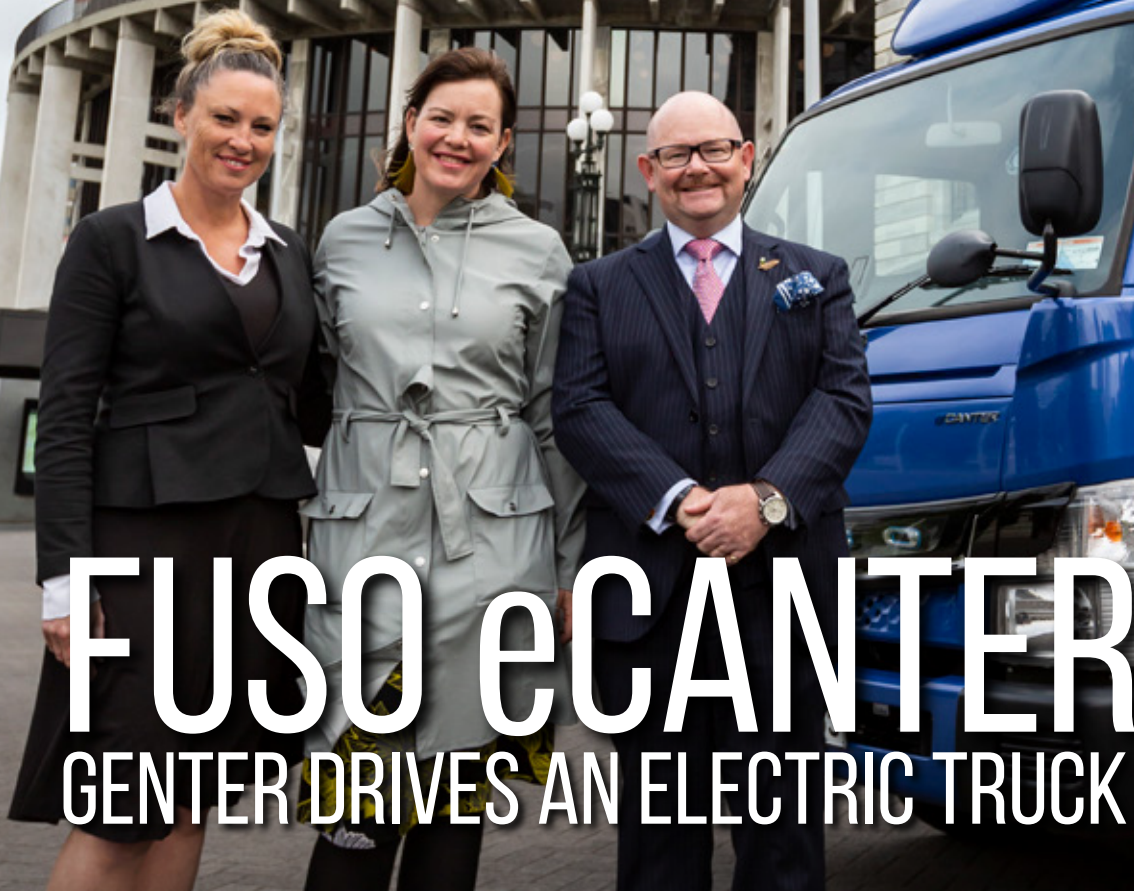


NZ'S NEWS SOURCE FOR ELECTRIC, INTELLIGENT AND
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EVtalk

NOVEMBER 2019

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eCANTER GOING THE LAST MILE

Commercial vehicles account for 35% of New Zealand's transport emissions, which in turn account for around 18% of all our greenhouse gas emissions. But while passenger car emissions are stable or falling, commercial emissions are rising thanks to strong demand for goods - and the need to get them there.

While it could be argued electrified solutions for long-distance trucking are some way away, options for short distance or "last mile" transport are beginning to arrive, one of the first to produce an option being Fuso - which has a fully-electric eCanter truck on New Zealand roads for testing.

EVtalk has had a brief chance to test the eCanter - and you can read about that later in this story.

Someone not used to testing such large vehicles, however, is Green Party member of parliament and associate minister of transport **Julie Anne Genter**. But despite nerves, Genter did a quick lap of the Wellington CBD in the eCanter during its testing tour.

So how did she find her first experience driving an electric truck? Or a truck at all



The eCanter attracted the attention of David Parker, Minister for the Environment, (right), with Fuso GM of sales Kathy Schluter and chairman Leon Grandy

for that matter.

"It was easier to handle than I expected. Quieter and cleaner. It was easier to drive than an SUV."

In a quick chat to EVtalk on the steps of parliament, Genter noted having "last mile" options like the eCanter are important as work continues to reduce the emissions of our transport fleet.

"If we can shift more freight to electrified rail or coastal shipping, we'll still need to

get things the last mile, and that is going to need to be zero emissions," Genter says.

"But also there are benefits from the cleaner air and lower noise in residential areas."

Does the government need to do more to assist the commercial fleet to transition to electric - in ways similar to that proposed for the light fleet in the proposed Clean

Continued on page 3



involved in some way in actually exploring all of these alternative fuels, not just electric."

We drive eCanter

Based on the popular small truck, the eCanter has a gross vehicle weight of 7.5 tonnes, and a potential payload of 4.5 tonnes.

The eCanter has a modular battery system allowing the operator to specify up to 82.8kWh of storage. That gives a practical range of 100 to 120km, with a DC charging time of one hour to 80% - though there has been an indication the charging power limit could eventually rise to 170kW, dropping charge times further. Charge overnight - it should take around nine hours with the 30amp supplied charger - and Fuso suggests off peak rates will make a recharge from 20% as cheap as \$10.

Include 30% lower maintenance costs,

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Continued from page 2

Car Discount and Standard.

"We are focused on the light fleet because that's an area where emissions have been increasing and we really need to make a change," Genter notes. "With heavier vehicles the EECA contestable fund already provides some incentives to switch to electric or cleaner vehicles.

"You'll probably see some incentives coming out around biodiesel and other technology like hydrogen fuel cell for heavier vehicles and we will be improving the standards for heavy vehicles as well, over time."

Fuso New Zealand chairman **Leon Grandy** believes electric trucks like the eCanter will play a part in meeting future

transport needs.

"I think there are many alternative fuel sources other than clean diesel, including EV and fuel cells. In highly built up suburban areas, noise pollution, emission controls and a requirement for short-run, fast turnaround vehicles means EVs will be an essential part of the transportation sector."

He says government assistance will be required for a widespread shift of transport vehicles to electric.

"We have lots of diesel distribution around the country, but we have very little electricity distribution specifically for commercial vehicles," Grandy says.

"So in order to break the diesel monopoly, the government has to be



Continued from page 3

and the potential for ongoing road user charge exemptions, and there is a strong running cost story to tell here.

"It was easier to handle than I expected. Quieter and cleaner. It was easier to drive than an SUV."

The eCanter's electric motor produces 135kW and 390Nm of torque, driving through a single-stage transmission. There are two levels of regeneration for braking and energy recovery. Fuso has discussed the possibility of a 40kW power take off motor for the truck, adding to its usage options.

The cab of the eCanter is the same as the rest of the Canter range, meaning it should slip right in to usage for operators

who already have Fuso fleets. The key difference is the push-button start and the centrally-mounted touchscreen providing battery, charging and regeneration information.

It also features the same advanced safety features available on the rest of the Canter range - active emergency braking, a lane departure warning system and electronic stability control.

EVtalk had the chance to spend 15 minutes behind the wheel of the eCanter.

It is as simple to drive as any automatic car or van, pop it into drive and go.

Empty, the eCanter sprints off the line like no other small truck I have ever experienced, and with the amount of torque on offer, it should preform well even with a load on board.

A quick squirt on the motorway, and I found the eCanter is limited to 90km/h - fine for the kind of work it will be doing. It

also felt more stable than I am used to. Of particular note was the quietness and smoothness of the Fuso, not just over diesel trucks but over other electric commercials. Fuso seems to have polished out many of the relay and motor noises we are used to, and the throttle and brake programming is very smooth. ■

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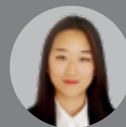
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ODE TO THE NISSAN LEAF

EV dealers and advocates are singing the praises of the iconic Nissan Leaf which celebrates 10 years in production in 2020.

The Leaf is a compact five-door hatchback EV introduced in Japan and the US in December 2010, and has been the world's first mass produced EV and also the best-selling plug-in for many years, global sales exceeding 400,000. And it has won a string of awards befitting a car dubbed the Leading Environmentally-friendly Affordable Family Car (Leaf).

The Leaf has been popular in New Zealand as a secondhand import from Japan and the United Kingdom, dominating EV sales for years.

Price is a big factor here, subsidies in Japan and the United Kingdom making right-hand drive versions more affordable for Kiwis, EV dealers specialising in the Leaf say.

"The Leaf has been the leader in New Zealand for EVs," says **Martin Harwood** of Harwood Cars in Auckland.

"It's one of the easiest cars to drive and among the most dependable with the least problems."

Harwood says the key reason for the huge uptake of Leafs in New Zealand is price – "primarily because it's so affordable for most people".

Fuel, tax and maintenance savings have also contributed, making it up to 10 times cheaper to run than its internal combustion engine (ICE) equivalent. "And the Leaf just keeps getting better," Harwood says.

"The power, the ride, the range, safety features and technology like the e-Pedal – it's amazing."

Henry Schmidt of Autolink Cars in Auckland has been specialising in mainly Leafs at his EV dealership for more than five years.

He says Leaf prices can be as low as \$12,000 to \$13,000, whereas perhaps a year ago they might have been selling for \$16,000 or \$17,000.

"We've got the Japanese taxpayer to thank for these cars as the subsidies they pay mean we can get the Leaf here cheaply."

"Five years ago when we started in EVs, people were laughing and saying it's just a fad. I said it's the beginning of a new business. Now car dealers will have to modify or get out."

Schmidt says the automotive industry is now at a crossroads and that more change is coming, particularly with 5G allowing improvements in autonomous vehicles and the likelihood of reduced car ownership with car sharing and other transport forms.

EV marketing and sales manager **Sarah Ryan** says she switched to a 24kWh Leaf a few years ago and now drives a 30kWh with a body kit and other refinements. Ryan drives her Leaf under about 50km daily, usually from her Auckland home to work and also to drop off children. She cannot charge at her home but says she only needs to charge up every two or three days.

"It's peaceful, relaxing – I like getting in the car at the end of the day and have no noise and no rattling," she says. "I'd never go back [to ICE]."

Not just the quietness appeals. Ryan reckons she saves about \$100 a week on fuel.



Henry Schmidt

The fuel saving of between \$220 and \$250 weekly also appeals to Leaf owner **Steven Sevele** of Mangere in Auckland, who bought his EV a few months ago.

"They're beautiful cars to drive," he adds.

Sevele reckons low income households would be better advised to make the switch to save themselves money in the long run.

He aims to promote EVs like the Leaf to his Tongan community.

Schmidt says he'd love to set up an EV education stand in a South Auckland shopping centre to advise people of the benefits, but says he would probably need some Government assistance to do so. He sees the car dealership situation changing in New Zealand, and indeed globally, within the next five years to resemble more a Tesla-type showroom as people move increasingly to online

Continued on page 8

THREE ELECTRICS PLUG INTO NEW ZEALAND CAR OF THE YEAR

Three electric vehicles are among the 10 finalists for New Zealand's most prestigious automotive award.

Candidates to secure this year's New Zealand Car of the Year are (in alphabetical order), Audi e-tron, Ford Focus, Holden Acadia, Hyundai Santa Fe, Jaguar I-Pace, Mazda 3, Mercedes GLE, Peugeot 508, Tesla Model 3 and Toyota RAV4.

