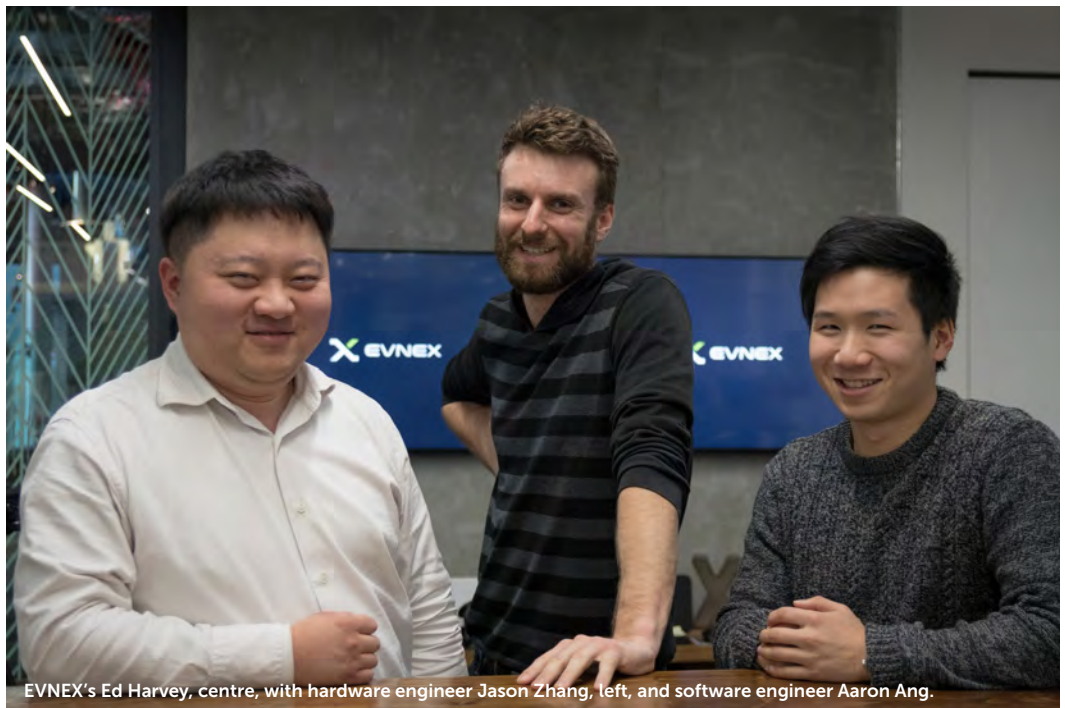
Eventually such smart systems might also help with hot water cylinders, solar panels, heat pumps and the like, especially with homes becoming more connected so that various systems can be operated from smart phones.

But for now, Harvey's concentrating on EV chargers.

EVNEX is working from a central Christchurch office in the Vodafone zone after being selected for Vodafone's accelerator programme and is looking at expanding in a few months.

customers to gain insights on EV fleet data, easily monetise chargers and build systems where energy can be used most effectively.

Harvey, who has an honours degree in electrical engineering, started the company nearly three years ago and



EVNEX's Ed Harvey, centre, with hardware engineer Jason Zhang, left, and software engineer Aaron Ang.

The accelerator programme involves a grant to get the business up and running and provides not only office space but also mentoring in monthly sessions and access to industry experts, including Vodafone's Internet of Things (IoT) team.

EVNEX is among 10 companies taking part in the 2017 accelerator programme, which offers a \$150,000 package, including a \$25,000 seed funding grant.

The programme was launched last year to find the best mobile and digital technologies in New Zealand and support them to scale globally through Vodafone's international network.

EVNEX is specifically working with Vodafone to build chargers on the newest cellular IoT networks to allow

has been working on it full-time for the past two.

As part of his honours project in 2012-13, he converted a 1997 Honda Accord into an EV - he believes it was one of the first ten EVs in New Zealand.

Then he worked for a firm making electric wheelchair controls before starting on his business, which he initially began by setting up a workshop in his parents' lounge.

No doubt growing up on a farm and watching his dad "putting things together" in the shed had a big impact on where Harvey is now.

The whole industry has "grown massively", he says.

"We're always trying to be a step ahead." ■

Scoozzi, is that an electric scooter?

Continued from page 4

transport and keep them near you at work or home), reliability – and fun, Tan says.

He even took his own Inokim (with two powerful spotlights and multiple LED lights resembling a disco dance floor) into a bank, folded up, after first asking staff if it was OK.

“They don’t take up much space,” Tan says.

Keeping the e-scooter nearby is also handy to prevent theft.

The e-scooters are being used by Avis rental car staff to get around Auckland Airport congestion and commute a kilometre to their car cleaning depot. They take them out of the car boot and ride them back, saving time and fuel.

E-scooters can come with seats to

make the ride more comfortable.

Tan reckons an e-scooter will do up to 45km on one charge.

A bike helmet and covered footwear are the main necessities. Some helmets come with built-in Bluetooth and a microphone so the rider can listen to music or make and receive phone calls on the go.

Tan’s planning to provide e-scooter demonstrations at Auckland’s Wynyard Quarter in August so people can find out more.

And he has also offered an Inokim Quick 3 Hero e-scooter with one of the flash helmets, a Lival LED, worth \$2200 all up, for a lucky EVTalk subscriber.

Visit EVTalk’s stand at the evworld event in the Vodafone Events Centre in Manukau on September 8-9 to go in

the draw to win it.

One free online subscription to EVTalk equals one entry, while an annual paid subscription earns five entries.

The scooter has a top speed of 28kmh and a 35km range. It weighs just 16kg and takes about two to six hours to charge.

E-scooters range in price from \$1500 to \$2200 and feature front-wheel drive and dual brakes. They can usually be ridden on shared pathways or special bike lanes on footpaths but they are not road legal.

To learn more, search for Scoozzi on Facebook or visit <http://scoozzi.nz/wordpress/> for details.

