



EVs avoid charges – for now

Electric vehicles are winners – especially when it comes to avoiding any regional fuel, road user charges and the like.

Other special exemptions are designed to encourage EV uptake, such as proposed EV use of special lanes with a year's trial in Auckland which started in September.

Great for EV owners and drivers – but who's going to pay for roading and related infrastructure, especially when EV numbers get up there?

It's a question that will need answering soon, experts in the automotive industry say.

"If electric vehicle use and vehicle efficiency continues to grow at the current rate (100% growth in electric vehicles per year), it won't be long before fuel consumption drops and the revenue from fuel taxes diminishes," Abley Transportation Consultants say.

"At that point, the conversation about how to generate revenue to design, build, operate and maintain infrastructure in the future will become critical to the country as a whole," principal transportation planner **Jo Draper** says.

ERoad chief executive officer **Steven**



Steven Newman



Mark Gilbert

Newman agrees.

He's well versed on road user charges (RUC) and the like, and believes New Zealand's RUC system probably holds the key.

Anyone using New Zealand's roads contributes towards their upkeep, the NZ Transport Agency says.

Most road users pay levies when they buy fuel.

Others, such as drivers/owners of light diesel vehicles and heavy vehicles like trucks pay through RUC.

At the moment EV owners pay none of that.

But – EVs are covered by the RUC system – which applies basically to anything that's not petrol. It's just that EVs are exempt until December 31, 2021,

Continued on page 5

Coventry Cars embraces electric

Wellington will have its first electric-hybrid only vehicle sales yard when Coventry Cars opens its dedicated site in Lower Hutt on December 1.

Hutt City mayor **Ray Wallace**, who's had an EV for more than three years, and Labour MP **Ginny Andersen** are among invited guests.

Coventry Cars has been selling vehicles for 23 years since it was founded by owner-director **Bruce Stewart**.

The dedicated EV yard will be on the larger of two sites facing each other across Railway Ave. It will be separated by barriers from the main car yard while still operating under the Coventry Cars banner.

Stewart expects to have around 40 EVs and hybrids on display at the opening, that's if the cars stop selling almost as fast as they're being brought in from Japan.

The vehicles are mainly Nissan Leafs (generation 1 to 2) and late-model, low-mileage hybrids such as the Toyota Prius, Corolla and Lexus.

"I believe in electric cars and our staff do as well," Stewart says. "Zero emissions is part of that."

Plug-in hybrids offer an option for customers before longer range

Continued on page 9

INSIDE

Artificial Intelligence – what's it do? 3
Back to the future in Gisborne 4
Leaf driver Uber happy 10
Holden may Bolt in 14



3



4



Drive your business forward with
provident insurance

Call Steve Owens now on 021 947 752

EVtalk

EVtalk Magazine is published by Auto Media Group
8/152 Quay Street, Limited.
P.O. Box 10 50 10,
Auckland City, 1030.
Ph. 09 309 2444.

EDITOR

Geoff Dobson
geoff@automediagroup.com.au
021 881 823

GROUP EDITOR AUTO TRADE TITLES

Scott Morgan
021 240 2402
scott@automediagroup.co.nz

BUSINESS MANAGER

Rachel Hadfield
021 778 745
rachel@automediagroup.co.nz

PUBLISHER

Vern Whitehead
021 831 153
vern@automediagroup.co.nz

MANAGING EDITOR

Richard Edwards
021 556 655
richard@automediagroup.co.nz

OPERATIONS MANAGER

Deborah Baxter
027 530 5016
deborah@automediagroup.co.nz

Auto Media Group Limited makes every endeavour to ensure information contained in this publication is accurate, however we are not liable for any losses or issues resulting from its use.

Printed by: Alpine Printers.

automedia
GROUP LIMITED

evtalk.co.nz **EVtalk**
evtalk.com.au **EVtalk**
autotalk.co.nz **autotalk**
autotalk.com.au **autotalk**
dieseltalk.co.nz **DIESELtalk**
dieseltalk.com.au **DIESELtalk**
wheeltalk.co.nz **wheeltalk**
identicar.co.nz **identicar**

EVtalk acknowledges the support of our foundation sponsors:



Getting your head around AI

AI – what is it and how does it affect my business?

Those are two questions Callaghan Innovation's **Jonathan Miller** is often asked.

It's his job to explain artificial intelligence (AI) and how it all works.

His expertise is at the interface between business and science and technology.

Although Miller's official title is national tech network manager, his role is really as a champion for several digital technologies, including "demystifying" AI.

"My job is to explain the technology and excite customers to try it. It's demystifying the experience for them."

Artificial intelligence is about computer systems with human-like intelligence.

The field is already having a big impact on the automotive industry. One aspect, autonomous systems, applies to self-drive vehicles and drones.

Most new or near new vehicles already have some form of autonomy, even if it's just cruise control.

Other forms of AI can involve machine learning, pattern recognition, robotics, language processing and more.

Miller's interests in the tech field include virtual and augmented reality (VR and AR). Those are being used now in training automotive students. An example is welding where a mask and wand simulate the task without anything being scorched.

"Ford is using VR in its prototypes, building 3D

computer generated models," Miller says.

Such a model can act rather like a flight simulator, helping sort issues and details before a vehicle is actually produced.

AR is already being used in motorcycle helmets. A

heads-up display and an app combine to provide the rider with a visual display in the helmet showing speed, navigational information and distance without the rider taking their eyes off the road.

It's billed as a smart and safer way to ride.

Miller believes AI, especially autonomous vehicles, will have "a huge impact" on society.

"It will change the way we live and work."

New services, some already being introduced, enable people to no longer own a vehicle but to ride-share or car-share with others in their area and probably do their work while travelling.

"Many new services will give people more work and leisure time, making roads safer," Miller says.

And high autonomy might not be far off, he says.

"Leading auto manufacturers are saying level four or five autonomy may be ready around 2020 to 2025.

"If that's the case, the first big improvement will be around urban mobility."

Miller says business models will also change.

"A survey of auto executives found about 59% think that by 2025 more than half of car owners will no longer want to own one."

That signals big changes, Miller says.

"I think we might see some hybrid solutions in terms of platooning (a leading vehicle directing following ones or 'slaves')."

Truck drivers, for instance, might still be needed in autonomous (and probably electric) trucks to handle the trickier side of getting vehicles from their base to the highway and later to their destinations.