The e-tron, I-Pace and Model 3 run purely on battery.

The New Zealand Car of the Year is voted on by the New Zealand Motoring Writers' Guild - professional automotive journalists who test the vehicles in their home environments around the country. The expert commentators have previously acknowledged the growing importance on electric vehicles in New Zealand, having given the honour to the BMW i3 in 2015.

"Simply having three electric vehicles in the top 10 shows how far this technology has come, and how much New Zealand has embraced it," New Zealand Motoring



Writers' Guild president **Richard Edwards** says.

"Even so, with seven other incredible vehicles in the top 10 they have a challenge ahead."

The award's winner will be decided by 21 voting members and announced live on TVNZ One's Seven Sharp programme in December.

Now in its 31st year, New Zealand Car of the Year is the country's most prestigious

motoring award, being a truly national prize without commercial ties.

The present titleholder is the Subaru Forester.

Criteria span how the vehicle performs its intended role; its styling, interior design and accommodation; fit, finish and quality; ride and refinement; performance; road-holding and handling; value for money; active and passive safety and environmental responsibility. ■

Continued from page 7
engagement.

Car yards also take up valuable space in city centres and are likely to be used for other purposes such as apartments, Schmidt says.

He believes Nissan will adapt the Leaf or something similar to autonomous driving, as he expects the Leaf (or a version of it) to be around possibly for another 10 years.

Auckland City Electric Vehicles general manager **Hadley Hargadon** says the Leaf is New Zealand's most popular EV because of its reliability and price.

"We are seeing a lot of 24kWh and 30kWh Leaf owners upgrading now to 40kWh cars."

The Nissan Leaf in October this year topped a Consumer survey for reliability, taking the title "overall best model" from 94 models across 19 makes in New Zealand.

Owners of 9736 cars were also asked and revealed what faults they'd had with their car in the past year and how satisfied with it they were. In the medium car reliability category, 89% opted for the Leaf. Not just petrol savings were highlighted, as owners also said they were very satisfied with the car's comfort, driving performance and safety features. Just 1% spent more than \$500 on unscheduled repairs in the year.

Meanwhile, interest is keen in the new Nissan Leaf which went on sale at 29 dealers nationwide from August 16, priced at \$59,990 plus on road costs which makes it one of the most affordable new EVs on the New Zealand market.

"As the pioneer of electric vehicles globally, the new fully electric Nissan Leaf represents the future of New Zealand motoring," Nissan New Zealand managing director **John Manley** says.

The 30kWh Leaf has a 270km range and a five-star ANCAP safety rating and can act as a mobile power source, expected to soon plug in to New Zealand homes and businesses through bi-directional charging.

Dave Boot of EV City in Christchurch brought probably the first Leaf e+ into New Zealand, which was included in the Electrifying Conversations road trip (see P12) and has a 62kWh battery with 363km range.

"We had no fear of running out, even though it carried three people and their luggage, and we drove it all the way to Christchurch - more than 2000km," he says.

Another had been ordered.

"The Nissan Leaf is the backbone of the EV industry in New Zealand," Boot says.

"It has a rosy future." ■

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EVS, CAVS AND INSURANCE

The impact of electric vehicles on insurance along with the coming wave of connected autonomous vehicles (CAVs) caught the attention of more than 60 people at the Zurich NZ Motor Forum in Auckland.

Talking about “the accelerating pace of the evolving carpark”, Zurich NZ motor underwriting manager **Matt McEneaney** says the carpark in terms of transport types has changed considerably – and will continue to do so.

They have gone from fossil-fuelled cars to include more electrics and hybrids, and will go to connected and autonomous vehicles (CAVs) with vehicle ownership also changing to car share services.

Even flying cars like the Zephyr Airworks’ Cora vertical takeoff and landing air taxi being trialled in Canterbury could change the look of carparks on the roof of buildings and elsewhere.

McEneaney expects CAVs will become part of fleet makeups within 10 years, He says feedback from vehicle leasing companies is that most are going to 90% EVs soon.

He also outlined the risk of fire and electrocution from EVs involved in crashes. Small explosive charges (like those used in airbags) could disable the battery by ejecting connecting cables to avoid any electrocution risk – at least that’s one possibility.

“We have to ensure we keep pace and that our pricing reflects that,” he says of vehicle insurance.

McEneaney says the insurance side and risks keep changing too.

Talking about Zurich’s “basket of parts”, he says the top 10 for replacement parts include the front bumper, radiator, grille, condensers, lights and panels. Comparing

costs for replacing the top 10 on different vehicles, McEneaney says prices tend to go up on replacement parts for EVs, with about a \$4000 difference between the three variants (fuel car, hybrid and EV). Adding sensors like forward collision warning could make replacing just one sensor a significant cost too.

“Most batteries have an eight to 10-year warranty, have a useful secondary life [storage] of about 20 years and can then be recycled.”

The increased cost of replacing wing mirrors was later broached at the summit, the addition of blind spot detection, lights and even cameras in them pushing replacement costs to about the \$2000-plus mark.

Zurich risk engineering head **Mervyn Rea** says EVs are part of a new era bringing new risk assessments.

Providing a potted history of EVs from 1832 through to mass production of the Nissan Leaf from 2010, Rea says studies indicate about 27 million EVs will be on the roads by around 2030.

He suggests EVs are about 40% more likely to be in a crash than their ICE equivalent, mainly because the driver is unfamiliar with the tech involved – especially the EV’s greater acceleration.

Rea says EVs are so quiet they are a greater risk to other road users such as cyclists and pedestrians, hence the moves towards requiring them to emit a warning noise at low speeds.

He also outlined the risk of fire and electrocution from EVs involved in crashes. Small explosive charges (like those used in airbags) could disable the battery by ejecting connecting cables to avoid any electrocution risk – at least that’s one possibility.

Audi New Zealand general manager and Drive Electric board member **Dean Sheed** gave an update on EV makes and



Matt McEneaney

Dean Sheed

models coming, saying many different brands are on the way.

He also says lots of different technologies are in EVs now, pointing to the Audi e-tron’s camera wing mirrors, adding it all needs to be calibrated to pass a warrant of fitness.

Sheed says battery technology is rapidly improving too, with battery cells able to be individually replaced if required and thermal management ensuring longer battery life, batteries and some EVs also serving as energy storage units and supplying power back to the home or business.

“Most batteries have an eight to 10-year warranty, have a useful secondary life [storage] of about 20 years and can then be recycled.”

He also says lots of different technologies are in EVs now, pointing to the Audi e-tron’s camera wing mirrors, adding it all needs to be calibrated to pass a warrant of fitness.

Sheed says solid state batteries are coming next. “So, battery technology continues to evolve.”

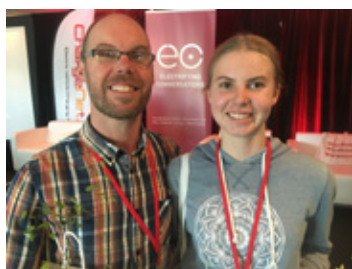
Asked whether Audi is developing autonomous vehicles, Sheed says with 5G becoming available, driverless technology will develop further.

Waste Management managing director **Tom Nickels** talked about transforming its fleet for the future.

Most agreed the afternoon forum was a good chance to catch up on developments and meet people working in similar fields, the event likely to be held again next year. ■

ELECTRIC AVENUE AND ELECTRIFYING CONVERSATIONS SPARK UP BBT VISITORS

The success of the Big Boys Toys' second Electric Avenue e-mobility showcase and the inaugural Electrifying Conversations Conference has fired up organisers and visitors alike. Many of the more than 30,000 people who attended the 21st BBT at the ASB Showgrounds in Auckland from November 1-3 were impressed with Electric Avenue, which returns for a third time next year, BBT events director **Dean Wilson** says. **"The feedback has been really good," he says, adding people were impressed with the Audi e-tron and e-mobility forms like skateboards, e-bikes and e-scooters, while at least 3000 visitors tried EV rides and drives.**



Sigurd and Ella Magnusson

"We're looking at what trends will be around for next year and expect Electric Avenue back even bigger and better, along with a DIY area and more in the outdoor zones." Wilson says electrics are the future and he's pleased to see many more manufacturers on board and at BBT. He's expecting the popular Electrifying Conversations Conference back next year, the event held at BBT on November 1 and attracting more than 150 people including international guests. Electrifying Conversations Conference organiser **Dee West** says it "exceeded every possible expectation" and she's confident it will return as a standalone event at the BBT venue over the Thursday and Friday. "We'll aim to have a New Zealand focus with some invited international people as well." West also led a six-day Electrifying Conversations road trip immediately after BBT travelling in about 10 EVs from Auckland to



Eva Hakansson's electric streamliner motorcycle Killajoule was again a hit

Wellington with events along the way, but she doubts it will be continued next year. The conference and road trip included Dynami battery entrepreneur **Sergio Baron** of Argentina and **Philippe Vangeel** of the European Association for Electromobility, among about 27 people on the trip. The conference featured **Dr Eva Hakansson** talking about breaking land speed records and building green electric streamline motorbikes like Killajoule and its nearly completed successor Green Envy, all included in an Electric Avenue display as well.

The afternoon session also had panels on 'Women Driving Sustainable Change', and 'Hardware' with Tritium, Schneider, ABB and YHI Power representatives. And the conference ended with EV advocate **Sigurd Magnusson's** daughter **Ella** delivering an impassioned **Greta Thunberg** style speech titled 'How Dare You' to encourage "fundamental changes to transport, business and farming" to counter climate change. **"We have to tell the world change is coming, whether we like it or not."** ■

MERCURY DISPLAY A HIT

Mercury's fully electric converted 1957 Ford Fairlane proved popular at Big Boys Toys in Auckland on November 1-3. Thousands who walked through the ASB Showgrounds gates had never seen an EV before spotting Mercury's yellow Evie. More than 580 people enjoyed an Evie virtual reality (VR) drive experience, with queues forming at times.

The VR allows a driver and three passengers to experience a 3D virtual tour of downtown Auckland via headsets while sitting in Evie.

The drive takes VR headset wearers past landmarks such as the Ferry Building and along Quay Street and the Waitemata

Continued on page 12



Visitors to Mercury's Electric Avenue stand try out virtual reality rides in Evie

AUDI RELEASES ELECTRIC E-TRON 50

A new power option from the Audi e-tron family has been introduced – the Audi e-tron 50 quattro. **The electric model has two electric motors, with an output of 230kW and 540 Nm of torque. The battery provides a range over 300km.**

The electric SUV goes from 0 to 100km/h in 7.0 seconds. Only the rear electric motor is active in most driving situations in order to achieve the highest efficiency – the front electric motor activates when needed.

“We are looking forward to adding the Audi e-tron 50 to the e-tron family. Like the e-tron 55 it’s infused

with Audi legendary quattro DNA, delivering exhilarating performance and style,”

Audi New Zealand general manager **Dean Sheed**.

“The Audi e-tron 50 with quattro technology can conquer any terrain, leaving minimal footprint.”

The battery unit stores up to 71 kWh of energy, attributed to the new drivetrain and high-voltage system. The system regulates the temperature of the interior and cools the electric motors, the power electronics and the charger.

The Audi e-tron 50 quattro can be charged at public charging across the country with fast-charging available up to 120 kW at high-power charging stations.



Audi offers various charging options for at home or on the go. The vehicles mobile charging system can be used with a 230-volt household outlet or 32 Amp industrial plug via Audi’s home charging installation process. More than 90% of all deceleration actions are undertaken with the rear electric motors.