Go to www.conferenz.co.nz for evworld conference information. ■

POWER DEALS FOR EV USERS

Company	Energy Deals	Where	Cost to charge LEAF*
 Mercury	Plug-in Vehicle Fuel Package Includes 20% off your entire home’s electricity costs between 11pm – 7am every day, one year fixed term, 12% PPD is included in these calculations.	Auckland Wellington Christchurch	\$5.21 \$5.08 \$5.03
Contact Energy	Freedom plan Excellent night rates, no fixed term, 22% PPD has been included, check if the matching daytime kWh rate will affect your overall bill.	Auckland Wellington Christchurch	\$5.09 \$4.34 \$3.05
Ecotricity	Low Solar Low Usage plan for EVs & can buy back solar energy, no fixed term	Auckland Wellington Christchurch	\$5.83 \$4.06 \$5.07
Electric Kiwi	One Plan with Hour of Power Free hour of off-peak power daily – included and calculated to be 2 kWh for charging at 8 amps. Note: this could be different depending on your designated Hour of Power.	Auckland Wellington Christchurch	\$5.72 \$5.50 \$5.50
Flick Electric	Wholesale rates plus their Flick Fee. No fixed term, EV rate in Wellington. Calculated using a slightly higher average spot price of 5.7c per kWh.	Auckland Wellington Christchurch	\$5.21# \$3.16# \$3.57#
Genesis Energy	Classic plan Excellent night rates, no fixed term, 10% PPD has been included, check if the matching daytime kWh rate will affect your overall bill.	Auckland Wellington Christchurch	\$5.78 \$3.58 \$3.15
Meridian	Rest Easy EV plan Lower night rate from 9pm to 7am, 3 year term, 15% PPD is included in these calculations, check if the matching daytime kWh rate will affect your overall bill.	Auckland Wellington Christchurch	\$4.49 \$3.79 \$2.55
Paua to the People	Cheap As Plan with EV night rates No fixed term. Calculated using a slightly higher average spot price of 5.7c per kWh	Wellington	\$2.96#

*Approximate cost for a full charge of a 24kWh LEAF in the 3 largest centres of NZ.

Please note that rates vary around New Zealand – the above costs were from Mt Wellington in Auckland, Northland in Wellington and Linwood in Christchurch. They can also depend on your meter type & the company you use. Prices vary at the different times of the day eg charging during the day will have higher costs. Flick Electric in Christchurch has higher daytime rates in Winter due to variable pricing from the lines company.

The rates we have used above were calculated in July 2017 using a low user cost, overnight rates, includes prompt payment discounts (PPD) if available and GST, excludes daily charge. Please note that prices were correct at time of publishing and are subject to change. Prices above may not include extra discounts that some companies have available eg online discounts, etc. Please contact us if you would like any clarification.

Spot prices can go up and down as they are affected by demand in energy and weather conditions. We have calculated these prices using the average spot price of 5.7c per kWh at night over the last 7 years, however this is no guarantee of future prices.

Autonomous shuttles taken to the limits

Self-driving shuttles being trialled in Christchurch could be certified roadworthy this month and be on the road within six.

New Zealand company HMI Technologies Ltd (HMI stands for Human Machine Interface) has partnered with Christchurch International Airport to test a Navya Arma.

The French assembled level-4 autonomous EV is among several such vehicles HMI is "testing to destruction" on a secure road next to the airport.

HMI's autonomous vehicles initiatives director **Dave Verma** is in charge of the trials programme for New Zealand and Australia. The company has just announced a trial in Sydney and another in the planning stages for La Trobe University in Melbourne.

Verma says HMI is planning to test a variety of autonomous vehicles from several manufacturers and will be taking them as far to the limit as possible.

"We're interested in what they do and how they actually do it," he says.

"We are testing the entire system (including the vehicle) to determine relative operational strengths, weaknesses and capabilities but also ultimately how these devices work and what is needed to support them. And we are taking the testing to the absolute limit.

"The objective for both HMI and Christchurch International Airport ... is to develop a complete understanding of all the elements involved in the autonomous vehicle space - their use, operations and associated infrastructure requirements."

HMI started in 2001, initially with just two people in Pakuranga, Auckland.

The head office and research and development team remains in East Auckland but the company now has a factory in China.

It employs about 60 people in three New Zealand offices and in Melbourne and Sydney. Another office is planned for Brisbane and the company has recently appointed a director in Europe.

HMI already exports into Asia too.

"Our market is a lot bigger than most people realise," Verma says.

"The current business model for AVs is focused on the supply of managed services around autonomous vehicles and related systems, and providing services

transport industry, including with the Ministry of Transport, the Motor Trade Association and Vehicle Testing NZ.

The airport trial's main focus has been to develop an autonomous vehicle shuttle service to take passengers from the terminal to rental car depots or other customer services, Morrison says.

"In short, first mile and last-mile trips, that's where the opportunity is."

The driverless shuttles could operate in manageable areas such as carparks

or on internal roads, guided by GPS systems and travelling short distances at slow speeds (probably 10-15kmh although they can go faster).

But Verma says they have yet to get NZTA approval for a maximum speed on public roads.

The Navya Arma seats about 11 passengers, either facing each other in a circle or standing, with luggage kept in the central floor area. No seat belts are needed.

It can travel forwards or backwards without having to turn. Its front lights and

brake lights switch from one end to the other, depending on the direction it's travelling.

All four wheels steer so it can do tight turns if necessary and its suspension adjusts to the road conditions for a smooth ride.

Laser sensors and cameras detect any obstacles and the Navya is capable of smooth, quiet stops and can be put into tight spaces. It has LIDAR distance measuring sensors, two on the roof, one or two in front and two on the side, and height sensors are included.

A public-address system relays messages to passengers - such as "doors opening" - and the shuttle has emergency exits and other safety devices.

It can recharge via an in-ground inductive charging plate as well as plug



At the Christchurch airport test site with a Navya Arma driverless shuttle are, from left, HMI autonomous vehicles project manager Dougal Morrison, Australasian autonomous vehicles initiatives director Dave Verma and engagement co-ordinator Kate Matthews. Note the mural.

for clients interested in trialling them.

"Safety above all else is a critical concern for us."

HMI also develops variable messaging signs, such as those that flash "40kmh" in school zones, and dynamic motorway signs across New Zealand, Melbourne, New South Wales and Taiwan.

It also does a lot of work around congestion, with accurate travel times provided for agencies like the NZ Transport Agency, and products like "RouteTIP", a smartphone app, can provide details to drivers about accidents ahead or other road issues.

Autonomous vehicles project and trials manager **Dougal Morrison** came on board about four months ago to manage the Christchurch trial.

He's had a long involvement in the

Continued on page 19

Disruption

The automotive industry is undergoing a massive and ever quickening transformation.

Some say it will see more change in the next five to ten years than in the past 50.

So what are the five key disruptive factors facing the industry.