But self-driving applications would probably work best on the highways, leaving the driver free to do other company related work through on-board communication systems.

Miller says the intelligent transport infrastructure here is well advanced, along with related autonomous developments, and cites as an example HMI Technologies' work in this field (**see EVtalk September magazine, P3 & 22**).

Driverless forklift technology was developed in New Zealand and is used in factories here.

"There's a lot of talent in New Zealand working on this sort of thing," Miller says.

Jobs will change but Miller believes that with autonomous vehicles and robotics, humans will still be needed to do the thinking.

"AI provides the tools to make jobs easier and lets us concentrate on the problem-solving."

People will need training and upskilling to perform new roles, especially as AI will create new employment directions.

New Zealand has the skills and technology, along with a good regulatory environment, to foster new developments, Miller says.

"The future looks really exciting." ■

Adapting to the future

Callaghan Innovation is a government agency that helps people adapt to and embrace new technology.

Named after physicist **Sir Paul Callaghan**, it provides customers with advice, expertise and access to funding to achieve that.

Chief executive **Vic Crone**, a former Auckland mayoral candidate, is warning business operators they need to adapt.

"In the next decade about half our jobs will disappear. We can either replace them with higher-value technology enabled jobs or stand by and watch our economy become ir-

relevant."

Businesses that succeed will be those prepared to disrupt themselves, Crone says.

"This is happening in industries all the time. Uber is working on self-piloting cars and drones to ensure it's near the front of the queue when autonomous ride-sharing takes over."

Each year Callaghan Innovation makes about \$140 million available through grants in co-funding situations to help with a wide variety of projects.

Visit www.callaghaninnovation.govt.nz for more information. ■



Jonathan Miller

Back to the future at Electric Village

Gisborne is reclaiming its pioneering role in emerging technologies.

It was one of the first New Zealand towns to adopt electric vehicles in about 1910.

That link features in the newly opened Electric Village, Tairāwhiti's community-focused energy hub.

A photo is displayed there of Gisborne mayor **William Douglas Lysnar** in an electric car with famous inventor **Thomas Edison** in 1910.

The village's "energy champion" **Katherine Evett** explains the connection.

"In 1909, Lysnar lobbied for major upgrades to the town. These included the widespread introduction of electric power, street improvements and a new tram system," she says.

"He travelled to London in 1910 to raise funds. On the way back, he stopped in America to meet Thomas Edison, inventor of the world's first commercial electric lightbulb and several EVs.

"Convinced that EVs were the way of



In 1910 then Gisborne mayor William Douglas Lysnar, right, tried an electric car with inventor Thomas Edison, pictured, in Detroit, United States. He brought one back to New Zealand. Photo courtesy Tairāwhiti Museum

the future, Lysnar brought a Brougham electric car back to Gisborne as a present for his wife.

"On Edison's advice, he also imported some electric trams. In 1913, Gisborne became the first town in the Southern Hemisphere to operate battery-driven electric trams."

Evetts says Lysnar understood the potential benefits of electric vehicles.

"He was more than 100 years ahead of his time but finally his vision is be-

coming possible."

Regional infrastructure company Eastland Group developed the Electric Village initiative and has committed to ensuring at least 75% of its own non-commercial vehicle fleet is electric by 2019.

The group operates lines company Eastland Network as well as Eastland Generation, Eastland Port and Gisborne Airport.

Group chief executive **Matt Todd** believes EVs will transform transport in Tairāwhiti (the Māori name for the Gisborne district).

"While EV uptake is still very low in this region, we expect it to increase significantly as people become

aware of the advantages and as we roll out the regionwide EV charging network."

Eastland Group recently received \$251,000 from the Government towards the installation of a fast-charging EV network that will connect the region to the rest of New Zealand.

Three 50kW fast-charging units will be installed at Wairoa, Putorino/Kotemaori and inland at Matawai, along with three 25kW units at Tolaga Bay, Te Araroa and Morere.

"Electric Village is our opportunity to talk to the community and find out their vision for the future, as well as share information on solar generation, batteries, electric bikes and cars and other potentially game-changing developments," Todd says.

Electric Village is a one-stop-shop for advice, exhibitions and discussions about the future of energy. People can also sign up to Flick Electric and charge their EVs there.

It's open 9am-4pm Monday to Friday at 37 Gladstone Rd, Gisborne.

Visit <http://www.eastland.nz/2017/08/09/powering-tairāwhiti-future/> for more information. ■



Gisborne's Electric Village is child's play for Louis Jacobs, 4.

EVs avoid charges – for now

Continued from page 1

for most, and until heavy EVs (electric trucks) reach 2% of the total fleet.

Before the change of government, National intended to have 64,000 EVs on New Zealand roads by the end of 2021.

Whether that will change has yet to be determined under the new Labour-led coalition, with possibly some policies around EVs expected just before Christmas or early next year.

At just over 5000 EVs here now, there's a long way to go in four years.

Newman says the conversation around how EVs contribute has yet to come, especially on the detail.

He believes the days of a fuel tax are numbered, and that the elements of electric power, autonomous vehicles, transportation as a service and connectivity combined will have a profound impact.

"All together it's kind of mind-blowing," he says. "Depending what order this all comes in we could get different outcomes. It's going to be fascinating to see what happens."

Newman says everything is already moving very fast, with

25 EV models now available in New Zealand, EV prices dropping and acceptance increasing.

As an example, Auckland-based Newman has a diesel car but says his next will be electric, especially after he recently sat in a neighbour's Tesla X.

"We're now at that tipping point."

Newman says ERoad deals with about 50,000 vehicles in service here, about 34,000 of them heavy vehicles. Already, two electric trucks are expected in New Zealand within the next year.

New technology may help provide other forms of tax, and provide ways of policing them, such as number plate recognition in the event a congestion tax is considered. Gantry cameras already work on toll roads.

Newman believes any system needs to be universal. In the United States, different taxes and rules apply in different states. So, drivers may wait until reaching a particular state to take advantage of any benefits around fuel, for instance.

California has a high adoption of EVs, and the debate around fuel tax and charges is also happening

there, Newman says.

A fuel tax may be unfair on those with lower incomes who cannot afford EVs or more modern fuel-efficient vehicles

Newman says RUC seems to offer the best and fairest system available, and has already proven cost effective.

Drive Electric chairman **Mark Gilbert** sees RUC as a strong possibility for EVs too. "We've been on record for some time saying the model (of revenue gathering for roading infrastructure) is broken."