“The level of local customer interest for the Audi e-tron 55 has been outstanding, with our 2019 allocation already sold through,” Sheed says. “We expect interest from the e-tron 50 model to follow in its big brother’s footsteps.

Prices start from \$134,900 which includes a five year/150,000km warranty and a three-year motoring plan. ■

Continued from page 11
Harbour.

The tour includes a cruise in the country, where VR users see where Mercury’s renewable energy comes from.

Interesting tips were provided – like it only costs \$5 to fully charge Evie, less than a coffee in many Auckland cafes. And despite Evie being a heavyweight classic, she can still be driven from Auckland to Hamilton on one charge.

Talking to people about what makes Evie special, and why the electrification of transport is so important to New Zealand’s future,

was a key reason for Mercury’s attendance. Mercury brand and activation manager **Sarah Cowan** says since Big Boys Toys added the Electric Avenue to the Driven Hall it’s been the “perfect environment to share the benefits of renewable energy and electric transport” to visitors. “Our ever-popular e-bike and e-scooter ride days were up and running again too,” Cowan says.

The Ride Day had 269 people try e-mobility transport for free, many saying e-bikes are easier to use than they imagined - and fun. ■

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	Ioniq Elite	BEV	\$65,990	220 km
	Kona	BEV	\$77,990	400 km
	Kona Elite	BEV	\$83,990	400 km
Jaguar	I-Pace S	BEV	\$144,900	470 km
	I-Pace SE	BEV	\$154,900	470 km
	I-Pace HSE	BEV	\$164,900	470 km
Kia	Niro EX289 (39 kWh)	BEV	\$68,990	289 km
	Niro EX455 (64 kWh)	BEV	\$75,990	455 km
LDV	EV80	BEV	\$80,489	180 km
Nissan	LEAF	BEV	\$59,990	270 km
Renault	Zoe 40 kWh	BEV	\$68,990	300 km
Tesla	Kangoo van	BEV	\$74,990	160 km
	S - Standard Range	BEV	\$129,700	520 km
	S - Long Range	BEV	\$146,500	630 km
	S - Performance	BEV	\$161,200	610 km
	X - Standard Range	BEV	\$139,200	375km
	X - Long Range	BEV	\$156,000	565 km
	X - Performance	BEV	\$170,700	540 km
	3 - Standard Range Plus	BEV	\$73,900	460km
Volkswagen	e-Golf	BEV	\$68,490	220 km
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BMW	Q7 e-tron	PHEV	\$158,400	54 km + 800 km
	i3 - Range Extender	PHEV	\$84,500	200 km + 130 km
	i3s - REX	PHEV	\$91,900	200 km + 130 km
	i8	PHEV	\$281,200	37 km + 400 km
	i8 2018 Coupe	PHEV	\$286,200	55 km + 400 km
	i8 2018 Roadster	PHEV	\$309,900	53 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
Hyundai	Ioniq Plug-in	PHEV	\$53,990	63 km + 1040 km
	Ioniq Plug-in Elite	PHEV	\$59,990	63 km + 1040 km

Kia	Niro	PHEV	\$55,990	55 km + 850 km
Mini	Countryman	PHEV	\$59,900	30km + 500 km
Mitsubishi	Outlander	PHEV	\$55,990	50 km + 500 km
Mercedes Benz	C350 e Sedan	PHEV	\$96,400	31 km + 700 km
	C350 e Estate	PHEV	\$99,400	31 km + 700 km
	E350 e Sedan	PHEV	\$143,500	30 km + 600 km
	GLE500 e	PHEV	\$149,900	30 km + 700 km
Porsche	S500 e	PHEV	\$255,000	30 km + 700 km
	Cayenne S e-hybrid	PHEV	\$177,800	20 km + 750 km
	Panamera Turbo S e-hybrid	PHEV	\$428,400	30 km + 750 km
Toyota	Prius Prime	PHEV	\$48,490	50 km + 1000 km
Volvo	S90 T8	PHEV	\$125,900	34 km + 600 km
	XC90 T8	PHEV	\$134,900	44 km + 600 km
	XC60 T8	PHEV	\$94,900	40 km + 600 km

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

EV FRANCHISE DEALER LIST

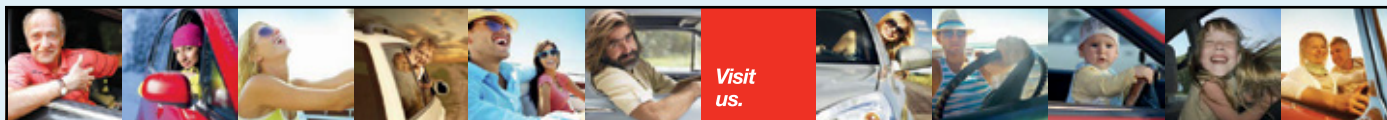
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MAKE	MODEL	TYPE	PRICING RRP EST.	APPROX RANGE KMS
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	i3 - 33 kWh	BEV	\$52k - \$80k	200 km
Hyundai	Ioniq	BEV	\$47k - \$55k	220 km
	Ioniq Elite	BEV	\$57k - \$66k	220 km
	Kona	BEV	\$74k	400 km
Kia	Soul EV	BEV	\$30k	150 km
Mercedes Benz	B250 e	BEV	\$44k - \$47k	140 km
Mitsubishi	i-Miev	BEV	\$11k - \$14k	100 km
	B-Miev Van	BEV	\$16k	100 km
Nissan	LEAF Generation 1	BEV	\$9k - \$16k	120 km
	LEAF Gen 2 - 24 kWh	BEV	\$13k - \$34k	135 km
	LEAF Gen 2 - 30 kWh	BEV	\$26k - \$36k	180 km
	LEAF ZE1 - 40 kWh	BEV	\$43k - \$63k	250 km
	e-NV200 - 24 kWh	BEV	\$27k	140 km
	e-NV200 - 40 kWh	BEV	\$60k	200 km
Renault	Zoe 40 kWh	BEV	\$37k - \$68k	300 km
	Kangoo ZE Van	BEV	\$42k - \$46k	160 km
Smart	Fortwo	BEV	\$20k	100 km
Tesla	S P85D	BEV	\$95k - \$120k	330 km
	S 90D	BEV	\$125k	420 km
	X 75D	BEV	\$109k	340 km
	X 90D	BEV	\$129k	410 km
	X 100D	BEV	\$149k	480 km
	X P100D	BEV	\$230k	460 km
Volkswagon	e-Golf - 36kWh	BEV	\$63k - \$70k	220 km
Audi	A3 Sportback E-Tron	PHEV	\$41k - \$50k	45 km + 600 km
	Q7 e-tron	PHEV	\$125k	54 km + 800 km
BMW	i3 REX - 22 kWh	PHEV	\$33k - \$50k	120 km + 120 km
	i3 REX - 33 kWh	PHEV	\$50k - \$68k	200 km + 120 km
	225xe	PHEV	\$50k	41 km + 550 km
	330e	PHEV	\$50k - \$76k	37 km + 550 km
	530e	PHEV	\$140k	50 km + 600 km
	X5 xDrive40e	PHEV	\$140k	30 km + 800 km
	i8	PHEV	\$110k - \$140k	37 km + 400 km
Hyundai	Ioniq	PHEV	\$46	63 km + 1040 km

Mercedes Benz	C350 e Sedan	PHEV	\$63k - \$75k	31 km + 700 km
	GLE500	PHEV	\$130k	30 km + 700 km
	E350 e	PHEV	\$120k	30 km + 600 km
	S500 e	PHEV	\$96k	30 km + 700 km
Mini	Countryman Cooper SE	PHEV	\$68k	30km + 500 km
Mitsubishi	Outlander	PHEV	\$27k - \$56k	50 km + 500 km
Porsche	Cayenne S e-hybrid	PHEV	\$129k	20 km + 750 km
Toyota	Plug-in Prius	PHEV	\$17k - \$22k	26 km + 800 km
Volvo	XC60 T8	PHEV	\$115k	40 km + 600 km
	XC90 T8	PHEV	\$115k	44 km + 600 km
BEV - Battery Electric Vehicle PHEV - Plug-in Hybrid Electric Vehicle				

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VODAFONE SETS THE E-WHEELS IN MOTION

For Vodafone, sustainability is about long-term thinking and ensuring everything the business does is enhancing the environment, communities and the economy.

Vodafone's journey to transform its business includes the introduction of 10 SmartMotion e-bikes available for staff to use at their Auckland InnoV8 office as a resource throughout the day.

The North Shore location means the e-bikes are ideal for people to use on their lunch breaks, enabling them to get to Takapuna or Milford quickly, easily and carbon-free, Vodafone says. Staff need to register to be able to use them, which includes an induction process where staff must demonstrate they are comfortable using the e-bikes. About 10% of the 1800 staff based in the Smales Farm office have been through this induction process, with the number expected to increase in summer.

Additionally, Vodafone provides charging plugs for e-bikes and e-scooters to their staff where the shared e-bikes are stored, should staff commute on these to work and need a top-up before heading home.

"When we reviewed Vodafone's fleet usage last year, we realised we could reduce the number of cars we have," Vodafone New Zealand sustainability advisor **Annalise Davies** says.

"We have now successfully managed to decrease our fleet size by about a third, having a big impact on our CO2 emissions."

Vodafone has seen a reduction in CO2 emissions of 4.6% from 2018.

"When it comes to electricity efficiency, Vodafone is making changes to reduce our consumption and make our network more efficient," Davies adds.

"We're also in the process of simplifying



Vodafone has 10 SmartMotion e-bikes for staff to use

product systems to be able to decommission and eliminate older network technology, and implement sustainable technologies.

"When we reviewed Vodafone's fleet usage last year, we realised we could reduce the number of cars we have"

Examples of these include smart power meters and use of renewables like solar-powered cell towers – which are on the rise with the second phase of the Rural Broadband Initiative."

Vodafone's launch of 5G in December

will pave the way for further energy efficiencies around New Zealand.

Newer technology such as 5G has energy saving features like dynamic spectrum management, traffic management and idle mode, regulating consumption and making it fit for purpose.

Vodafone's 5G rollout will also enable autonomous vehicles to become a reality in New Zealand, many of which are electric vehicles.

"Sustainability is a top priority for Vodafone," Davies continues.

"We're always looking for ways to increase efficiencies and can't wait to explore what the 5G launch will enable in this area." ■



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FORD NZ TO RELEASE TRANSIT CUSTOM AND TOURNEO PLUG-IN HYBRIDS

Ford New Zealand is introducing the plug-in hybrid Tourneo Titanium and Transit Custom, which will both hit the market in mid-2020.

The Transit Custom plug-in hybrid can be charged with mains electricity for a pure electric driving range of up to 56km.

Featuring advanced hybrid technology, the Transit Custom's front wheels are driven by a 92.9kW electric motor powered by a 13.6kWh lithium-ion battery pack. Ford's award-winning onelitre EcoBoost petrol engine acts as a range extender for more than 500km of driving range, 2.7 l/100 km fuel efficiency and 60 g/km CO2 emissions based on New European Driving Cycle (NEDC) standards.

The battery pack beneath the floor allows for a net payload of 1130kg and unchanged load volume of 6m3. The battery pack is covered by a standard eight-year/160,000km warranty.

Ford is also introducing a new eight-seat people-mover Tourneo Titanium featuring the

same plug-in hybrid powertrain technology. It delivers 3.1 l/100 km fuel efficiency, 70 g/km CO2 emissions and a pure electric driving range of up to 53 km NEDC, the Tourneo Custom Plug-In Hybrid also is covered by Ford's eight-year/160,000km battery pack warranty.