- 1. The impact of EVs.** Be prepared for change – big change. Electrification ranges from all-electric to hybrids. Dealerships are being warned to adapt. Will direct selling, like Tesla, have much impact?
- 2. Mobility as a service:** Seen as the biggest disruptor to business models rather than new technology. City dwellers especially won't need to own a car, leasing one or using various ride or car-sharing services instead.
- 3. Intelligent systems:** Involving all sorts of new technology for vehicles. Some of it, like pedestrian collision warning systems, are in new vehicles now. Others could include under-road charging for EVs or using mobile robots (drones and ground-based) for deliveries and factory work.
- 4. Driverless vehicles and autonomous public transport:** Most are in the trial stages but expect big developments soon.
- 5. Connected journeys:** Modes of transport vary according to customer needs. Could range from public transport and services like Uber to electric scooters or e-bikes. ■

Change is coming – but how quickly? Disruption

How big an impact electric vehicles will have on New Zealand's automotive industry still isn't very clear.

That it will have an impact, there is no doubt.

Some, like the many used car dealers who now have EV specialists, are already embracing the technology.

Others, such as a few new car dealers, might be treating sales of EVs just like selling any other car and are not bothering to learn more. And some might think the EV issue is too far off to be overly concerned about.

It's the latter attitudes that EVangelist **Chelsea Sexton** of California struggles to overcome.

On her fourth visit here to speak to various groups – particularly those associated with EVs – Sexton has noted New Zealand's progress in the EV field, especially in developing charging infrastructure.

There's increasing awareness of EVs, which The Better



The Better NZ Trust trustee Sean Dick has been driving Chelsea Sexton to her various appointments in his Tesla Model S.

NZ Trust and its "Leading the Charge" EV road trips encourage.

Then there's events like the upcoming evworld networking and information opportunity at the Vodafone Events Centre in Manukau on September 8 and 9.

But some attitudes die hard and it's those Sexton hopes to change.

New EVs are not readily available here yet so sellers of new vehicles tend to be more reticent.

"It's more an attitude thing," she says.

Most EVs in New Zealand

are from the used car market because they're affordable, usually have low mileage and any bugs tend to be already ironed out. Sexton reckons our imported used car market is probably unique.

So how do dealers adapt?

"It's more a lack of product and variety like vans and SUVs for the EV market," Sexton says.

Dealers who don't have EV specialists or staff passionate about the cars should learn how to handle the many different questions potential EV customers have, she says.

Buyers have often done
Continued on page 16

EVs are a different product with a different form of propulsion. So for car dealers there's a lot to learn around technical issues and answering customer questions, Imported Motor Vehicle Industry Association (VIA) chief executive officer **David Vinsen** says.

"We're in the early adopter stages so people buying these often know a lot more about them than the dealer," he says.

"Dealers are on a learning curve – learning about services, the cars, etc. However, it's just a technical change we'll take up and learn from."

Disruption

Vinsen, who's on a government EV leadership group, says infrastructure and other issues around EVs are being taken care of and will be done in concert.

"As more EVs come in, so the infrastructure will adapt."

EV sales are "ticking along" until they reach a tipping point where the momentum will move to new EVs, he says.

Vinsen believes EVs are not a disruption to the automotive industry but more a "progressive change".

The biggest change will

be in the model of ownership and the different ways people will use mobility as a transport service and for connected journeys, he says.

"It will be like Uber on steroids. This is about the lowest tech solutions we think will have the biggest impact on New Zealand transport in terms of congestion, vehicle ownership and much more."

It's also about linking together the various technologies and services involved, Vinsen says. ■



David Vinsen

Continued from page 15

considerable research and will ask tough questions dealers should be able to answer.

But until the price of new EVs drops, most people will get used versions, some of which will have been brought in new for fleets and later on-sold.

Sexton says a few dealers do well in EVs, possibly because they could be in regions where EVs are more popular.

And she believes the next few years could be the hardest, possibly due to "sophomore slump" - meaning the next effort is the hardest and often fails to live up to the standards of the first or the slump after the initial enthusiasm.

Service shops are starting

to specialise too but more skilled people - especially those with computer training - are needed to handle EVs.

The Better NZ Trust trustee Sean Dick says people who can diagnose problems with what is essentially an electrical system are needed.

"It's like looking after a computer system," he says.

Fewer oil changes and maintenance or repairs associated with combustion engine vehicles will be required.

Service people might become more specialised and operate from smaller shops but Sexton believes the new vehicle technology will lead to more jobs rather than job losses.

So what's driving EV uptake? In many parts of the world it's mainly carbon dioxide (CO2) regulations to reduce greenhouse gas emissions - and incentives.

And since Sexton is from Donald Trump territory, has the United States president created an issue around EV take-up after pulling his country out of the Paris Accord on climate change?

"Trump's not changing anything yet in the car industry," Sexton says. ■

Keep up or fall behind

EV interest has got to come from the top, Genuine Vehicle Imports (GVI) Group general manager **Hayden Johnston** says.



Hayden Johnston

He's "passionate" about them and their associated technology and says that attitude is reflected throughout the company.

While EVs generally require less servicing than combustion engine models, some work is still needed, he says.

"We do a yearly EV safety check around warrant of fitness time. That involves checking brakes, tyres, fluids and more. A battery diagnostic check is done as well to ensure battery health."

Other EV servicing requirements could be

Continued on page 17

It's been exciting to see the growth of EVs over the past 18 months, Nichibo Japan Trading Co Ltd director **Robert Young** says. "And that's a result of several accumulative factors like government focus, infrastructure leadership from multiple stakeholders and a ready supply of cost effective product."



Robert Young

Nichibo and FastTrack/Motorsafe Compliance's free compliance inspection offer for EVs imported through its channels is about to run into its second year in August.

"That's been a huge driver for our customers to consider EVs more and more for their retail outlets," Young says.

"There's no doubt EVs are a different proposition. The buyers aren't your traditional used car purchaser - the technology is new and the sales process is more considered."

Disruption

EVs present a great opportunity for those who focus on customer experience to upskill to learn more about the technology, Young says.

"EV buyers are incredibly informed and sales staff need to now be coherent in home and public charging infrastructure, all new terminology, battery specifications and much more. Be prepared for a learning curve!"

Young says there's also a huge opportunity for aftersales and service leadership.

"EVs imported, or not, still have ancillary electronics, air-conditioning, brakes, suspension, steering, tyres, interior and body parts.

"EV customers want to deal with someone equally as passionate about the tech and someone with knowledge to repair the vehicle safely and with competence."