While some EV hybrids have petrol power, overall they will be expected to contribute.

"Fuel efficiency has improved quite dramatically in the past decade. Vehicles are going further on a litre of fuel but are still using the roads like before, except perhaps more so now."

Gilbert believes the government and the various associated agencies need to start looking now at how EVs and other vehicles will pay for roading maintenance and infrastructure.

Drive Electric's already suggesting the new government investigate a fringe benefit tax (FBT) innovation

encouraging corporate up-take of EVs

It's proposed the "Switch" scheme would involve the incoming EV attracting the lower FBT rate of the outgoing fossil fuel vehicle.

FBT is lower on fossil fuel vehicles because they are much cheaper than EVs

"New EVs cost between \$50,000 and \$80,000 compared with \$30,000 and \$40,000 for a comparable car that runs on fossil fuel," Gilbert says.

"Allowing EVs to pay the lower rate of FBT could be the tipping point for many more corporates to add EVs to their fleets.

"It's attractive because it's revenue neutral to the company, and the IRD, (albeit a lost opportunity-cost for a period), and puts another EV on the road delivering ultra-low or no emissions."

It's also an opportunity for government to secure more revenue from GST, because EVs are more expensive, Gilbert says.

He believes New Zealand cannot continue doing "the same old thing" around charging to cover roading and other costs because vehicles and transport are changing "dramatically". ■

A million kg of greenhouse gases saved

A significant milestone will be set in New Zealand's EVolution this month.

The country's EVs and plug-in hybrids combined will avoid discharging a million kilograms of greenhouse gases in November.

The estimate comes from Flip the Fleet, a citizen

science coalition of pure and plug-in hybrid electric vehicle owners who upload data from their vehicles to a communal database monthly.

The project estimates the amount of greenhouse gases a conventional vehicle of the same size and

Continued on page 6



Flip the Fleet's Henrik Moller, left, and Dima Ivanov.

Not your typical car yard

A new dealership planned for Wellington was going to be called the "Wellington Electric Car Café".

That's until **Nicholas Down** realised the café side wasn't going to happen just yet, due to circumstances outside his control.

The name, like the EV business, was to make a point of difference compared with your standard vehicle dealership.

For now, it's the Wellington Electric Car Centre – well at least until a café eventuates.

"I don't want it to be a typical car yard," Down says. He notes EV customers are buying online, through social media and from personal references, so the dealership is mainly operating through the internet at this stage. It's always open for business too.

The reason for the café was to help make the business more of an experience for customers, some of whom will travel great distances to select the EV they want.

Hamilton-raised Down worked in the vehicle dealership business for about 25 years, starting at South Auckland Ford in 1987 and including a stint with Enterprise Cars.

He wanted a change so helped a friend out with another business and then spent three years in Dubai.

It was EVs that drew him back to



Nicholas Down

New Zealand and into the trade again.

Excited by the prospects of Kiwis taking up EVs, especially with our renewable energy resources, Down got involved with EV community and aims to provide a full service for them.

"I'm very excited about it."

He says if people want extras with their EVs – like a bike rack, tow bar or accessories – then he'll ensure it's ready for them when they collect it or deliver

it to their driveway.

Also offered will be warranties on all parts, servicing, three years AA membership – "so if their battery runs out on the road they'll be taken care of" – and EVs to suit those with physical disabilities.

Down is keen to employ people with physical disabilities to help with the business, perhaps fielding enquiries from around the country and offering assistance.

"I'd like to set up some Nissan e-NV200s to take wheelchairs," he says. Down says he's talking with various parties to set the wheels in motion.

"It's not like the old days where you opened the doors of your business and waited for the customers," Down says. "That's long gone. The internet has helped change all that."

Down says it's about value and providing exactly what the customer wants.

"We want to be able to offer a guaranteed buy back scheme, so that if customers want to upgrade to a newer model we can help them do that."

EVs are becoming more affordable, and Down says more and more people are showing an interest in switching to EVs.

Search for **Wellington Electric Car Centre on Facebook** for more information. ■

A million kg of greenhouse gases saved

Continued from page 5
power would have emitted over the same distance as each EV travelled.

"The data just received shows that, on average, each low-emission vehicle avoided emitting the equivalent of 191kg of

carbon dioxide in October," Flip the Fleet co-founder **Henrik Moller** says.

"The Ministry of Transport estimates there were 5341 electric vehicles and plug-in hybrids in New Zealand by the end of October. The electric fleet is growing

at about 9% a month.

"So we reckon that from now on, we'll be saving more than a million kg of greenhouse gases each month," Moller says.

"That's a million small victories for our grandchildren."

Moller, a University of Otago sustainability scientist, says at the present EV growth rate, about 10 million kg of emissions a month could be eliminated by the middle of 2020.

Visit **www.flipthefleet.org** for more information. ■

DRIVE ALL DAY, SAVE ALL NIGHT.

With Mercury's Plug-in Vehicle Fuel Package you can re-charge your EV at home and save 20%* on your entire home's electricity costs from 11pm-7am. It's just another way we're making energy more wonderful.

Visit mercury.co.nz/ev to find out more.

*The 20% discount is applied against your standard Mercury variable electricity price between 11pm - 7am (standard electricity prices will apply during other hours). See full terms at mercury.co.nz/ev.

Energy made
Wonderful

Mercury 



The pros and cons of a fuel tax

BY DANIEL WEST

I believe that it is an amazing idea to add a ten cent per litre tax to fuel in Auckland for the reasons I have listed below.

However, there is one problem which I will explain.

It'll help the traffic

The first reason I believe a tax on fuel is a good idea is that it encourages people to carpool.

Nobody wants to pay money when unnecessary so when the price of fuel goes up, it means there is another reason to carpool.

If people start carpooling more, or catching public transport more often, there will be a substantially smaller volume of traffic.

This means people can get to where they need to be sooner, so they can have more time to sleep in or prepare, giving them another reason to stop driving by themselves.

As you can see, this tax could encourage people to use public transport, which has an abundance of benefits.

If there is less traffic because of more public transport usage and carpooling, there is a smaller chance that cars will hit each other.

About 318 people have died on the roads this year in New Zealand, according to the NZ Transport Agency.

That's an appalling number of deaths which could have been avoided, but with this new tax this number could halve.

It'll help the environment

Another reason is that if there is a tax on fuel, people will stop driving to places unnecessarily.