"Our customers want electrified vehicles, but many still have concerns about infrastructure and range," Ford New Zealand managing director **Simon Rutherford** says. "The new Transit Custom and Tourneo Plug-In Hybrids deliver the same well renowned productivity capabilities combined with the ability to drive on zero-emission electric power and anxiety free ability to make longer journeys."

A charging port located within the front bumper enables the new Transit Custom plug-in hybrid to be charged in 4.3 hours using a domestic 240-volt 10-amp power supply, or 2.7 hours using a commercial type-2 AC vehicle charger.

Additional electrical energy is captured through regenerative charging when the vehicle decelerates or brakes.



Four selectable EV modes are available for the driver:

- **EV Auto** is intended to provide the optimum blend of performance and efficiency. The vehicle's control algorithms monitor battery levels and the current driving scenario – such as motorway or stop-start driving – to decide whether to activate the range extender.
- **EV Now** prioritises usage of stored battery energy for emissions-free driving, deactivating the range extender until battery levels reach a minimum state of charge.
- **EV Later** prioritises the range extender and leverages regenerative charging to most efficiently maintain the current level of battery charge, ready for later use.
- **EV Charge** utilises the range extender to power the vehicle and to top up the battery for when further EV Now travel is needed.

Drivers can also choose the degree of energy recovery and braking assistance afforded by the regenerative charging system by selecting either "drive" or "low" on the gear selector. Inside the cabin, a power/charge gauge replaces the standard rev counter. The gauge visualises real-time energy savings to help drivers increase electric driving range.

A smaller gauge for battery state of charge replaces the engine coolant temperature indicator and trip computer functions are configured specifically for the hybrid powertrain.

EV mode indicators, maintenance alerts and a warning when the vehicle is plugged into a charging point, appear on the instrument display cluster. A status graphic displaying distance-to-empty for both the battery and range extender is visible on all screen displays.

Full specifications and pricing will be available closer to arrival. ■



T-TECH 2020 CONFERENCE IN WELLINGTON NEXT MAY



Simon McManus

By **Simon McManus**, executive officer, Intelligent Transport Systems New Zealand Inc

ITS NZ hosts next year's T-Tech Conference at Te Papa in Wellington. New Zealand's future transport

conference, T-Tech, is the annual two-day conference for government, industry and academia to discuss solutions for today's transport and urban planning problems. Intelligent Transport Systems New Zealand (ITS NZ) expanded its annual summit in 2018 to include emerging solutions and modes and disruptive business models, such as mobility as a service (MaaS), ride-sharing and new urban planning solutions to complement the network efficiency, safety and optimisation solutions associated with ITS.

The programme will feature invited influential international and local thought-leaders, experts, innovators and government speakers discussing policy and agency priorities.

We expect T-Tech 2020 will attract more than 200 delegates and speakers from throughout New Zealand, with a growing international attendance.

ITS NZ will shortly call for abstracts and presentation concepts from

local government and industry for consideration by the T-Tech programme committee.

Visit www.ITSNZ.org to make submissions.

Being selected to present on a paper or make a presentation has rewards. Those selected and judged by an expert panel

and attendees as either the best paper or presentation are up to win \$5000 worth of travel towards an international transport conference of their choice.

The prizes are part of ITS NZ's commitment to furthering innovation, research and skills development in New Zealand.

Earlybird tickets are expected to go on sale in December - visit www.ITSNZ.org for more information.



Mike Rudge

Mike Rudge appointed to replace David Vinsen as ITS NZ chair

Independent Transport Consultant **Mike Rudge** has been appointed to replace outgoing ITS NZ chair **David Vinsen**, who stepped down from the role in October after two years.

Vinsen oversaw significant progress at ITS NZ, including membership growth, an expanded annual conference (T-Tech), a transparent strategy and bi-annual business plan and membership growth. Rudge has ITS NZ treasurer for the past two years. He has just established Rudge

WHAT'S HAPPENING?

ITSNZ Awards

Entries open soon.

Awards night TBC, February 2020

LOCAL EVENTS

ITS World Congress Review events

Christchurch, November 19

T-Tech 2020

May 4-5, Wellington

INTERNATIONAL EVENTS

May 25 – 29 2020

ITS Asia-Pacific Forum
Brisbane

ITS World Congress 2020

October 4-8, 2020, Los Angeles

Consulting after more than 25 years with Stantec NZ (and its predecessors). Rudge has been a board member of ITS NZ since 2017.

Stephen Hewett is ITS NZ president and takes on the international responsibilities contributing to ITS Asia-Pacific Board, ITS World Congress and ITS Asia-Pacific forum activities, taking over from **Mohammed Hikmet**.

ITS NZ is seeking expressions of interest for newly created board roles, one for representing and developing stronger relations with New Zealand's tertiary sector, a vital source of research and skills development for the industry. The second role is for a Youth Board member. ■

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CONGESTION PRICING COULD CHANGE THE WAY WE TRAVEL

It has been estimated that the average Aucklanders spends 40 minutes daily delayed by traffic.

Assuming a conservative 240 workdays a year, that amounts to 160 hours annually wasted.

Now, multiply that times your hourly wage and let's call this your personalised "traffic tax".

Even at minimum wage, that is almost \$3000 annually. And don't forget, on top of your "traffic tax", there are other costs and taxes such as those on fuel. That is the cost of driving on our roads today. Many ideas are being explored to reduce congestion, one of the most controversial yet effective methods (in theory anyway) is congestion pricing.

Since EVs don't pay for roads via taxes on petrol like internal combustion engine (ICE) vehicles, RUC will become mandatory for EVs in 2021. That charge will amount to about \$600 per vehicle annually.

There is a relationship between supply and demand, namely – the more the demand, the higher the price - the higher the price, the more supply. In this case, the good is the use of the road. On any given day, supply is limited. If demand exceeds supply, we end up with congestion and the increased cost is covered by all of us with our "traffic tax". **Congestion pricing attempts to change this dynamic by increasing the cost of road use when demand is high. Instead of paying with our time, we would pay with money.**

This cost will lower demand by pushing some users to alternate routes, to wait until the demand is lower, or through using alternative forms of transport. The result (in theory) is less congestion, less "traffic tax".

Most implementation of congestion charging attempted in other countries have been in urban environments and include not only congestion on single roadways but congestion in specific areas of cities such as city centres. This implementation is called "cordon area congestion pricing" and is a method of demand management to relieve traffic, parking, or even the number of people in an area. In the future, systems such as this could even be implemented dynamically, triggered by any number of conditions to promote efficiency, sustainability, or even safety.

So, does the evidence show congestion pricing works? Sort of. In most places that have implemented congestion charging, it has led to 10-30% improvements in decongestion and positive tangential externalities such as improved air quality.

The question then becomes, what will this cost us? It will have to be balanced, enough to influence consumer demand, enough to decrease congestion, but not enough to drive demand below the maximal capacity of the roadway. It also needs to be less than the "traffic tax". Of course, not everyone can simply decide to travel at a different time (when there is lower congestion pricing), so options must be available to those who choose to travel via alternative routes or different modes.

One thing I expect congestion pricing will do is drive up the use of ridesharing. To make congestion pricing possible, a way to track vehicles on the road network is a necessity.

This requirement, however, might soon become a reality. The Ministry of Transport is exploring options around road use and cost equity by moving all vehicles to a unified road user charge (RUC) system.

Since EVs don't pay for roads via taxes on petrol like internal combustion engine (ICE) vehicles, RUC will become mandatory for EVs in 2021. That charge will amount to about \$600 per vehicle annually.



by **Kit Wilkerson**
VIA analyst and adviser,
on behalf of ITS NZ.

This capability will lead to other options that we

should consider, such as automated enforcement. Imagine if the government (namely, the police) had access to all your vehicle's travel data, where, when, and even how fast. The process of identifying traffic violations and penalties would be a matter of simple analytics. In fact, it could be entirely automated.

The way speeding fines are calculated might be changed; it might become a product of speed over the limit multiplied by the distance travelled. Then this would be further adjusted by special multipliers such as violations that occur around schools or other public locations. Parked in a no parking zone? Fines are automatically applied.

There are other concerns that need to be addressed. If congestion pricing pushes road or parking use outside of restricted areas, it will increase usage of adjacent areas. Are those roads suitable for the increased usage? Is there enough parking?

Finally, there is the privacy concern. I realise many policymakers see the increase in social media as evidence that people no longer care about their privacy, but I think they will find that it is not the case.

I realise many policymakers see the increase in social media as evidence that people no longer care about their privacy, but I think they will find that it is not the case.

Congestion pricing has the potential to change road usage. We can use it to change road use in positive ways, but only if we are prepared to handle the change. ■

NZTA SWITCHES TO ELECTRIC WITH FLEETPARTNERS' HELP

While the Waka Kotahi NZ Transport Agency has already moved almost half its pool fleet to electric vehicles, further studies are under way to determine how it can progress further towards fully electric.

Its vehicle fleet comprises 162 vehicles leased from FleetPartners, of which 36 are Hyundai Ioniqs, and two BMW i3s that the agency owns.

In 2018, the NZTA transitioned all its compact hatchback internal combustion engine vehicles to fully electric. A lack of electric utes and electric four-wheel drive SUVs is among reasons it cannot yet make the full transition for all vehicles.

An ongoing feasibility study using data from the current EVs will help determine how the vehicles are used and assist with the switch to further EVs as suitable electric options become available.

The pool EVs are used for travelling between offices like those in Wellington and Palmerston North, and Hamilton and Auckland.

The decision to move to fully electric pool vehicles is in line with the government direction towards a low emissions all-of-government vehicle fleet where practicable. The transition was made after the fleet team studied the vehicle telematics, such as distances travelled, where vehicles travelled to, and why drivers were using the vehicles, to identify which vehicles could be transitioned to electric.

The two BMW i3s were purchased in

2016 as a trial towards moving to EV technology.

The switch to EVs in multiple sites around New Zealand required a good understanding of the infrastructure requirements and an engaged Property team – the installation of AC chargers at offices around the country was a logistical challenge and required liaison with different landlords.

A critical part of moving to EVs was providing opportunities for staff to be familiar and comfortable with driving and charging an EV.

The NZTA ran roadshows around the country so staff could learn more and ask questions. Many were keen on learning more about EVs as a personal vehicle option. All drivers are provided with a vehicle induction which for electric vehicles includes how to charge, what to do in an emergency (or a flat tyre, run out of battery, etc).

A survey done six months after the EVs were introduced into the fleet gave responses such as:

- “They’re fun! Great initiative by the agency switching to EVs.”
- “It was great, no issue.”
- “The EV’s are great. Love them.”
- “Preferred over the previous vehicles. Once you get the hang of the slight differences compared to our previous fleet vehicles, it’s a breeze to use.”
- “Pros: Drives nicely, pretty good and straight forward for short trips. Cons: Longer trips may require some journey planning.”
- “I was pleasantly surprised at how ‘normal’ the car was to use.”

However, some staff are still cautious when it comes choosing to drive an EV, citing reasons such as the range, uncertainty about where to stop and charge, or unfamiliarity with the vehicle.

Another series of roadshows is under way to provide staff with a further opportunity to learn more about the EVs and charging, with a chance for staff to take one for a quick test drive to build confidence. ■

The decision to move to fully electric pool vehicles is in line with the government direction towards a low emissions all-of-government vehicle fleet where practicable.



MERCURY BACKS EVS AND SUSTAINABILITY

Mercury's brand colour is yellow but its new headquarters at 33 Broadway in Newmarket, Auckland has a high five-star Green Star rating.

That means it's of sustainable design, construction and operation.

The 33 Broadway developers, Mansons TCLM is one of the top developers to achieve Green Star ratings.

Green Star buildings usually bring high-calibre tenants like Mercury, which consolidated about 600 staff at Broadway, and the other key tenants Tegel and Avanti Finance.