He says Nichibo welcomes being part of any discussion around making the technology more prevalent in motor industry training - from apprenticeship through to technician upskilling courses. ■

The choice of all-electric or hybrid vehicles could be counted on one hand a year ago.

Now you need more than two hands, Motor Industry Association of New Zealand (MIA) chief executive officer **David Crawford** says.

"The range of models is building quickly and I expect more."

Tables produced by MIA already show a surge in new all-electric, plug-in and other hybrid makes and models in the first six months this year.

In some instances, popular models have nearly

Disruption

been overtaken in six months the total sales in those models for all of last year.

Another limiting factor in availability has been the number of EVs made for right-hand drive markets.

Prices for new EVs will probably remain high - particularly with luxury car makers leading the charge. But Crawford says he expects more affordable ones will soon come on to the market.

New Zealand is a small market by world standards, with China liable to "soak up" many EVs, leaving less

selection available here, he says.

He wants to see the government put some "more meaningful" incentives on the table if it expects to encourage EV uptake.

Britain and France are setting goals that promote electrified vehicles and other countries will come on board.

Dealerships are working hard to upskill workshops to handle EVs and they will see a wider rollout of EVs as more become available, Crawford says. ■



David Crawford

The better Tesla?

Think Tesla and the Model S and now the Model 3 are what spring immediately to mind. And so they should.

The Model S was the start of the brand's volume ambitions - the Roadster was very niche - and the Model 3 is the future.

But check the sales statistics for the New Zealand market and it is the Model X SUV that buyers seem to want.

Thanks to imports, there might be more Model Ss on the road but since the arrival of the brand officially, the Model X has been the more popular of the pair.

That should not be surprising, with SUVs dominating all vehicle sales in New Zealand.

And the X also offers more space and convenience over a Model S for a modest price difference - around \$15,000 between the S 75 and the all-wheel drive X 75D and less than \$9000 more than an S 75D.

The 75D is the model we got a chance to drive for a weekend recently.

With a base price of \$128,900 it compares favourably with Audi's Q7 range - being \$13,000 more than a standard model and \$30,000 less than the e-tron plug-in version.

That's before you start ticking the option lists. Add metallic paint, a white leather interior package, enhanced Autopilot, a "premium upgrades package", premium audio, six-seat interior package and a tow package and your invoice will hit \$176,832. That's just a few thousand less than an SQ7.

There is no point spending too much time on the standard equipment in a Tesla. Suffice to say they're loaded: climate control air-conditioning, electric windows, electric tailgate, parking sensors front and rear, reversing camera, that giant LCD screen... The dashboard and major controls are all much the same, if not the



same, as in the Model S.

As with the Model S, a key interior feature of the X is a massive 17-inch touchscreen. It controls everything you can think of - suspension, steering, charging, drive modes, climate control, security system.

It also features a Google Maps-based navigation system, using a live data connection that facilitates live updates. Music from Spotify, Pandora and other services can be searched for and played using the screen, the steering wheel or your voice - the car has one of the best voice control systems we have experienced.

Ahead of the driver, traditional instruments are replaced by another screen that features speed, power, Autopilot information, range and consumption details. Systems from the 17-inch screen can be overlaid there as well.

Sitting in the Model X is unlike any other car in the market. Front seat passengers are treated to an open, airy experience, thanks to the huge panoramic windscreen.

The top half is tinted to protect you from the sun and a surprisingly effective set of sun shields folds across the middle.

The centre console is huge and has multiple cup-holders and storage bays.

The front doors are automatic - touch them and they pop open; pull the handle or push the brake pedal if you're the driver and they close smoothly on their own.

Rear passengers access through the much-lauded but not yet perfect Falcon wing doors. Push the exterior handles and they open up, changing their course to avoid objects in the way.

In our standard-height garage, they would not open fully although they positioned themselves in a way that access was still easy.

One issue we discovered was if you stood too close to the door - as people often do when waiting to enter a car - the doors noticed your proximity and stopped moving too early.

When hanging partially down, they can also block

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Disruption

Keep up or fall behind

Continued from page 15

a little more limited - they don't require frequent oil changes, for instance. But Johnston agrees service shops will adapt and could become smaller.

He's also noticed some dealers' attitudes to EVs, particularly in the new car market, and says one reason could be that profit margins might not be that great.

"I can understand some of the attitudes to EVs," he says.

"So much is happening in the EV space and a lot may be failing to keep up. If they don't get it then it's hard to pick up.

"Some people don't understand the technology or people's motivation in wanting to buy into it."

But EV adoption is "heading rapidly in the right direction", Johnston says.

GVI, which specialises in used import EVs, held an informal gathering with Chelsea Sexton in Penrose, Auckland, on July 31. ■

Continued from page 17

access for front seat passengers walking away from the vehicle. But neither issue is significant - the doors are still a stunning party trick.

You can option the X with five, six or seven seats. Ours was a six-seater, with two "captain's chairs" in the middle row. Although smaller than the front seats, these middle row pews are very comfortable and legroom is excellent - they slide fore and aft for extra legroom.

The third row is a little tighter but still comfortable enough for small adults.

The X's boot space is not bad compared to other large SUVs. On initial inspection the rear area is small but it hides a large storage space underneath that others lack. No one else has a "frunk" either, which has enough space for a small family shopping trip.

With the third row folded down, there is a ton of space, enough for four to five large suitcases.

At 2300kg, more than 200kg heavier than an S 75D, and with a higher ride height, the X is not as sharp to drive as a Model S.

It is probably not as sporty to drive as the large German SUVs but it is still excellent. It feels pleasantly planted and the grip is excellent. The ride is soft and comfortable, less harsh than the S.

Like the S, the steering is not very

engaging but that seems to suit the X better. We like the brakes, which feel less wooden and more natural than most electric vehicles.

This was our first chance to try Auto-pilot and we were impressed - though it is not yet perfect.

On a motorway or well-marked highway, it does a fantastic job of keeping within the lane and matching the vehicle in front. Seeing what it sees through an animation on the dashboard is a great feature.

It struggles in two areas - at times it can search for the edge of the lane, drifting from left to right and it also has trouble with the end of merging lanes, either giving up entirely or heading one way or another in search of a line to guide it.

Volvo's ProPilot system is smoother in both of those areas although Tesla's system is better overall for "hands-off" driving and has more hardware to make the most of the future development.

Want to tow? The Model X can pull up to 2280kg on its standard 20-inch alloy wheels.