For example, if you needed something from the dairy – which in this case is around a block away – instead of driving there you would walk because you know it's easy and you will be saving money.

Two side-effects of this are lower CO₂ emissions and a healthier body.

By not using your car, you are not releasing gas from your exhaust into the atmosphere, adding to global warming. Global warming has literally swallowed five islands in the Pacific and is getting bigger every day.

As well as that, walking there gets you exercise and because of the increasing trend of obesity and obesity-related diseases, more exercise benefits us all.

Because of all of the side effects from such a small thing, it should be incom-

prehensibly unmistakable that this tax has some good outcomes.

It'll help innovation

Thirdly – on a more personal note – it is good for some businesses.

My parents' (Steve and Dee West) business (ChargeNet) is centered around getting more people to buy electric cars so that carbon emissions lower, by putting in charging stations where people can charge their electric cars.

By adding a tax on petrol, more people will buy electric cars, which may have the domino effect of electric cars trending and they might eventually become "the norm" and carbon emissions will lower.

And it's not exclusively my parents' business - there are plenty of other business-

es that are centred around electric cars.

In addition, the car companies will benefit because almost all have them or have said they will make at least one electric model in the near future.

As you can see, this tax can be beneficial to not only people but to companies too.

What the petrol tax won't fix

The downside to this is that New Zealand has a poverty crisis at the moment and this tax would not help.

Lots of people are barely surviving on their incomes and adding this tax could just be adding fuel to the fire.

Also, electric cars are quite pricey but that is changing as we speak.

Buses will become more expensive because of the tax but Auckland has said it will buy only electric buses by 2025.

So there are a couple of downsides to this tax but they are definitely outweighed by the good outcomes.

To conclude, a tax on petrol is extremely helpful for an abundance of reasons, such as less traffic, lower carbon emissions, more fitness and business benefits.

Hopefully, from the reasons I have provided, you are able to consider the usefulness of this tax and that you shouldn't despise it. ■

Driverless cars just round the corner

Vehicles that drive themselves might seem like something straight out of a science fiction film.

But new research from Drive Electric shows autonomous vehicles (AVs) will be a reality much sooner than many people think.

The not-for-profit group's latest white paper **The Road to a Driverless Future** shows just how quickly the technology is progressing.

Many brands have developed cars that already feature Level 2 "partial automation" where steering and speed can be controlled by one or more driver-assistance systems.

Drive Electric board member and Audi New Zealand general manager **Dean Sheed** says the technology will only improve in the next few years, with an eventual push towards full automation in the 2020s.

"Eventually, autonomous



Dean Sheed

vehicles won't have a steering wheel or pedals," says Sheed, who contributed to the white paper.

And it is inevitable that AVs will be fully electric.

"There's no need for an autonomously driven car to be electric but there's a deep connection. From a manufacturer's point of view, most of the research and development expenditure is going into electric drives and autonomous vehicles.

"These things will merge and the cars that they're designing today for market launch in three years' time



Phil Carter

will likely be electric to some degree and have elements of autonomous drive."

Another key enabler will be the cars' ability to communicate with each other and infrastructure, and to take action based on that communication, he says.

"We're trying to progress as quickly as we can but it's fair to say we don't have all the answers just yet."

Urban and transport planner **Phil Carter**, who works for consultancy firm Arup, has worked with the idea of AVs since 2011.

The technology has the

potential to change the way people travel if it is used in the right way, he says.

"It could create problems if there's just one person in each vehicle. Congestion doesn't get fixed that way.

"AVs could be used to complement existing public transport options, particularly if people are prepared to ride-share."

The technology also has the potential to disrupt other parts of the transport sector, he says.

"Early adopters will include the commercial operators that move freight or people.

"Expectations are that car ownership will also go down. We will be renting or leasing cars instead."

The next white paper early in 2018 aims to gauge New Zealand's readiness to adopt driverless technology, particularly around rules.

Go to driveelectric.org.nz for more information. ■

Coventry Cars embraces electric

Continued from page 1

EVs arrive and all the infrastructure is in place, he says.

He's also expecting a few Nissan e-NV200 vans and a hybrid Nissan Note e-Power.

Coventry Cars has partnered with Nichibo Japan to help supply the vehicles and Stewart says he visits Japan about once every two months to check out cars. He also spends about four hours a day on the internet seeking vehicles to bid on.

"You have to know the right ones to buy."

Stewart says demand for EVs has certainly gone up, while margins have dropped.

He's ensuring plenty of stock will be available and supplies chargers with them - mainly New Zealand spec OEMs from **Paul O'Connor** in Christchurch.

A demonstration EV is available for people to try without any obligation.

Coventry Cars has a fast-charger in its showroom for customers and is also getting a facelift for the official opening.



Bruce Stewart

Stewart plans to include in that an updateable map of New Zealand charging stations with colour-coded pins indicating the types.

Visit www.coventrycars.co.nz or search for them on Facebook. ■

Uber driver's wedding motivation

Greg Kent is saving so much using his Nissan Leaf for his Uber work that he's paying for his December wedding and planning to buy a house in Auckland.

The 22-year-old EV fan, who also works as an Auckland cinema attendant, crunched the numbers before buying a 2014 Nissan Leaf through GVI about five months ago.

Since then he's clocked up 81,000km, expects to pay off his \$15,000 car loan next year and pay for his wedding here to his Indonesian fiancé Ismi.

The North Shore resident has been working as an Uber driver for about six months, starting with a 1.3-litre Mazda2 Demio.

"I was spending about \$250-\$300 a week on gas, with servicing adding another \$100 every few months," Kent says.

"So, it was quite expensive, even though I had a small car."

Kent did some research after hearing about EVs and learned he could save about \$300 a week.

He also liked the fact they're more environmentally friendly than a conventional vehicle.

He got talking to a finance broker who was a passenger and arranged a loan which he hopes to pay off by June.

GVI arranged the car for about \$20,000. Kent had it repainted for about \$600 in mainly black with a blue roof to match its blue wheels and badge.

"Blue stands for electric-ity and I wanted to make it



Greg Kent

distinctive," he says.

The Autotech version has a body kit, tinted windows, LED daytime running lights and a classy interior to help provide a more luxury look that he wanted to appeal to passengers.

It has his name on the registration plates and his first name and an Uber logo, which glows at night, fixed on his windscreen.

Charging the Leaf overnight at his rented home costs about \$35 a week and he usually tops up at a free Auckland city fast-charger one or twice a day, depending on use.