For Mercury, 33 Broadway provides plenty of open space in the top three levels of the five-storey building, multi-use rooms and associated facilities, an auditorium-style open space central atrium with a big screen, display areas, basement parking (including EVs and e-bikes) with chargers, and a curved 1950s retro façade.

A cafe called Newbie has since opened in the building, helping attract more custom

as it's close to public transport and major retail areas.

A variety of interactive displays in Mercury's foyer keep the public entertained, such as a "make your own hydro-electric power station" in a kinetic sand pit with special lights, and a mock-up of Mercury's electric "Evie" 1957 Ford Fairlane complete with virtual reality headset.

Evie and VR headsets displaying a drive in the car proved popular at Big Boys Toys' Electric Avenue as visitors swarmed to Mercury's stand on November 1-3 at the ASB Showgrounds in Auckland's Greenlane.

Keynote speaker for the November 1 Electrifying Conversations Conference at the same venue, **Philippe Vangeel** of the European Association for Electromobility was impressed with Mercury's display and tried the VR drive. Vangeel says his surname is associated with yellow – a key colour on the family crest.

Meanwhile, some other big changes are happening at Mercury with **Joan Withers** stepping down this year as chair,

succeeded by **Prue Flacks**, and chief executive **Fraser Whineray** leaving early next year after 11 years of service at Mercury to become chief operating officer at Fonterra.

Whineray has championed EVs throughout his tenure. The company helped introduce the 30% committers pledge in 2016 where some 30 New Zealand companies promised to do their best to switch at least



Philippe Vangeel at Mercury's stand on BBT's Electric Avenue



Fraser Whineray in Evie

30% of their vehicle fleets to electric by the end of 2019.

Mercury has been collecting insights during the three-year pledge period and expects to check on progress again shortly, possibly for the last time.

When the pledge was made about 2000 EVs were registered in New Zealand, so it was designed to encourage doubling fleet EVs and to normalise EVs as a viable alternative to internal combustion engine (ICE) vehicles.

Momentum since has been strong, with

Continued on page 22



Continued from page 21

registrations now past 17,562.

Most companies have exceeded numbers aimed for, Whineray says.

Some others have struggled for various valid reasons which provided insights useful to others, he adds.

"We expect all companies will get beyond the numbers pledged at some point [with insights being that the variety of vehicles and price points are among factors impacting speed of fleet transitions]."

"Pleasingly, many more organisations beyond the initial pledgees have lifted their game. Influencing the market has therefore been a good outcome."

It's unlikely an extension to the pledge deadline will be sought.

The intention was to support and show leadership that contributes to momentum.

That momentum is now evident - when three years ago it wasn't, Whineray says.

He says electrification is now going well beyond EVs, "beyond what we could have almost imagined then".

Whineray points out that e-bike sales and

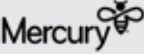
e-scooter use have rocketed, Ports of Auckland will have the world's first electric tug, Zephyr Airworks is trialling electric and pilot-less air taxis in Twizel, Waste Management is converting 800 trucks to electric, electric campervans are hitting the road, and three EV car sharing models are offered, along with Mercury's car subscription service Mercury Drive.

Unfortunately, the public sector is lagging in uptake compared to the private sector, Whineray believes.

"We look forward to a lift in public sector uptake over the next year or so, along with growth of some of the initiatives noted, being further catalysts for momentum that collectively enable New Zealand to make a real change that makes the most of our largely home-grown renewable electricity." ■



POWER DEALS FOR EV USERS

Company	Energy Deals	Where	Cost to charge LEAF*
	Electric Car Plan: Super-low night rates from 9pm until 7am daily. Available for your entire home's electricity needs. Rates are fixed for 3 years. Plus get a year's worth of free EV charging on us! (bill credit of up to \$300)	Auckland Wellington Christchurch	\$4.91 \$4.15 \$2.82
	Plug-in Vehicle Fuel Package 20% discount on your energy bill from 9pm – 7am, available on multiple properties, guaranteed discount for 2 years from signing up to offer, 12% PPD is included in these calculations.	Auckland Wellington Christchurch	\$5.75 \$5.82 \$5.63
Contact Energy	Everyday Bonus Fixed: Excellent night rates, no fixed term, check if the matching day-time kWh rate will affect your overall bill.	Auckland Wellington Christchurch	\$5.57 \$4.60 \$3.28
Ecotricity	Low Solar: Low Usage plan for EVs & can buy back solar energy, no fixed term	Auckland Wellington Christchurch	\$7.52 \$5.93 \$5.85
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	\$6.82 \$6.86 \$6.71
Flick Electric	Wholesale rates plus their Flick Fee: No fixed term, EV rate in Wellington. Calculated using an average spot price of 5.7c per kWh.	Auckland Wellington Christchurch	\$5.80 # \$5.75 # \$3.46 #
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	\$6.81 \$4.23 \$3.73
Paua to the People	Cheap As Plan with EV night rates: No fixed term. Calculated using an average spot price of 5.7c per kWh	Wellington	\$4.42 #

*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 may have higher costs and could increase your overall bill. Flick Electric in Christchurch has higher daytime rates in Winter due to variable pricing from the lines company. The rates we have used above are calculated each month using a low user cost, overnight rates, includes 10% charging loss, 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. 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 current or future prices.

GVI CONTINUES EV SUCCESS

Genuine Vehicle Group's **Hayden Johnston** has been prominent in his work around electric vehicles, and as managing director of the Group, he is leading one of the more significant and influential import retail operations. **Genuine Vehicle Imports (GVI) has three locations, the Penrose branch for sales, an Ellerslie workshop, and Tauranga sales.**

There was another site, in Wellington, but the loss of a manager and lack of available space means that project is currently in hiatus.

"We opened our doors and just started selling cars, we sold 30 cars in our first month and did that fairly regularly, and we did well until space became a factor. We had room for 15 cars, but we needed a bit of diversity. It was electric-only, and we started struggling when everyone else jumped into the market."

Selling electric vehicles is rapidly becoming something that GVI is shifting towards, Johnston is driving the change with dad **Peter "PJ" Johnston's** support. PJ was a little wary as it was uncharted territories at the time.

"He was excited by the technology,"

Johnston says. "He was keen, so I had his support."

Selling EVs allowed Johnston to put his own spin on the company, and GVI Electric is its own standalone brand. Johnston says they can still offer that old-fashioned value and knowledge selling EVs.

"The vehicles were priced higher, there were less available, required a huge amount of knowledge to be able to sell them and that's what we could offer people, so that's when we established ourselves as the specialists."

We're confident in saying we were the first to offer the charging cable included in the price. We packaged up the value, along with our expertise.

"Now, it is a race to the bottom like a lot of these guys. They've seen the Leaf as another vehicle to put profit on and offer cheaply."

We are competing with that.

"Our sales are still strong. Our market shares are still strong. There are still people that want to buy from specialists."

With EVs rapidly becoming a significant player in the market, Johnston says other dealers should not try to follow



the "high volume cheapest possible model buying and selling tactic with EVs". "It's not like Mazda Demios and Honda Fits where you can buy 200 of them, and you might get two of them that aren't good. You buy 200 cheap Leafs, and you're going to be in pain."

Johnston says it's dangerous if you don't know what you're doing. Also dangerous, he suggests, is the government's Clean Car plans.

"It'll destroy the value of vehicles already in the market that haven't received a subsidy. It will impact on auction prices in Japan. Ultimately, this is going to feedback to the seller in Japan benefiting. Everybody else is going to get shafted all day long." ■



Hayden Johnston



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VINZ PUSHING INDEPENDENCE IN NEW CAMPAIGN

Using an independent testing station is a safe option for vehicle inspections - that is the message of #MakingDrivingSafer, a strong new campaign by Vehicle Inspection New Zealand. **VINZ has been a strong supporter of electric vehicles since 2016 when it launched specific safety checks for battery and hybrid electric vehicles.**

VINZ acting chief executive **Sean Stevens** notes the recent media articles faced by the NZ Transport Agency

many garages and inspectors around the country have provided some insight into the state of some inspecting facilities," Stevens says.

"This has led to an interest from customers in independent testing, where the result is a safer vehicle and is not biased towards a realising profit elsewhere as part of a repair process." Stevens says the review of NZTA cases show that inspections carried out by many repairers are deficient and leave road users at risk. "NZTA's own media page



regulatory standards," he says. **"Their primary interest is in vehicle repair, and inspections are a side dish on the menu. For us they're not just the main course, they're our sole interest."**

To help people better understand what a safer vehicle looks like and how independent testing can making driving safer, VINZ's #MDS campaign shares stories based on the experiences and expertise of its staff.

For example, in one story Hamilton-based senior vehicle inspector, **Gary Silverwood**, explains why safety is personal to him - his mother was killed in a car accident.

Today, he assists the Police Serious Crash Unit with its vehicle inspections.

In another, VINZ staff explain how efficient processes and qualified independent inspectors help differentiate VINZ testing stations from other forms of vehicle testing. Modern technologies and more thorough procedures mean more reliable inspection outcomes and reduced waiting times.

As they are only inspecting vehicles, VINZ staff also have more scope to focus on keeping themselves up to date with current regulation, something assisted by a newly-appointed learning and development specialist. ■



provided some of the impetus to the #MDS campaign. "NZTA's investigations and subsequent suspensions of

documents numerous cases of repairers who have shown they cannot provide an inspection service that meets

Thinking EV?