We put the X through a tough test straight out of the gate. Rolling out of the Tesla pop-up store in Ponsonby, we pointed its nose north, heading for an engagement in Whangarei.

Tesla calculates up to a 417km range under the EU system for the car and we

would attempt to do around 250km. Need more range? The 100D claims it will go 565km.

We suspect that driving without significant care for efficiency will yield you a real-world range of 325km-350km per charge. With fast-charging that puts most of the populated parts of the country in range.

But attempting a long distance in the Model X threw up an issue we did not face in our shorter run in the Model S. Fast-charging is a beautiful thing and with smaller electric cars like our Leaf, filling to 90% in under half an hour is great.

Plug into a 50kW fast charger in a Tesla and you are looking at closer to 90 minutes to do the same thing. Tesla is resolving this by putting out its 120kW Supercharger network - but so far there is only one (in Hamilton).

So, for now, you will need to keep time required in mind when using ChargeNet or other stations that have far better geographic coverage.

We loved the Model X. It is the better Tesla - for now - and most Kiwi buyers will find it suits their needs and our conditions better than a Model S. And it is not that much more expensive.

The biggest negative of our time with the car? Don't order the white seats, people. They look great but you will be constantly terrified of marking them. ■

EVs eligible for Crown loans

Did you know Crown loans are available for electric vehicles (EVs) in a bid to encourage uptake in the public sector?



But eligible organisations better be quick - the next funding round closes on September 20.

Crown loans are a low-cost, interest-free way to fund energy efficiency and renewable energy projects for publicly funded organisations such as schools, councils, universities and polytechnics, government departments and hospitals.

Such organisations are also eligible for Energy Efficiency and Conservation Authority (EECA) business funding support.

Loans can be used to fully or partially fund equipment that delivers carbon, energy and cost savings. Eligible projects include energy efficient equipment for new builds and retro-fit projects.

In addition, Crown loans could help organisations considering EVs.

A one-off flat rate procurement fee of 6% covers the EECA's establishment and loan administration costs.

Crown loans for EVs cover the price difference between an electric vehicle and a conventional one, and the cost of installing a charging point.

A lifecycle assessment of vehicles carried out for EECA by international experts found an all-electric vehicle had a 60% reduction in carbon dioxide emissions across its life (from manufacture to disposal) and an 80% reduction in emissions in use in New Zealand compared to a petrol or diesel vehicle (www.eeca.govt.nz/ev).

Immediate benefits to public sector fleets are significantly lower running

costs because of higher energy efficiency (resulting in the petrol-equivalent energy costs of about 30c per litre, residential off-peak) and lower maintenance costs (fewer moving parts compared to a petrol or diesel-powered vehicle).

Improved resilience of the fleet operations comes through using energy from a totally different, locally produced supply chain.

There's also better forecasting of fleet running costs because electricity charges are much more stable than petrol and diesel costs.

An exemption from road user charges (RUC) for light vehicles applies until 2021.

The RUC exemption has been expanded to heavy electric vehicles as part of the government's EV programme.

See www.eecabusiness.govt.nz for details and visit <https://www.youtube.com/watch?v=fjh2uhEfQ0Q> for a video. ■

Autonomous shuttles taken to the limits

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in. Overhead wires are being considered in some cases, although that's unlikely in a New Zealand context.

So, there's little doubt autonomous vehicles will be here soon, initially as a short distance shuttle service.

Smooth and subtle shuttle

A ride-on experience awaited EVTalk editor **Geoff Dobson** at the HMI autonomous shuttle trial:

HMI representatives took me to a secure road near Christchurch airport where the Navya Arma AV was charging up.

All four of us jump on board where the almost circular seating plan seems cosy after years of using public transport. Seating is firm but you're not likely to be in this shuttle for long anyway.

An X-Box controller is used by Dave Verma to operate the AV at this stage of manual testing. What impresses me is the smooth ride and stops, even on a slightly lumpy sealed road.

It's incredibly quiet too, allowing for easy chatting - or interviewing in my case.

The views are excellent through the large windows and double opening doors.

The doors have a button which reminds me of Auckland's electric trains where you're told to "push the green button when lit".

Verma demonstrates how tight the vehicle can turn with all-wheel steering, using up just the road width.

About 15kmh down about 100 metres of road is plenty fast enough.

On a vehicle like this you can just sit back and enjoy the ride. Perhaps passengers will even get on their electronic devices like they do on the trains. ■

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EV registrations take a slight dip

Overall registrations of electric vehicles (EVs) in July were down slightly on June - but don't stress, it's easily explainable!

Combined new and used registrations totalled 282 vehicles, boosted by the used import market breaking 200 units for the first time.

New registrations did not fare as well with 66 the worst total in three months.

But that's understandable, with both Tesla and Hyundai beginning volume deliveries in May and June, on top of Paxster deliveries for NZ Post's fleet.

The EV fleet broke the 4000-mark easily during July with 4214 plug-in vehicles on the road.

This year's government target passed after only seven months.

That figure consisted of 917 new and 1973 used pure electric vehicles, 1014 new



and 236 used plug-in hybrids, and 74 heavy vehicles.

The **Hyundai Ioniq** was the most popular new BEV for the month on 12, just one ahead of the Tesla Model X.

Tesla's Model S was third on nine, with the **Renault Kangoo**, **Renault Zoe**, **Volkswagen eGolf** and **BMW i3** recording one vehicle each.

In new plug-in hybrids, the Mitsubishi Outlander lead on 16, followed by the BMW i-range - sta-

tistics don't distinguish the specific model - on six.

A new model - the **Mini Countryman** - appeared in third with four registrations.

The **Nissan Leaf** remains - by far - New Zealand's most popular electric car, with 152 used imports hitting the road in July.

The **Renault Zoe** was

second on seven, thanks to a shipment of near-new cars from the United Kingdom.

It was tied with the **Nissan E-NV200** also on seven, mostly made up by new entrants to the Foodstuffs fleet.