Although Kent doesn't

need to have the Leaf serviced as often as his previous car, he likes to have regular safety checks and to ensure the car is in tip-top condition. He cleans it himself.

Most of his work is between the North Shore and the central city with Kent using smartphone apps to be in contact with clients and record data such as hours, fees, costs, mileage and even when breaks are due.

He transports about 150 people a week.

Comments are invited and nearly all are positive and appreciative - Kent has a 4.76 average rating out of five.

One of the first things

passengers mention is the car's quietness. That's handy too if he chats to passengers (he usually fits in three or four at a time) or there's a singalong to tunes from another app.

"You need a sense of humour," Kent says.

Had any difficulties?

"No majors," Kent says.

A forward and rear facing in-car camera provides a safety feature and because passenger payment is cashless, it's pointless trying to rob a Uber driver.

Kent did run out of battery juice once while part-way home but made it safely with assistance.

Any issues can quickly be reported.

He uses the car's "eco" mode and B mode much of the time and says the frequent use seems to help.

With a 24kW battery he expects to get about 150km range in suburban areas and about 120km on the open road.

"I tried it from the North Shore to Hamilton and got there on one charge."

One tip for people who spend any length of time behind the wheel: "I use a lumbar support, which cost \$30, to help with posture."

Kent likes many aspects of owning the Leaf, including its roominess, especially as he's around 1.92 metres tall. He can fit comfortably and rear-seat passengers still have plenty of leg and headroom.

"The Leaf is cheap to run and the ride is smooth," he says.

"It's the future." ■

Find your new EVs here!

EV FRANCHISE DEALER LIST

BMW

AUCKLAND CITY BMW

7-15 Great South Road
Newmarket Auckland 1051

WINGER BMW

138 Hutt Road, Kaiwharawhara,
Wellington 6035

CHRISTCHURCH BMW

30 Manchester St, Christchurch
Central, Christchurch 8011

MITSUBISHI

ARCHIBALD MOTORS

143 Commerce Street, KAITIA

PACIFIC MOTOR GROUP

70 Porowini Avenue,
WHANGAREI

SIMON LUCAS NORTH SHORE

Cnr Wairau & Target Road,
Takapuna, AUCKLAND

ANDREW SIMMS MITSUBISHI

500 Broadway, Newmarket,
AUCKLAND

AUCKLAND MOTORS MITSUBISHI

686 Great South Road,
MANUKAU CITY

ROGER GILL MITSUBISHI

Corner Manukau & Kitchener
Roads, Pukekohe, AUCKLAND

SAUNDERS MITSUBISHI

201 Pollen Street, THAMES

INGHAM MITSUBISHI

450 Te Rapa Road, HAMILTON

BAY CITY MITSUBISHI

140 Cameron Road, TAURANGA

PIAKO MITSUBISHI

254-256 Fenton Street,
ROTORUA

WINGS & WHEELS

85 Heu Heu Street, TAUPU

W R PHILLIPS

156-158 Devon Street West,
New Plymouth

WAYNE KIRK MITSUBISHI

19 Thackeray St, NAPIER

MCVERRY CRAWFORD

MITSUBISHI
29 Kimbolton Road, FEILDING

MCVERRY CRAWFORD

MITSUBISHI
2 Princess Street,
Palmerston North

WAIRARAPA MITSUBISHI

313 Queen Street, MASTERTON

BRENDAN FOOT MITSUBISHI

10 Railway Avenue, HUTT CITY

WELLINGTON MITSUBISHI

75-78 Cambridge Terrace,
WELLINGTON

HOUSTON MITSUBISHI

168 Rutherford Street, NELSON

HOUSTON MOTORS

42 Scott Street, BLENHEIM

CHRISTCHURCH MITSUBISHI

Cnr St Asaph & Montreal Streets,
CHRISTCHURCH

CAROLINE MITSUBISHI

23-27 Barnard Street,
TIMARU 7910

STEPHEN DUFF MOTORS

280 Andersons Bay Rd, South
Dunedin, Dunedin 9012

BALCLUTHA MITSUBISHI

79 Clyde St, Balclutha 9230

SOUTHERN MITSUBISHI

209-221 Dee Street, Invercargill
176 Dee Street, Invercargill

NEW EV CAR TYPES

MAKE	MODEL	TYPE	PRICING RRP est.	APPROX RANGE KMS
Tesla	Model S	BEV	\$121,395	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
Volkswagen	e-Golf	BEV	\$61,990	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
Mini	Countryman	PHEV	\$59,900	30km + 500 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	\$96,400	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
	S500 e	PHEV	\$255,000	30 km + 700 km
Porsche	Cayenne S e-hybrid	PHEV	\$177,800	20 km + 750 km
	Panamera Turbo S e-hybrid	PHEV	\$428,400	30 km + 750 km
Volvo	XC90 T8	PHEV	\$134,900	44 km + 600 km
	XC60	PHEV	\$94,900	45 km + 600 km

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

Do you sell EVs?

Talk to Rachel Hadfield
about advertising
your business here
with EVTalk

- in print
and online



Phone: +64 21 778 745 or
Email: rachel@automediagroup.co.nz

USED EV CAR TYPES

MAKE	MODEL	TYPE	PRICING RRP EST.	APPROX RANGE KMS
Nissan	LEAF Generation 1	BEV	\$9k - \$15k	120 km
	LEAF Gen 2 - 24 kWh battery	BEV	\$15k - \$27k	135 km
	LEAF Gen 2 - 30 kWh battery	BEV	\$24k - \$44k	180 km
	e-NV200 van	BEV	\$18.5k - \$30k	140 km
BMW	i3 Full Electric	BEV	\$38k - \$43k	200 km
Mitsubishi	i-Miev	BEV	\$10k - \$15k	100 km
	B-Miev Van	BEV	\$13k	100 km
Renault	Zoe 22 kWh	BEV	\$24k - \$49k	220 km
	Zoe 40 kWh	BEV	\$40k - \$45k	300 km
Hyundai	Ioniq	BEV	\$48k - \$57k	220 km
	Ioniq Elite	BEV	\$52k - \$66k	220 km
Kia	Soul EV	BEV	\$35k - \$38k	150 km
Volkswagon	e-Golf	BEV	\$42k	200 km
Tesla	S P85	BEV	\$115k	350 km
	S 90D	BEV	\$169k	420 km
	X 90D	BEV	\$170k	410 km
Mercedes Benz	B250 e	BEV	\$50k	140 km
	C350 e Sedan	PHEV	\$65k	31 km + 700 km
	GLE500	PHEV	\$120k	30 km + 700 km
	E350 e	PHEV	\$130k	30 km + 600 km
	S500 e	PHEV	\$135k	30 km + 700 km
Toyota	Plug-in Prius	PHEV	\$17k - \$39k	26 km + 800 km
Audi	A3 Sportback E-Tron	PHEV	\$48k - \$70k	45 km + 600 km
	Q7 e-tron	PHEV	\$148k	54 km + 800 km
BMW	i3 REX	PHEV	\$40k - \$50k	200 km + 150 km
	225xe	PHEV	\$60k	41 km + 550 km
	330e	PHEV	\$75k	37 km + 550 km
	X5 xDrive40e	PHEV	\$140k	30 km + 800 km
	i8	PHEV	\$135k - \$148k	37 km + 400 km
Mitsubishi	Outlander	PHEV	\$32k - \$68k	50 km + 500 km
Volvo	XC90 T8	PHEV	\$130k	44 km + 600 km