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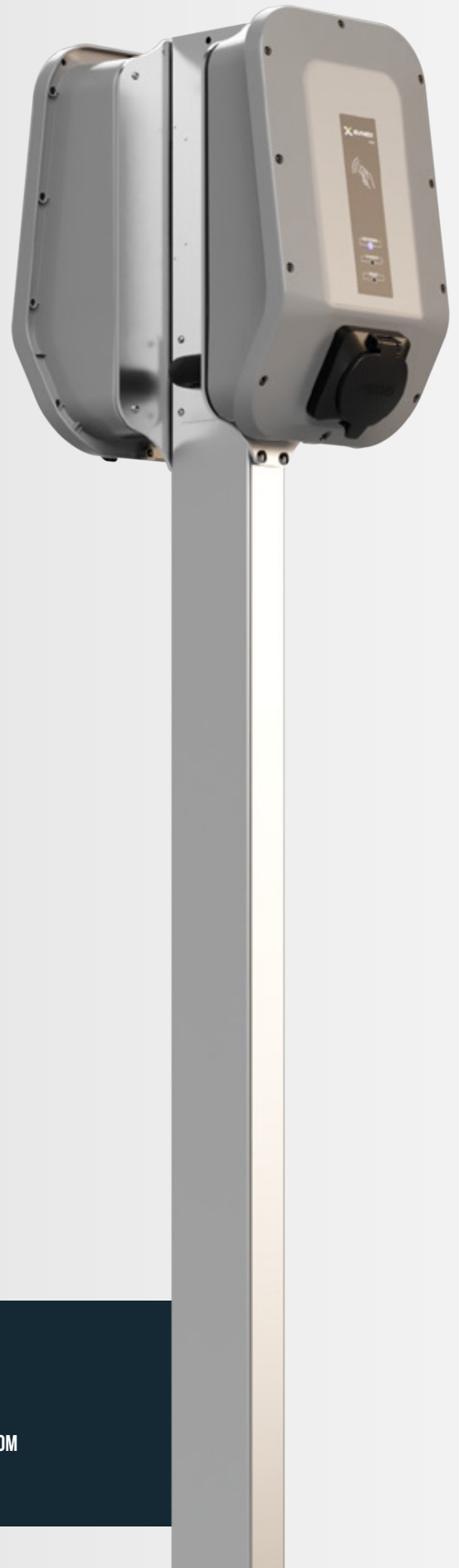
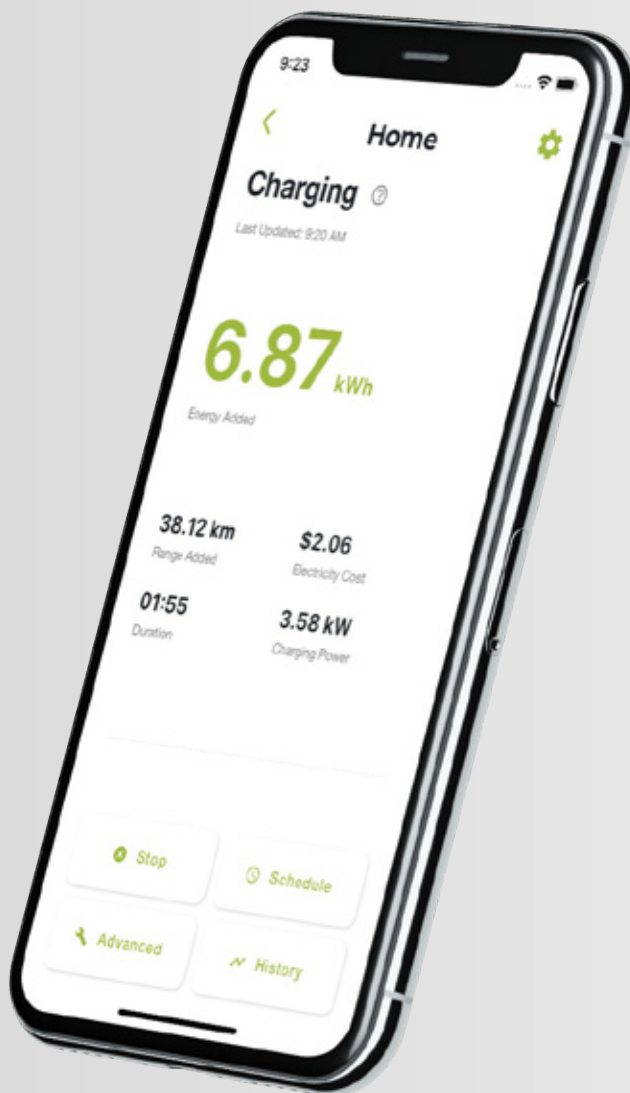
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RACING INTO THE FUTURE WITH THE ABB FIA FORMULA E CHAMPIONSHIP

Story courtesy ABB Review

The ABB FIA Formula E Championship is a versatile platform for testing and demonstrating e-mobility electrification and digitalisation technologies. This annual event has 22 drivers racing in advanced electric race cars with the championship running since Beijing in 2014 and title-partnered by ABB since January 2018.

The sound of silence

Perhaps the most notable aspect of ABB Formula E is the lack of noise. Since its inception, ABB Formula E has taken a radically different approach by adopting battery-powered cars driven by high-efficiency electric powertrains that use some of the world's most advanced e-mobility technology driving on city-centre racetracks around the globe.

From strength to strength

In under five years, ABB Formula E has blossomed from a start-up into a sporting property of such relevance that major car manufacturers are keen to flaunt their e-mobility credentials.

Already the likes of Audi, BMW, Nissan and Jaguar have leading teams, soon to be joined by Porsche and Mercedes-Benz.

The championship is flourishing because of its relevance in helping meet concerns about sustainability, energy efficiency, pollution and urban congestion.

Putting the 'E' into ABB Formula E

Each of the 11 two-car, two-driver, teams

competes with their own variant of the same basic machine - an open-cockpit single-seater built around an impact-resistant and highly protective carbon-fibre monocoque which cocoons the driver.

Better batteries

The cars' batteries are built and supplied by McLaren Applied Technologies (MAT) – a sister company of the McLaren racing team. The battery's increased capacity and efficiency allows ABB Formula E cars to complete a full race distance on a single charge. Over the first four seasons of racing, technological limitations meant that drivers would drive half the race in one car then swap to an identical machine with a full battery.

This drew attention to a specific consumer hesitancy that has hindered widespread EV adoption - range anxiety. The Gen2 car's bigger battery pack counters that concern, however, thanks to a 95% energy increase for a 20% weight gain.

MAT's Gen2 battery pack was developed mainly for temperature management. Its internal lithium cells are highly sensitive to temperature. Too cool and efficiency is not optimised, too hot and output life suffers.

Technology test platform

ABB Formula E provides an ideal rigorous environment in which companies can put their new technology through its paces.

All cars incorporate regenerative braking systems that harvest significant energy. Each car's "regen balance" was controlled by the driver, but electronic control introduced for season five enhanced the process.

This is the kind of sophisticated



The ABB Formula E championship.
Photos: Marc de Mattia/ DPPI



Kiwi Simon Evans in the Jaguar I-Pace e-Trophy

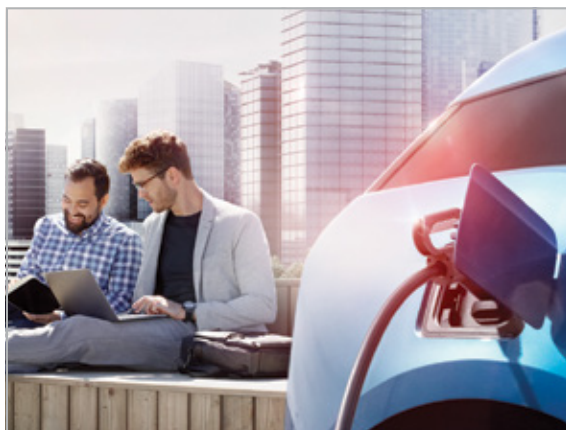
energy management technology that is invaluable to car manufacturers in developing class-leading road models.

Taking charge

ABB brought its technical expertise to the Jaguar I-Pace eTrophy series that supports ABB Formula E.

The race-prepared version is powered at the trackside by custom-made variants of ABB's Terra 53 DC charger. To meet the demands for a charger that could be both mobile at racetracks and easily transported between them, ABB commissioned a team of its engineers to reconfigure a standard Terra unit into a smaller package, with wheels, for easy freighting and maneuverability.

Season six starts on November 22 and 23 with the Diriyah E-Prix in Saudi Arabia and ends in London on July 25 and 26 next year. ■



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DUNEDIN'S EV MYTH BUSTER

Pam McKinlay is a driving force behind the Dunedin EV Owners' Group and organises events for Drive Electric Week and the Leading the Charge EV road trip annually.

She loves "sharing the EV grin" and seeing the reaction of first-time EV drivers, while also helping with EV "myth busting".

"Many questions are the wrong ones," she says. "For example - how long do the batteries last? A lot of people have a mindset about AA batteries that you throw out when they go flat. I start by getting people to ask a question that makes sense for me to answer. Regarding range - range is what it is and you pay for

what you get. Price point is what people will be able to afford and that will be the range they have to consider."

Most interactions with people are very positive as they are genuinely interested in a discussion about the pros and cons of owning an EV, she says.

McKinlay shares her EV passion with husband **Tom** and many other EV advocates around the country.

Her EV work includes answering many questions in person, on the phone, through Facebook and other social media, at EV owners' meetings and anywhere else EVs are part of the transport mix.

She also enjoys meeting other people committed to positive change, such as Californian EV campaigner and regular Leading the Charge visitor **Chelsea Sexton** along with "EV legend" **Dee West**.

Support from other earlier adopters around the country, including **Russel Watson** and Dunedin EV Owners' Group co-coordinator **Alan Wilden** are among her highlights too.

Following the first annual EV road trip from Cape Reinga to Bluff in early 2015, organised by the Better NZ Trust and originally arranged by trustees **Carl Barlev**, **Steve West** and friends to prove EVs could handle long distances.

McKinlay and friends drove out to meet the second Leading the Charge road trip in April 2016 and she helped arrange video coverage.

"Climate change was the factor that spurred us to commit to buying an EV," McKinlay says. "Transport was the biggest chunk of our household emissions.

"We needed to know if EVs would work for a busy family [they do] and to show people that if we could do it, then other people in our situation could do it also." McKinlay says the EV switch was a leap of faith.

"We had heard about electric vehicles from overseas reports. We got into EVs in 2015. Auto Court had an EV in their

showroom for a while and we went and had a look and hummed and harred as most people do over a major purchase, and did the EV101 research on range anxiety and all the rest of the usual EV questions.

"Then we looked at doing an EV conversion through the Valley Community Workspace [home of the Mercury Energy Fairland conversions among others] but decided to go with a second-hand off the shelf number.

At that time there weren't really any dealers with EVs on the floor except a lines company in Alexandra which had started EV Imports.

"So that's where we headed to try one out and left with an order for one."

The McKinlays have a 24kWh Nissan Leaf which three people in the family drive, saving about \$3600 annually in fuel as it's their only car.

Nearly all their EV charging

is done at home, usually overnight.

Sometimes the family uses ChargeNet NZ fast chargers when out and about, especially on longer trips out of town or between the airport.

The cost of EV charging at home is around \$12 a week, McKinlay says. Rapid charging costs can vary from \$14 a month to \$114 per month, depending on the trips.

McKinlay has since been involved in organising major Dunedin area events for Drive Electric Week; the Dunedin pit stop for the Leading the Charge road trip; Tech Week; NZ Science Festival; and smaller local events

She often points enquirers toward resources held by the Better NZ Trust, the Energy Efficiency and Conservation Authority (EECA) and others.

To counter an occasional intractable view that EVs are rubbish – which McKinlay says is based on misinformation – she often takes a 40c petrol discount voucher out of her purse and offers it to the sceptic, adding: "I haven't got any use for this, would you like it?"

"The light flicks in their eye as they struggle with the desire for that voucher and the idea that to accept the voucher is a form of concession in the discussion."

McKinlay says many people say their next car will be an EV.

"I think we will see EV car sharing, and nearly all remaining private cars being powered by BEV or PHEV." ■



Pam McKinlay



Pam McKinlay, centre, with Dee West, left, and Chelsea Sexton on a Leading the Charge Dunedin stop



McKinlay in Neville Digby's 1904 Baker Electric, originally driven by Helen Herron, wife of the 17th US president William Howard Taft

EVS HEAD FOR 20,000 MARK

EV registrations now total 17,562 – well past the 16,000 target for 2019 and likely to close in on the 20,000 mark by January 2020.

Next year, the goal is to achieve 32,000 EV registrations with the aim of 64,000 EVs by the end of 2021.

New light pure electrics are up 127 in October, from 3402 in September to 3529 – that category surging in September when **Tesla Model 3** deliveries made up the bulk of the 500 increase on August.

The **Model 3** also helped push the September total of EVs up by nearly 1000 to 17,026 – the latest Ministry of Transport figures showing October's 17,562 is back to a more conservative 536 increase.

The used light pure electric category

remains at the top of the EV registration table, recording a 272 increase in registrations with 9716 for October compared with 9444 in September,

New light plug-in hybrids (PHEVs) increased by

79 (2659 to 2738), and used light PHEVs rose 51 (1365 to 1416).

Heavy EVs went up by five (158 to 163).

Auckland remains at the head of the regional pack with 7978 light EVs registered by the November

1 MoT update, up 235 on September's 7743 – which was 452 more than the August figure mainly because of the Model 3 deliveries.

Next is Canterbury with 2547

light EV registrations in October – 82 up on September's 2465, with

Wellington looking to close the gap on 2252 registrations – a 69 increase on the previous month's 2183.

November is shaping up the busiest month of the year for **Martin Harwood** of EV sellers Harwood Cars in Auckland.