Next was the **BMW i3** on four and the **Kia Soul** on three. ■

USED IMPORTS JULY 2017

Vehicle Make	Vehicle Model	Total Vehicles
NISSAN	LEAF	152
RENAULT	ZOE	7
NISSAN	E-NV200	7
BMW	i3	4
KIA	SOUL	3
MITSUBISHI	i-MIEV	2
MITSUBISHI	MINICAB	2
HYUNDAI	IONIQ	1
MERCEDES-BENZ	B250	1
SMART	FORTWO	1
TESLA	MODEL S	1

NEW MAKES AND MODELS JULY 2017

Make and Model	July 2017
ELECTRIC	
HYUNDAI IONIQ	12
Model X	11
Model S	9
BMW i	1
RENAULT KANGOO	1
RENAULT ZOE	1
VOLKSWAGEN GOLF	1
PLUG-IN HYBRID	
MITSUBISHI OUTLANDER	16
BMW i	6
MINI COUNTRYMAN	4
AUDI A3	2
VOLVO XC90	2
TOYOTA PRIUS	1



July 3

EVs set registration record

Electric vehicles (EVs) have set a record for the number registered in New Zealand in a month.

Nearly 303 EVs were registered in June, the highest in a single month, the Ministry of Transport says.

New Zealand now has more than 3700 on the road.

Date set for new Leaf

The 2018 Nissan Leaf will be unveiled on September 5, the Japanese automaker has confirmed.

It should be available at dealerships shortly after, Electrek reports.

Just when the new Leaf will be in New Zealand hasn't yet been decided.

July 4

Tesla Model 3 starts production

The first models of the US\$35,000 Tesla Model 3 electric vehicle begin production this week after passing key regulatory tests ahead of schedule.

But EVTalk understands New Zealand pricing will be in line with BMW 3-Series pricing, which could sit between the mid to high \$60,000s.

Electrek reports all of the 2017 Model 3 production are likely to go to California.

"Model 3 passed all regulatory requirements for production two weeks ahead of schedule," Tesla chief executive Elon Musk tweeted this week.

July 5

VW unveils all-electric research car

Volkswagen's research group has unveiled an all-electric research car, with a range of more than 400km.

It's a first for VW's EVs and new mobile charging robots are being presented as a possible charging solution for the vehicle, Electrek reports.

The Golf-based vehicle is a test bed for VW's upcoming electric vehicle programmes, like the ID concepts. "Innovations safeguard the future of our company and they are the focus of our attention," research head Axel Heinrich says.

"This provides an insight into the next generation of automobiles for efficient long-distance mobility with a range of more than 400km. The lightweight architecture has been designed for maximum crash safety, including the battery. The battery is based on advanced lithium-ion cells and the efficiency of the electric motor has been optimised."

Electric cars now 42% of Norway's new cars

Norway has set another electric vehicle milestone.

June was a record month with electric cars representing 42% of all new vehicles registered.

That's a significant jump from the last record in January when EVs reached 37% of new car sales, *Electrek* reports. In June, all-electric vehicles reached a record 27% of new car sales, with plug-in hybrids making up the difference.

Volvo Cars going all electric

Every Volvo launched from 2019 will have an electric motor, Volvo Cars says.

The announcement is one of the most significant moves by any car maker to embrace electrification.

"This is about the customer," president and chief executive Hakan Samuelson says. "People increasingly demand electrified cars and we want to respond to our customers' current and future needs. You can now pick and choose whichever electrified Volvo you wish."

July 6

BMW battery powers electric boats

BMW now powers electric mobility on the water.

The i3's high-capacity lithium-ion battery is being used by German marine drive system manufacturer Torqeedo in a boat electric propulsion system.

Batteries from BMW's Dingolfing plant now go to Torqeedo for its high-performance electric drive systems.

July 7

France bans petrol and diesel vehicles from 2040

France will end sales of petrol and diesel vehicles by 2040 as part of an ambitious plan to meet its targets under the Paris climate accord, Emmanuel Macron's government has announced.

The announcement comes only a day after Volvo said it would make only fully electric or hybrid cars from 2019 onwards, a decision hailed as the beginning of the end for the internal combustion engine's dominance of auto transport after more than a century, The Guardian reports.

France's new ecology minister Nicolas Hulot says the move is a "veritable revolution".

July 10

First Tesla Model 3 gifted to Musk

The first Tesla Model 3 in production has been gifted as a 46th birthday present to Tesla chief executive officer Elon Musk.

Tesla board member Ira Ehrenpreis was the first to put down his deposit for the first production vehicle but gave the rights to Musk, The Verge reports.

Musk posted photos of the black car on Twitter. The colour is one of the few things customers can decide on for their new Model 3.

July 12

Electric or nothing for Rolls Royce

Rolls-Royce Motor Cars says it isn't bothered with combining internal combustion engines with electric motors, insisting all-electric is the best transition.

"Electrification is the way forward and there will be no in-between steps for us like hybridisation," its chief executive Torsten Muller-Otvos told British magazine Autocar at the Goodwood Festival of Speed.

Muller says Rolls-Royce is only interested in the long-term goals of all-electric transport.

Tesla triples its service capacity

Tesla is to triple its worldwide service capacity in anticipation of a jump in customers with the imminent introduction of the Model 3.

The move includes the introduction of 100 new service centres around the world, adding to the existing base of more than 150.

Tesla will also add more than 350 new service vans this year, along with 1400 technicians.

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Continued from page 21

July 17

EV tops 378kmh in new test

An all-electric Lucid Air prototype vehicle got up to 378kmh during new testing.

Previous tests were held at the United States Transportation Research Facility's Ohio race track with a software speed limiter in place – that meant it never exceeded 349kmh, reports Tech Crunch.

Lucid made some improvements to its high-speed prototype after the first test. These included a software update to improve the performance of the car's air suspension system under heavy load, and more cooling for the front motor which ran hotter than expected.

July 18

Mercedes-Benz converts factory to EV components

The electric mobility era has encouraged Mercedes-Benz to convert its Unterturkheim plant near Stuttgart in Germany to a high-tech location for electric components.

The plant will move from producing conventional engines, transmissions and axles to the future powertrain components for EVs.

New battery production and the assembly of electric modules for front and rear axles will also be included.

July 19

Chinese EV maker plans US expansion

Chinese electric vehicle maker BYD plans to expand its United States production.

The Warren Buffett-backed BYD sells its electric buses across the US.

It wants to make more at its Lancaster, California, production facility which is set for completion next month, BYD Motors president Stella Li told *CNBC*.

July 20

Lucid Motors talking to Ford?

Lucid Motors, which is producing all-electric luxury sedan the Lucid Air, is reportedly talking to Ford.

The company said last year it would build an EV factory in Arizona and is trying to raise US\$700 million (NZ\$953m) for it, Electrek reports.

Now there's media speculation that Lucid might be considering selling the company and is talking to Ford.

New Nissan Leaf has an 'e-Pedal'

An e-Pedal will be part of the new Nissan Leaf due for release overseas on September 5.