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

Find your

USED DEALERS LIST

NAME	CITY
Cash Back Cars	Whangarei
Wholesale Autos 0800 405 065 info@wholesaleautos.co.nz	Auckland
Autolink Cars 09 378 9090 autolinkcarsltd@gmail.com	Auckland
GVI Electric 09 216 7106 ev@gvi.kiwi	Auckland
Harwood Cars 027 492 2218 www.harwoodcars.com	Auckland
PlugN Drive NZ	Auckland
Volt Vehicles	Auckland
Farmer Auto Village	Tauranga
Drive EV	Taupo
EV Central	Taupo
The Car Man	New Plymouth
Gazley - 0800 668 668 sales@gazley.com	Wellington
Cooper Auto Company 04 586 2295 sales@cooperauto.co.nz	Wellington
Coventry Cars Hybrid & Electric 04 384 4536 salesteam@coventrycars.co.nz	Wellington
The Car Company Nelson	Nelson
HVS Motors	Timaru
Hopmans QEII Quality Cars 0800 HOP-MAN (467 626) sales@hopmans.co.nz	Christchurch
Stadium Cars	Christchurch
Metro Christchurch	Christchurch
Wheeler Motor Company	Christchurch
HVS Motors	Gore
Auto Court	Dunedin
Gilmour Automotive	Dunedin



SPECIALISING IN 100% ELECTRIC VEHICLES FOR OVER 4YRS

LARGEST RANGE TO CHOOSE FROM IN NZ



FREE CALL: 0800 378 9090 **WWW.AUTOLINKCARS.CO.NZ**

ZERO EMISSIONS

Quality used EVs here!



HOPMANS QEII
QUALITY CARS

CHRISTCHURCH'S LARGEST NISSAN EV DEALER

Over 20 Leaf and e-NV200 vans in stock

Free NZ charging cable – Free 2 Year Warranty
- Free on road costs

Hopmans QEII EV Quality Cars – Servicing
Christchurch for over 30 Years

Cnr Travis Rd & Bower Ave
sales@hopmans.co.nz

0800 HOPMAN (467 626)
www.hopmans.co.nz



**WHOLESALE
AUTOS** *Takanini*

ELECTRIC VEHICLES SPECIALISTS

Contact us for Gen1 and Gen2 Nissan Leafs
and Nissan NV200 vans

Open
Seven
Days



Wholesale Autos | www.wholesaleautos.co.nz
info@wholesaleautos.co.nz | P: 0800 40 50 65
272 Great South Road, Takanini, Auckland

Gazley
Kent & Cambridge Terrace,
Wellington
0800 668 668
Open Monday to Sunday

www.gazley.com



GAZLEY NISSAN

ELECTRIC VEHICLE SPECIALIST

The Lower North Island's only LEAF authorized
service center

Sales | Parts | Service



Open Saturday 9am-5pm and Sunday 10am-4pm



AUTO COMPANY

ELECTRIC VEHICLES

CALL TO DISCUSS OUR CURRENT RANGE
OR ORDER YOUR NEXT EV DIRECT FROM
JAPAN

04 586 2295
sales@cooperauto.co.nz
www.cooperauto.co.nz



Full range of Support & Service | NZ's largest range of EVs | We ship nationwide



Contact our EV Expert Andrew on 021 454 287 | www.gvielectric.kiwi | 575 Great South Road, Penrose

Bolt from the blue from Holden



The 2017 Chevrolet Bolt could be introduced here by Holden but as a left-hand drive only.

Holden New Zealand wants to sell electric vehicles in New Zealand – but they will be left-hand drive.

Managing director Kristian Aquilina told automotive media at the launch of the new Equinox SUV the brand wants to be involved in the growing EV market but it has no right-hand drive vehicles available.

Holden does have the highly-rated American-built Bolt but only in left-hand drive. There are no plans for a right-hand drive version of this generation.

Aquilina says Holden is planning to

work with government agencies to allow a small number of the left-hand drive vehicles to come into the country and potentially even be sold here.

“One thing we would like to talk to the Government about is the opportunity to bring in a small number of electric vehicles in left-hand drive – if just to demonstrate what they can do.”

He suggests there's a double standard in regulations now, where performance vehicles such as the Chevrolet Camaro and Silverado can be imported and registered through the current

enthusiast and permit schemes.

“We are happy to do it with a few enthusiast cars under certain restrictions but we can't do the same for electric vehicle enthusiasts,” Aquilina says.

He does not believe there are significant safety issues around the driving of left-hand drive cars on right-hand drive tailored roads.

“I was in Japan for business and there you have right-hand drive and left-hand drive working cohesively on the road without any safety issues.” ■

POWER DEALS FOR EV USERS

Company	Energy Deals	Where	Cost to charge LEAF*
 meridian	Rest Easy EV plan: Super-low night rates that start at the earlier time of 9pm, until 7am daily. Available for your entire home's electricity needs. Guaranteed for 3 years and includes 15% PPD.	Auckland Wellington Christchurch	\$4.49 \$3.79 \$2.55
 Mercury	Plug-in Vehicle Fuel Package: Includes 20% off your entire home's electricity costs between 11pm – 7am every day, one year fixed term, 10% 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	\$5.24 \$3.65 \$4.76
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 \$5.65
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	\$5.21 # \$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 \$3.57 \$3.15
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	\$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 may 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. 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.