He's been "flat out" with sales and enquiries. "I'm very happy."

Harwood reckons the Government should just let the industry get on with it as he believes the 64,000 EV target can now be met without its intervention.

Henry Schmidt at Autolink Cars in Auckland thinks New Zealand might struggle to reach the 64,000 goals, although he points out the Government no longer appears to have a set target in mind as

the benchmark was set by the previous National Government.

While EVs continue to sell well, trade ins of internal combustion engine (ICE) cars – especially those with large engines and usually of European make – are not finding the homes they used to.

"Small engined ICE cars are still OK, but some people find it difficult to accept they will not get big money back for a trade in with a larger engine vehicle," Schmidt says.

He says that would indicate reduced demand for bigger engine vehicles and points to a situation where resale of ICE vehicles will decline as EVs become more popular.

Globally, ICE vehicle sales for both new and used are starting to decline as EVs begin to take their place, Schmidt believes.

He sees the tipping point coming soon. Auckland City Electric Vehicles general manager **Hadley Hargadon** says their EV sales have increased this year and new people are calling who perhaps would not have considered an EV last year.

He says ACEV is seeking a steady rise in EV popularity and sales, which an early introduction of the Clean Car plan's proposed feebate scheme would assist. "I don't think we will reach the (64,000 EV) target without the feebate scheme

Continued on page 29



Hadley Hargadon

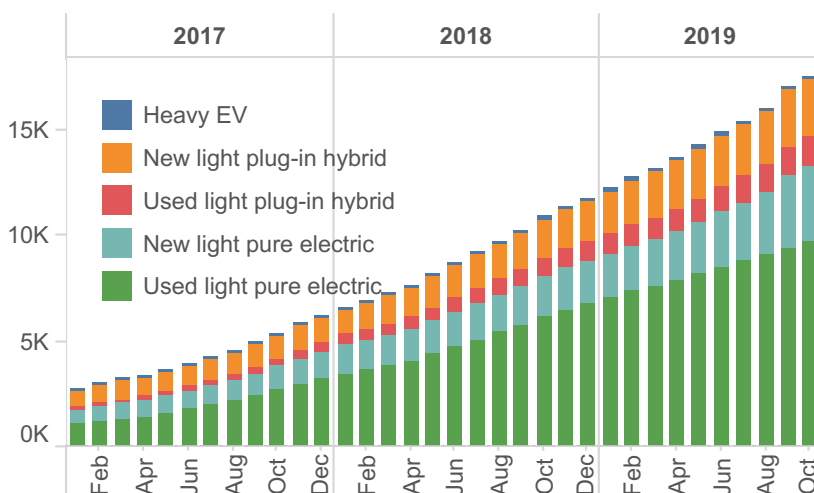


Martin Harwood



Henry Schmidt

EV fleet size



	2013	2014	2015	2016	2017	2018	2019
Jan	194	235	595	1,117	2,758	6,630	12,200
Feb	194	246	625	1,153	2,986	6,918	12,725
Mar	202	286	683	1,226	3,193	7,255	13,186
Apr	202	329	716	1,319	3,377	7,632	13,659
May	204	367	745	1,405	3,661	8,200	14,229
Jun	207	391	796	1,599	3,969	8,707	14,867
Jul	208	418	844	1,751	4,258	9,249	15,421
Aug	210	442	873	1,875	4,593	9,759	16,031
Sep	213	467	917	1,989	4,926	10,255	17,026
Oct	221	494	957	2,153	5,361	10,891	17,562
Nov	226	527	1,002	2,374	5,840	11,380	
Dec	230	554	1,056	2,555	6,216	11,752	

TESLA MODEL 3 TSUNAMI EBBS

The Tesla tidal wave abated in October, although the **Model 3** remains top of the new EV list. While the **Model 3** accounted for most of a nearly a 500 rise in the Ministry of Transport's new light pure electric registration category in September, but only contributed to a 127 increase in October, when the segment went from 3402 to 3529.



Tesla still tops the new EV table

The **Model 3** managed to top the EV table though with 82 sales in October putting it way ahead of its nearest EV rivals, **Hyundai's Ioniq** (15) and the new **Nissan Leaf** (13).

So much for speculation that October might be another big month for Model 3 deliveries here with most back orders filled but new orders still expected. That prompted Tesla Model 3 NZ Owners group member **Mark Zeman** to comment on Facebook: "Stink, looks like the Model 3 bump in sales/deliveries only lasted a month?" He was hoping to see another 300 or so registered.

It seems like a return to normal with the used light pure electric category resuming the mantle, recording a 272 increase

in registrations with 9716 for October compared with 9444 in September. Meanwhile, the **Tesla Model 3** also dominates the year-to-date (YTD) sales category with 501.

That's followed in order by the **Hyundai Kona** (325 YTD but only two in October), the **Hyundai Ioniq** (140 YTD), the **Volkswagen e-Golf** (104 YTD, five for the month), and the **Audi e-tron** (83 YTD and nine for October).

The **Jaguar I-Pace** and the **Tesla Model X** are level pegging YTD on 78 with **I-Pace** at nine for October compared with six for the **Model X**.

Guess which make and model leads the plug-in petrol hybrid category? Yes, still the **Mitsubishi Outlander PHEV** with 33 sales for October and 405 YTD.

Further back are the **Mini Countryman PHEV** with 29 sales for the month and 112 YTD and the **Toyota Prius** on 20 and 106 respectively.

And the **Nissan Leaf** continues its table-topping performance in the second-hand import category with 272 sales for October and 2823 YTD.

The closest is this category is the **BMW i3** with four sales for October and 25 YTD.

It's again the **Mitsubishi Outlander PHEV** in the second-hand plug-in category, recording 25 sales for the month and 324 YTD.

The **Toyota Prius** is next on 19 and 126

respectively, followed by the **BMW i3** on nine and 67.

Trade Me Motors head **Alan Clark** says October EV listings were up 4% on September while watchlists dipped slightly, falling 5% on the month prior. ■

NEW MAKES AND MODELS 2019

MAKE AND MODEL	OCT '19	TOTAL 2019
ELECTRIC		
TESLA MODEL 3	82	501
HYUNDAI IONIQ	15	140
NISSAN LEAF	13	67
JAGUAR I-PACE	9	78
AUDI E-TRON	9	83
TESLA MODEL X	6	78
VOLKSWAGEN GOLF	5	104
BMW I	4	40
HYUNDAI KONA	2	325
IVECO ACCO	2	2
KIA NIRO	1	66
RENAULT ZOE	1	4
TESLA MODEL S	1	49
LDV EV80	1	14
ALEXANDER DENNIS ENVIRO 200	0	5
RENAULT KANGOO	0	5
FACTORY BUILT YUTONG	0	1
FACTORY BUILT EV10	0	1
FUSO ECANTER	0	1
Total (Autobase)	151	1564

PLUG-IN HYBRID

MITSUBISHI OUTLANDER	33	405
MINI COUNTRYMAN	29	112
TOYOTA PRIUS	20	106
LAND ROVER RANGE ROVER SPORT	5	17
PORSCHE CAYENNE	4	21
HYUNDAI IONIQ	3	52
BMW I	2	24
AUDI A3	2	41
BMW 3 SERIES	1	3
LAND ROVER RANGE ROVER	1	4
PORSCHE PANAMERA	1	4
VOLVO XC60	1	15
VOLVO XC90	1	9
KIA NIRO	0	8
BMW 2 SERIES	0	4
BMW I	0	2
BMW 5 SERIES	0	1
BMW X5	0	1
MERCEDES-BENZ GLE	0	1
MERCEDES-BENZ S-CLASS	0	1
Total (Autobase)	103	831

USED IMPORTS SEPTEMBER 2019

MAKE	MODEL	OCT '19	YTD '19
BEV - BATTERY ELECTRIC VEHICLE			
NISSAN	LEAF	272	2823
BMW	I3	4	25
MITSUBISHI	I-MIEV	2	10
MITSUBISHI	MINICAB	2	5
TESLA	MODEL S	2	9
JAGUAR	I-PACE	1	4
	OTHER	4	64
Total		287	2940
PLUG IN HYBRID			
MITSUBISHI	OUTLANDER	25	324
TOYOTA	PRIUS	19	126
BMW	I3	9	67
MERCEDES-BENZ	C350	1	7
VOLKSWAGEN	GOLF	1	12
	OTHER		28
Total		55	564

Continued from page 28

being introduced earlier," Hargadon says.

Supply of New Zealand new EVs has been limited in the past, and Hargadon says unless this changes he can't see it helping EV uptake.

Asked whether other incentives like special EV lanes on motorway access would help, Hargadon says feedback from their North Shore-based clients showed special lanes were a major driving factor to purchasing an EV.

"I know they would all love to see these back again." ■

PLUGGED IN!

Stay connected to the EV community with useful links below.

EECA	NZ government's EV information website https://www.electricvehicles.govt.nz/
Drive Electric	Advocacy group for the EV industry https://driveelectric.org.nz/
EV Association of Aotearoa	EV owners association https://www.evaa.co.nz
Charge Net	Nationwide EV charging network https://charge.net.nz/
Electric Heaven	NZ electric car guide http://www.electriceaven.nz/
NZ EV Podcast	Monthly podcast about EVs https://www.podcasts.nz/nz-ev-podcast/
Flip the Fleet	EV Community data sharing project https://flipthefleet.org/
NZ Electric Bikes Review	Independent electric bike reviews https://electricbikesnz.com/

EV OWNERS FACEBOOK GROUPS – ONLINE CHAT GROUP FOR THE NZ EV COMMUNITY

Nationwide

NZ EV Owners	https://www.facebook.com/groupsNZEVOwners
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Regional

Auckland EV Owners	https://www.facebook.com/groups/291373964545996/
Wellington EV Owners	https://www.facebook.com/groups/WellyEV/
Waikato EV Owners	https://www.facebook.com/groups/WaikatoEV/
Dunedin EV Group	https://www.facebook.com/groups/403816650002889/
Christchurch EV Group	https://www.facebook.com/groups/ChristchurchEVGroup/
EV Owners - Manawatu	https://www.facebook.com/groups/1847252468838484/
Nelson Tasman EV Owners	https://www.facebook.com/groups/365895557107117/
Northland EV Group	https://www.facebook.com/groups/northlandEVgroup/
Bay of Plenty EV Owners	https://www.facebook.com/groups/BayOfPlentyEVOwners/
Central Otago Lakes EV Owners	https://www.facebook.com/groups/521978908249518/
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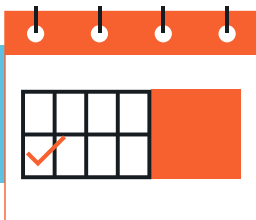
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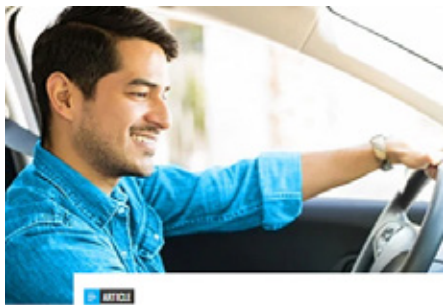
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HIGHLIGHTS OF THE MONTH



CAUGHT IN THE SLOW LANE

Australia stuck in the EV slow lane

More education about EVs, increasing awareness of them, reducing EV pricing and better charging facilities will “kick the automotive industry into gear”, a recent Nielsen survey in Australia shows.

The Nielsen report Caught in the Slow Lane, Australian Adoption of Electric Vehicles outlines the main barriers to EV uptake which is well below most similar markets in Europe, Asia and the US.