What's an e-Pedal?

Nissan says it's a "revolutionary technology that transforms the way we drive".

July 21

EV community outreach programme on the cards

A community outreach programme that will help electric vehicles become mainstream is proposed by the Energy Efficiency and Conservation Authority.

It has posted its hunt for a programme supplier online, seeking a series of events and promotional activities across the country.

EECA transport general manager Liz Yeaman says it is part of a five-year nationwide information and promotion campaign to support the uptake of EVs, as mandated by the Government.

"We know that real life experience is a really effective way to generate interest and this is an approach we want to continue."

July 24

Tesla drops the Model S 75 and leather seats

Tesla dropped the entry level Model S 75 and leather seats option among changes prior to launching its Model 3 shortly.

It will discontinue the Model S with the 75kWh battery pack and rear-wheel drive by the end of the year, Electrek reports.

Models 60 and 60D were dropped in April so with the 75 now going the cheapest option is likely to be the Model S 75D with dual motor all-wheel-drive at US\$74,500.

Drive Electric founder's family named in NBR rich list

Drive Electric founder Hideaki Fukutake is mentioned in the *NBR*'s latest rich list top ten.

The listing is more to do with his father Soichiro, reported to be worth about \$1.4 billion and who is ranked as one of Japan's richest people with an estimated US\$1.15 billion in wealth.

Soichiro has lived in New Zealand with his family semi-permanently since 2009.

Driverless cargo ships coming?

An autonomous electric ship called the Yara Birkeland is in production.

The first few trips will have a crew in late 2018, and one container will act as a bridge for the vessel. Eventually, that "bridge" will be moved to shore and the ship controlled like a drone, reports The Drive. By 2020, the ship will operate autonomously with monitoring from shore.

It can carry up to 100 shipping containers and will take fertiliser from a production facility to the Port of Larvik in Norway. The short journey will avoid international waters as the International Maritime Organisation doesn't aim to have regulations on autonomous international shipping travel until 2020.

July 25

Europe will top the US in electric and hybrid cars: MarketLine

The hybrid and electric cars market is showing strong global growth, with Europe set to outdo the USA, research firm *MarketLine* reveals.

The market for these cars is rising at a compound annual growth rate (CAGR) of 12.6%, the business information publisher says.

"Scandinavian countries such as Sweden will enjoy exceptional growth forecast growth of 27.9% between 2016 and 2021."

China could get Toyota mass producing electric cars

Toyota may start mass production of EVs in China in 2019.

The Japanese car maker is considering the move to comply with the Chinese government's plans to impose production quotas for "new energy cars" as early as 2018, Japan's Nikkei Asian Review reports.

It says, without quoting sources, that Toyota Motor is undecided how many electric cars it might produce in China but will probably concentrate on SUVs which are popular there and will take a shorter time to bring to the market.

Toyota produced an electric SUV, the RAV4 EV, but this was discontinued.

Driverless tech focus by Lyft

Lyft is focussing on autonomous driving technology at a new Silicon Valley office opening soon.

The facility, named after the highest level of autonomous driving – Level 5, will have several hundred employees by the end of 2017, reports Axios.

The ride-hailing company earlier this year hired Luc Vin-

Continued on page 23

Continued from page 22

cent, a former senior director of engineering at Alphabet's Google who helped develop Google Street View, to lead its autonomous development.

July 26

Number of EVs hits 4000

The government's latest target of getting 4000 electric vehicles on New Zealand roads has arrived five months early.

About 200 EVs are registered monthly with a total of 4027 EVs now in the country.

"This is great news and a reflection of the work undertaken by the government and private sector in normalising the purchase and integration of EVs into the New Zealand vehicle fleet," transport minister Simon Bridges says.

All-electric Mini starts production 2019

A fully electric Mini three-door variant will begin production in 2019, BMW Group says.

It's part of the group's strategy to use flexible vehicle architecture to enable electrification of all its brands and models. These can range from full electric or plug-in hybrids in addition to combustion engine options, all of which can be built at the same time.

The Mini's electric drivetrain will be made in Germany and put into the car in Oxford.

EV owners unfazed by "range anxiety"

Most electric vehicle owners are unfazed about getting stranded with a flat battery.

This is the finding of the latest poll by Flip the Fleet, a citizen science collaboration of over 200 New Zea-

land EV owners that share data monthly from their dashboards.

The poll found 72% of drivers experience no range anxiety or at least only very occasionally. New EV owners are more anxious at first, but quickly learn the performance of their EV and drive within its range.

Britain to ban sale of all diesel and petrol cars from 2040

Britain is to ban all new petrol and diesel cars and vans from 2040 amid fears that rising levels of nitrogen oxide pose a major risk to public health.

The commitment, which follows a similar pledge in France, is part of the UK government's much-anticipated clean air plan to be released this Wednesday, which has been at the heart of a protracted high court legal battle, reports the *Guardian*.

The government warned that the move was needed because of the unnecessary and avoidable impact that poor air quality was having on people's health. Ministers believe it poses the largest environment risk to public health in the UK, costing approx NZ\$4.7bn in lost productivity in one recent year.

July 27

Government asked to take stronger EV stance

Our government should show leadership to accelerate the uptake of EVs following Britain's announced ban on diesel and petrol cars and vans by 2040.

So says Flip the Fleet co-founder Henrik Moller in a *Newstalk ZB* interview with Nadine Higgins.

"One of the problems is that as other countries start to ditch their conventional vehicles New Zealand could become a dumping ground for them," Moller says. We run on cheap imports of vehicles."

Mobile robotics set to transform key industries

Mobile robotics in logistics and material handling is likely to become a US\$75 billion market by 2027.

It will then more than double by 2038.

A transformative change is beginning, so planning is needed now, IDTechEx Research director Dr Khasha Ghaffarzadeh says.

July 28

Shell Europe CEO says his next car will be an EV

Shell Europe CEO Ben Van Beurden will switch from a diesel car to a plug-in Mercedes-Benz S500e in September, a company spokesman says. Shell CFO Jessica Uhl already drives a BMW i3 electric car.

"The whole move to electrify the economy, electrify mobility in places like north-west Europe, in the US, even in China, is a good thing," Van Beurden says.

"We need to be at a much higher degree of electric vehicle penetration if we want to stay within the 2-degrees Celsius outcome," he told *Bloomberg TV*.

Electric car on offer for test drives

Marlborough Lines has added a fully-electric car to its fleet and wants people in the region to take the cutting-edge car

for a test drive.