MICRO EVS



Ride Mango, the all-electric urban two-wheeler

"What is it – a bike?"

Well, not a pushbike but a zippy little foldup electric ride-on scooter actually.

The Mango certainly brought plenty of positive comment from cyclists and pedestrians during a few days of trialing it in Auckland.

Perhaps the mainly orange and yellow clothing **EVtalk** editor **Geoff Dobson** wore while riding it added to the intrigue.

The Mango's distinctive appearance attracted curious glances and questions from many on the city's cycleways and at intersection crossing lights.

Passers-by wanted to know how it went (very well really), how much it weighed (about 18kg so easily carried), whether you could take it on public transport (yes) and how far I'd come (23km one way).

It doesn't have pedals (other than footrests) so it's not power-assisted, more a low-powered electric scooter like a Yike bike.

A right-hand throttle controls the speed. One thing I learned quickly is not to hold the throttle down without keeping the brakes on when getting off the bike or it will rear up.

Both handlebar brakes negate the nearly 300 watts of power and 6.6Nm of torque from the long lithium battery which powers the brushless gear motor.

The battery slots easily into the frame and is lifted out for recharging.

I found it needed recharging after about 25km riding into a head-wind but a return trip over 23km with a tail-wind left plenty of battery power still available.

The disc brakes on both wheels bring it to a stop quickly. Like my road bike, I use the rear brake to slow or stop, with some assistance from the front brake when necessary. If you just use the front brake, especially going downhill, you risk pitching forwards.

A big LCD screen on the back of the front light provides all the information



EVtalk editor Geoff Dobson on the Mango.

you need such as speed, power consumption, temperature, mileage and more.

And there's Bluetooth connectivity. When you use the remote key to unlock the scooter, an English voice asks about connecting.

The key also alarms the Mango to prevent theft and can even help you locate it.

The scooter has a bright front-light but I found it handy to wear my road cycle reflective gear and a smart Livall helmet with lights (even indicators) in the helmet rear.

A rear reflector is fitted but a red rear light can easily be attached.

The Mango is very quiet so you need

to warn people in front before you overtake.

The horn is loud. I quickly discovered it's better to sound it some distance behind another road or pathway user rather than scare the wits out of people when too close behind.

You don't need registration or a driver's licence to ride it but you must wear an approved cycle helmet.

Like the Yike, the Mango can be used on the roadway – so long as you keep as close to the left as practicable – and on the footpath and shared cycleways.

You need to give way to pedestrians and mobility vehicles, and you can't ride

Continued on page 20



MICRO EVS



Kiwi e-bike business ready to roll

Wattwheels hits the streets with electric bikes from this month. Established in Christchurch in 2016, Wattwheels is now offering its e-bikes through 12 retailers nationally, with more to come.

Directors **Brad Mitchell** and **Phillip Du Val** have been working hard to have their e-bikes made under supervision in China and expect a good supply of stock shortly.

The bikes range from commuter styles and mountain e-bikes to an e-trike with foldable handlebars, carry baskets front and back, and a new "fat wheel fold-up" useful for holiday trips.

Du Val has close connections with China, being involved in other businesses and doing a lot of work there. He is vice-president of the New Zealand College of Business and hosts any visiting Chinese university delegations.

Mitchell has a management and sales background, having been involved in several businesses both here and in Australia.

"Phillip and I got talking three years ago about potential start-up business opportunities," Mitchell says.

"He had just been to Europe and seen the massive uptake of electric bikes over there. I have always been right into my riding and we started discussing the options of a business here."

Mitchell says New Zealand has some amazing cycle trails and he has ridden a number here and overseas.

"With the national cycle ways network expanding, we're seeing a larger number of tourist operators now offering e-bike tours, which in turn is giving a lot more people the confidence to now be part of it.

"Have a look at the new 'great rides' app which lists some great bike trails around New Zealand."

Married, with an 18-month-old daughter, Mitchell decided to put everything into the Wattwheels e-bike business.

"The EV industry has taken off in leaps and bounds and I saw this business as a great opportunity to get involved in an exciting industry, in prod-

ucts we truly believe in.

"We went about doing our research and found a market which is growing exponentially, as it is all over the world.

"With the price of fuel increasing, traffic congestion and pollution levels growing in our major cities, we are seeing a huge demand for cheaper, low



Brad Mitchell, right, and Phillip Du Val of Wattwheels.

emission vehicles on our roads."

Wattwheels' goal is to offer New Zealanders an affordable range of quality e-bikes, without a hefty price tag, he says.

"We are involved right from the frame design to hand selecting every component on the bikes in which we only use recognised brands.

"All of our e-bikes are priced between \$2599 to \$3999 and are due to hit retail stores from this month, which is super exciting. We are starting with around 12 retailers, some of which we have offered exclusive agreements this summer for stocking our bikes."

However, Mitchell's keen to discuss retail with anyone interested. Retailers will be listed on the Wattwheels website.

He sees a huge opportunity as a New Zealand company to take up the challenge in competing against big overseas operations bringing their products here.

"We're lucky enough to have a couple of key investors behind us, which has given us the opportunity to really focus on this business and get a good supply of bikes coming through from

late November."

Quality control is especially important, Mitchell says.

"We are just in the process of employing someone in China to thoroughly check and test the bikes before we ship them to New Zealand. Previously we have travelled to China ourselves to inspect the bikes before shipping."

But with orders picking up, Wattwheels will have someone devoted to looking after the operation on the ground there.

Wattwheels is a big supporter of community organisations too.

It backs the Love to Ride organisation - <https://www.lovetoride.net/nz>

which encourages cycling in New Zealand, donating products for prizes.

Bikes are supplied to Home and Family Christchurch for auction at charity nights as well.

"Wattwheels looks forward to being part of the EV revolution and has a lot of exciting plans developing in 2018, from e-bike charging stations to new bikes and products."

Mitchell says it's great to see the growing popularity of e-bikes and notes the AA is even extending its cover for members riding electric bikes.