“While there is a strong desire among Australians to ‘do their part’ to improve the environment and reduce their carbon footprint, their willingness to change habits and buy electric vehicles is stalled,” Nielsen automotive lead **Michael Brown** and Nielsen readership lead **Adam Axiak** say in their report.

Lawsuit in Tesla Model S death in the US

Omar Awan died in a burning Tesla Model S in the US because its doors wouldn’t open, a lawsuit alleges.

Awan lost control of his Tesla in South Florida and hit a tree in February, his family’s lawyers saying it wasn’t the crash that killed him though.

After the crash, the Tesla’s lithium ion battery caught fire, according to the wrongful-death lawsuit filed in Broward County. Smoke, then flames, filled the car, suffocating Awan and burning him.

“The fire engulfed the car and burned Dr Awan beyond recognition — all because the Model S has inaccessible door handles, no other way to open the doors, and an unreasonably dangerous fire risk,” the complaint reads.

Big four back Trump on California emission challenge

General Motors, Toyota, Hyundai and Fiat Chrysler Automobiles (FCA) and other major vehicle manufacturers appear to support the Trump administration’s bid to stop California’s fuel efficiency and zero-emission standards.

All announced this week they are filing to intervene on behalf of the Trump administration after California and 22 other states sued in September to undo the administration’s move to block California from setting such rules.

Reports suggest the latest move could split the automotive manufacturing industry.

New wind farm could power 210,000 EVs

Mercury’s yellow stood out as energy minister **Dr Megan Woods** and others used yellow spades to mark the construction start at Mercury’s Turitea wind farm in the Tararua Ranges near Palmerston North. The 119MW Turitea wind farm will start sending power to the national grid at the end of next year, producing enough renewable electricity for 210,000 EVs (about 470GWh per annum on average). The ceremony on October 29 celebrated the start on foundations for the first 33 of

60 consented wind turbines at Turitea. Mercury chief executive **Fraser Whineray** says the Turitea wind farm will contribute to New Zealand’s sustainable, low emissions future by making more renewable electricity available for homes, businesses and electric vehicles around the country.

More EV suppliers for government agencies

Two electric vehicle suppliers have been added to the All-of-Government motor vehicles contract.

New Zealand Government Procurement welcomes new suppliers Motorcorp Distributors Limited (representing Jaguar and Land Rover) and Nissan New Zealand Limited.

“Proud to announce the Nissan Leaf is the newest addition to the NZ All-of-Government list’s electric vehicle category,” Nissan NZ corporate business manager **Thomas Hill** says.

“The world’s number one selling EV is now an incredible value proposition for all government entities.”

This addition gives government agencies more choice towards an emissions-free fleet.

There are now 13 vehicle suppliers on the contract, nine of those able to provide EVs for purchase or lease. ■



Marking the construction start

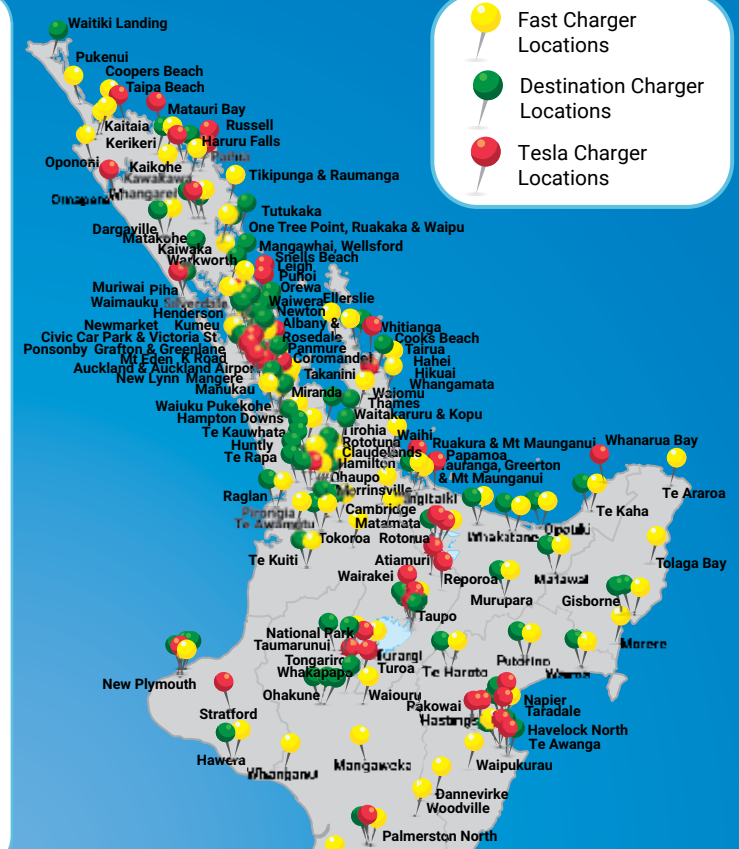
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Fast / Super Charger Locations – North Island

Waitiki Landing 9049 Far N Rd, Te Hapua 0484	Te Kaha Te Kaha Bch Res, 3 Hotel Rd
Pukenui Houhora Fishing Club, 4126 Far Nth Rd	Te Araroa 22 Rata St (25 kWh)
Coopers Beach Four Square, 9 Coopers Dr	Rotorua 1134 Haupapa St
Kaitaia Te Ahu, 28 South Rd	Tokoroa New World, 72 Bridge St
Kaitaia Pak'nSave, 111 North Rd	Matawai 6522 Matawai Rd
Kerikeri 1 Butler Rd	Tolaga Bay 43 Cook St (25kWh charger)
Opononi Four Square, 29 SH12	Te Kuiti New World, 39 Rora St
Kaikohe Library Carpark, 14 Marino Pl	Murupara Pine Drive Car Park, Pine Dr
Kawakawa 4 State Highway 1	Taupo Tesla, 1 Kaimanawa St
Tikipunga McDonalds, 130 Tauroa St	Gisborne 21 Gladstone Rd
Whangarei 11 Alexander St	Moree Hot Pools, 3968 SH2 (25 kWh)
Raumanga Totara St Park, 113 Totara St	Rangitiki Lodge Café, 3281 SH5
Dargaville 1 Kaiwaka-Mangawhai Rd	Turangi 1 Pihanga Rd
Kaiwaka New World, 6 Percy St	New Plymouth 66 Courtenay St
Warkworth BP, 67 Auckland Rd (SH1)	Opunake Business Centre, 23 Napier St
Warkworth 17 Hibiscus Coast Hwy	Wairoa 75 Queen St
Silverdale The Warehouse, 186 Don	Putorino 5466 State Highway 2
Albany McKinnon Dr	National Park Four Square, 4354 SH4
Rosedale New World, 110 Main Rd	Ohakune New World, 30 Ayr St
Kumeu BP, 224 Lincoln Rd	Taihape New World, 12 Huia St
Henderson Vector, 21 Hobson St	Te Haroto Mc Vicar Rd, 4237 SH5
Akld CBD Z Station, 150 Beach Rd	Waiouru Cnr SH1 & Hassett Dr
Beach Rd Tesla, 501 Karangahape Rd	Hawera Pak'nSave, 54 Princes St
K Road 1 Gillies Ave	Napier 206 Dickens St
Newmarket McDonald's, 320 Gt Sth Rd	Hastings 100 Queen St W
Greenlane BP, 322 Pakuranga Rd	Mangaweka Papa Cliff Café, 2 Koranui St
Pakuranga Z Station, 550 Te Irirangi Dr	Whanganui Pak'nSave, 167 Glasgow St
Botany Downs Shopping Ctr, George Bolt Mem. Dr	Waipukurau 24B Russell St
Akld Airport Z Skyway, George Bolt Mem. Dr	Dannevirke 438 Gordon St
Takanini 30 Walters Rd	Woodville i-SITE, 43 Vogel St
Takanini Pak'nSave, 345 Great South Road	Palmerston Nth i-SITE, 126 The Square
Coromandel 4 Woolams Rd	Palmerston Nth Tesla, 365 Ferguson St
Whitianga 4 Lee St	Levin New World, 21 Bath St
Tairua Carpark, 6 Tokoroa Rd	Otaki New World, 155-163 Main Hwy
Pukekohe King Street Carpark, 56 King St	Paraparaumu Kapiti Pak'nSave, 132 Rimu Rd
Pukekohe Counties Power, 14 Glasgow Rd	Raumati 15 Raumati Rd, Paraparaumu
	Paekakariki 70 Wellington Rd, Paekakariki
	Masterton Queen Elizabeth Park, 3 Dixon St
	Porirua 2 Serlby Pl
	Featherston SuperValue, 42 Fitzherbert St
	Upper Hutt 24 Queen St
	Lower Hutt Dowse Art Museum, 1 Stevens Gr
	Wellington Grey St Parking
	Petone Z Station, 60 Hutt Rd
	Te Aro Z Station, 174 Vivian St
	Te Aro Barnett St Carpark, 11 Barnett St
	Te Aro Inglewood Parking, 68 Inglewood Pl

- Fast Charger Locations
- Destination Charger Locations
- Tesla Charger Locations



Fast / Super Charger Locations – South Island

Takaka 16 Willow St	Amberley Countdown, 123 Carters Rd
Havelock Four Square, 68 Main Rd	Rangiora Pak'nSave, 2 Southbrook Rd
Motueka New World, 271 High St	Northwood New World, 2 Moulder Ave
Karamea Four Square, 103 Bridge St	Harewood Raeaward Fresh, 800 Harewood Rd
Nelson i-SITE, 81 Trafalgar St	Addington Z Station, 40 Moorhouse Ave
Nelson New World, 73 Vanguard St	Halswell New World, 9 Nicholls Rd
Richmond Library, 11 Mcglashen Ave	Christchurch Tesla, The George Hotel, 50 Park Tce
Spring Creek 2226 SH1, Blenheim 7202	Rolliston New World, 90 Rolleston Dr
Blenheim Pak'nSave, Springlands	Lincoln New World, 77 Gerald St
Ward Flaxbourne Café, 7326 SH 1	Little River 4235A Christchurch Akaroa Rd
Westport New World, 244 Palmerston St	Rakaia 41 Bridge St
Reefton Four Square (25 kWh) 47 Broadway	Ashburton 109 West St
Greymouth 13 Tarapuhi Street	Tekapo Lake Tekapo Tavern, SH8
Kaikoura 51 West End	Fairlie Opp. 53 Main St
Kaikoura New World, 124 Beach Road	Geraldine Cox St Carpark, 14 Geraldine-Fairlie Hwy
Hokitika New World, 116 Revell St	Temuka New World, 185 King St
Culverden 27A Mountain View Rd	Twizel Events Ctr, 61 McKenzie Dr
	Timaru 26A North St
	Omarama 2 Sutherland Rd
	Omarama Tesla, Hot Tubs, 29 Omarama Ave
	Kurou Wynyard St
	Wanaka 42 Ardmore St
	Queenstown Tesla, Remarkables Park Town
	Frankton Pak'nSave, 302 Hawthorn Dr
	Cromwell i-SITE, 2 The Mall
	Waimate 125 Queen Street
	Oamaru Eden St Carpark, 3 Eden St
	Ranfurly 31 Charlemont St E
	Alexandra 9 Thompson St, Bridge Hill
	Hampden 33 Lincoln St
	Nth Dunedin University of Otago, 71 St David St
	Dunedin Filleul St Carpark, 193 Moray Pl
	Mosgiel New World, 10 Hartstonge Ave
	Milton Four Square, 207 Union St
	Roxborough 22 Jedburgh St
	Lumsden Four Square, 14 Diana St
	Lawrence Four Square, 19 Ross Pl
	Winton New World, 293 Great North Rd
	Gore New World, 8 Irik St
	Balclutha 23 Charlotte St
	Invercargill 116 Esk St