The Nissan Leaf is a pollution-free, zero carbon car which can travel 200 kilometres on a single charge.

Marlborough Lines managing director Ken Forrest says the car is a practical addition for staff on short-range jobs, reports *Stuff*.

17 battery-powered trains confirmed for Auckland

Auckland Council has confirmed it will be buying 17 new battery powered and electric trains to replace 'dirty diesels' between Papakura and Pukekohe.

This comes as a result of increased patronage on the rail network and the requirement to increase its peak capacity, which will be reached by 2019 when the new trains would come into operation, reports the *NZ Herald*.

The trains have modern batteries which will allow them to operate off-grid and recharge when in an electrified section.

Wellington welcomes BMW EVs

Winger BMW has officially welcomed BMW i with a prestigious launch event in its Wellington showroom this week.

The event celebrated the arrival of BMW i to the region with Winger BMW one of the country's newest BMW i sales and service centres.

More than 200 guests attended the event including minister of transport Simon Bridges, and Wellington City deputy mayor Paul Eagle. Guests also included Winger Group general manager Steve Hilson, BMW Group New Zealand managing director Florian Renndorfer, and BMW brand ambassador Jeff Wilson. ■

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Raumanga - McDonalds, 130 Tauroa St, Raumanga, Whangarei 0110
Kaiwaka - 1 Kaiwaka-Mangawhai Rd, Kaiwaka 0975
Warkworth - New World, 6 Percy St, Warkworth 0910
Warkworth - BP Warkworth, 67 Auckland Rd (SH1), Warkworth 0910
Silverdale - Kings Plant Barn, 17 Hibiscus Coast Highway, Silverdale 1025
Kumeu - Kumeu New World, 120 State Highway, Kumeu 0810
Albany - 186 Don McKinnon Drive, Albany, Auckland 0632
Hobson St - 21 Hobson St, Auckland, 1010
Z Beach Rd - 150 Beach Rd, Auckland 1010
Newmarket - 1 Gillies Ave Newmarket, Auckland 1023
Greenlane McDonald's - 356/320 Great South Rd, Greenlane, Auckland 1051
BP Pakuranga - 322 Pakuranga Rd, Pakuranga Heights, Auckland 2010
Z Botany Downs - 550 Te Irirangi Dr, Botany Downs, Auckland 2013
Airport Shopping Centre - 400 George Bolt Memorial Dr, Auckland Airport 2022
Z Skyway - George Bolt Memorial Dr, Auckland Airport 2022
Takanini Village - 30 Walters Rd, Takanini, Auckland 2112
Pukekohe - King Street Carpark (Seddon Lane), 56-60 King St, Pukekohe 2120
Thames - 505 Mackay Street, Thames 3500
Tairua - Tokoroa Rd Carpark, 6 Tokoroa Rd, Tairua 3508
Te Kauwhata - 16 Wayside Rd, Te Kauwhata 3782
WEL Networks - 114 Maui St, Waikato 3200
Hamilton - Tesla Supercharger (x4), Te Rapa Rd & Warere Dr, Hamilton 3200
Ruakura - Waikato Innovation Park, 9 Melody Ln, Ruakura, Hamilton 3216
Raglan - 43 Bow St, Raglan 3225
Tauranga - The Strand, Tauranga, 3110. (BYO cable)
Mt Maunganui - Bayfair, 19 Given Road, Mt Maunganui Rd 3116
Cambridge - 73 Queen Street, Cambridge 3434
Te Awamutu - 10 Scout Lane, Te Awamutu 3800
Te Kuiti - New World, 39 Rora St, Te Kuiti 3910
Rangitaiki - Rangitaiki Lodge Café, 3281 SH5, Rangitaiki
Whakatane - i-SITE, 30 Quay St, Whakatane 3120
Rotorua - 1134 Haupapa St, Rotorua 3010
Taupo - 1 Kaimanawa St, Taupo
Turangi - 1 Pihanga Rd, Turangi 3334
Waiouru - State Highway One & Hassett Dr, Waiouru 4861
Te Haroto - Mc Vicar Rd, Napier-Taupo Highway, 4237 SH5, Te Haroto
New Plymouth - 66 Courtenay St, New Plymouth 4310
Waiouru - State Highway One & Hassett Dr, Waiouru 4861
Napier - 206 Dickens St, Napier 4110
Hastings - 100 Queen St W, Hastings, 4122
Mangaweka - 2 Koraenui St, Mangaweka 4797
Waipukurau - Civic Theatre Carpark, 34 Russell St, Waipukurau 4200
Palmerston North - i-SITE, The Square, Palmerston North, 4410
Otaki - 155-163 Main Hwy, Otaki 5512
Masterton - 3 Dixon St, Masterton 5810
Porirua - 2 Serlby Pl, Porirua 5022
Featherston - SuperValue, 42 Fitzherbert St, Rimutaka Hill, Featherston 5710
Upper Hutt - 24 Queen St, Upper Hutt 5018
Lower Hutt - Dowse Museum & Square, 1 Stevens Grove, Lower Hutt 5010
Z Petone - 60 Hutt Rd, Petone, Lower Hutt 5012
Z Vivian Street - 174 Vivian St, Te Aro, Wellington 6011



Fast Charger Locations – South Island

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Nelson - Millers Acre Carpark, 37-39 Halifax St E, Nelson, 7010
Richmond - Tasman District Library, 11 Mcglashen Ave, Richmond 7020
Greymouth - 13 Tarapuhi Street, Greymouth 7805
Kaikoura - 51 West End, Kaikoura 7300
Northwood - New World, 2 Mounter Ave, Northwood, Christchurch 8051
Addington - Z Moorhouse Ave, 40 Moorhouse Ave, Addington, Christchurch 8011
Little River - 4235A Christchurch Akaroa Rd, Little River 7591
Rakaia - Rolleston St, Rakaia 7710
Ashburton - 109 West St, Ashburton 7700
Tekapo - Tekapo 7999
Alexandra - 9 Thompson St, Bridge Hill, Alexandra 9320
Timaru - 26A North St, Timaru 7910
Waimate - 125 Queen Street, Waimate 7924
Oamaru - Eden St Carpark, 3 Eden St, Oamaru 9400
Hampden - 33 Lincoln St, Hampden
Dunedin - Filleul St Carpark, 193 Moray Pl, Dunedin 9016
Balclutha - 23 Charlotte St, Balclutha 9230
Invercargill - 116 Esk St, Invercargill, 9810