Visit www.wattwheels.co.nz for more information. ■

MICRO EVS

Exercise. Enjoyment. Freedom.
Book your **FREE** test ride online at www.electrify.nz



electrify.nz

New Zealand's
Electric Bike Specialists

North Shore
Auckland City
Tauranga
Hamilton
Dunedin

Showrooms AKL City: 09 8892019 North Shore: 09 211105070 Tauranga: 027 675 1521
Dunedin: 021 035 9820 Hamilton warehouse: 07 8080404

wattwheels

Check out our great
electric bike selection
starting from
\$2599



For more info or to find a dealer near you contact us at:
0800 311 011 | www.wattwheels.co.nz | sales@wattwheels.co.nz

THE WALLPOD EV CHARGING STATION



SMART CHARGING OPTIONS

- Optional GPRS connectivity
- Optional WIFI interactive
- Optional Smart system compatible
- Optional back office connectivity
- Optional Ethernet connectivity





Volunteers from the combined Rotary clubs of Hamilton with a few of the kids and the donated cars.



Three-year-old Ezekiel can now drive himself, thanks to an adaptation which slots his wheelchair seat into his own electric BMW.

Gobabygo and Rotary get kids going

Volunteer-run charity Gobabygo has donated 11 specially adapted, ride-in electric BMW toy cars to 11 mobility-challenged Waikato children.

Kids like three-year-old Ezekiel, who lives with cerebral palsy and relies on a tiny wheelchair to get around, or 18-month-old Kingston, who has cardiac issues, among other health challenges, and who therefore tires easily.

"Independent play is vital to a child's development and it helps develop neural pathways they will need as they grow," Gobabygo board member in charge of build **Mark Prujean** says.

"But more than that, mobile play also helps them develop stronger bonds with their brothers and sisters and with friends at kindy or at school – bonds that will stand them in good stead as they reach their teens

and adulthood."

It also helps them learn boundaries. After all, a child which cannot move without an adult to carry them can now choose to be naughty, to chase the cat or head the wrong way down the pavement, and to hear "no" for the first time.

That's no doubt a mixed blessing for some parents but it's also a sign of "normality" for children whose health often sets them apart.

These parents say other children now talk to their kids when perhaps they didn't before because they're interested in the car. And at last they can send all their children out together, to the dairy or to play, on bicycles or in their Gobabygo car.

The charity buys the standard ride-in toy car, which plugs into a household socket to recharge its battery, and then fits adaptations the child's therapist deems necessary.

The throttle might become head or hand-operated or the child might need a five-

point harness in place of a seatbelt or handles to assist grip of the steering wheel or a headrest.

Each car also has a remote as some children need an adult to control the wheel and throttle at first – some may always need assistance.

The charity supports the car for as long as the child fits within it and feedback has been overwhelmingly positive.

Prujean and his team are grateful for the support they receive in the Waikato from the combined Rotary clubs of Hamilton, the Coombes Johnson BMW dealer – BMW NZ is an annual donor – and the local therapist network.

"We're looking forward to returning to donate more cars as soon as more families have applied," he says.

"Fortunately we're easy to find. Often parents put Gobabygo NZ on Google or Facebook and the next thing we're processing an application and meeting them to hand over a car." ■



Kingston, 18 months, relaxes in his new BMW as mum learns how to work the car's remote.

The battle for airspace

The Japanese new vehicle fleet's uptake of Intelligent Transport Systems using the 760 megahertz frequency is causing headaches for New Zealand importers.

That's because the frequency, which allows vehicles to communicate with each other, is already used in New Zealand by mobile phone providers and it's illegal to transmit radio signals on it.

It could potentially cause chaos if the two technologies were to clash trying to use the same frequency.

However, efforts from organisations like VIA and the Ministry of Transport have brought the issue to the attention of policy makers and manufacturers alike.

VIA policy analyst **Kit Wilkerson** says no one was aware of the problem initially but now New Zealand is at the forefront of discussions on how to sort it out.

"The discussion is taking place prior to the manufacture of the vehicle, rather than fighting the New Zealand Government to allow us to import the vehicles."

The discussions have prompted some potential solutions from the companies involved, Wilkerson says.

"Some of the chip makers are looking at either dual solutions or equal but different solutions."

"Some cars for the Japanese market with a 760MHz chip will also have 5.9MHz available. Whether we remove one chip and put the other one in, we'll have to see.

"The other favour-



able news is some of the manufacturers are looking at building dual-band devices that switch frequencies based on geographic location and the vehicle."



Kit Wilkerson

Wilkerson says VIA is working with Spark to import one of the vehicles for testing.

"They can import one. They are the licence holder for the frequencies.

We can experiment with deactivating it and see what the actual impact will be."

But there could still be issues with 760 MHz vehicles coming into the market next year, Wilkerson says.

"Unfortunately our advice from last year is still the most current. Some models are still going to have it available in 2018."

"If someone does make the business decision to import one, they need to

make sure that technology is disabled or removed."

Wilkerson at the forefront

Kit Wilkerson's membership of an International Standards Organisation technical committee could help avoid potential problems caused by new technology.

The committee, which is investigating different types of dynamic mapping, is at the forefront of advances in autonomous and connected vehicle technology.

It provides access to national policy leaders and OEM representatives which, looking back, would have been helpful when addressing the 760MHz issue.

"Had we been part of these discussions five or ten years ago we could have seen this 760MHz issue coming," Wilkerson says.

"We could have negotiated with Japan to block off that part of the spectrum.

"The telecommunications companies still would have been able to buy chunks. Then New Zealand consumers would have been able to take advantage of this technology being developed in Japan."

Now the industry has the opportunity to be at the cutting edge of discussions, he says.

"We're looking forward to being more proactive in the future."

Being part of the ISO committee does mean plenty of international travel for Wilkerson, who recently attended a meeting in Texas.

But it's important to be there in person, he says.

"To be fair, a lot of politics goes on so it would be really difficult over Skype.

"The guys representing Japan are really pushing the technology being developed for autonomous vehicles in

Continued on page 20



The battle for airspace

Continued from page 19
Japan. It's the country that has the most advanced plan. "There's push-back from the Europeans resisting change, representing the European OEMs who may not want to adopt the Japanese plans."

Positioning New Zealand as a neutral broker makes for some interesting discussions, he says.

"New Zealand is unique as it has no vested interest: we do not manufacture vehicles but we take vehicles from both European and Japanese manufacturers. It puts us in an interesting place.

"The Japanese auto agenda has links to 760MHz while other manufacturers use 5.9MHz.

"We don't quite know where that's going."

Despite all the positioning, creating critical mass will be necessary before the technology is usable, he says.

"You can't rely on it to tell you a car is coming around

the corner if only 0.5% of cars have it."

New Zealand is in a favourable position to take advantage of the latest technology trends, Wilkerson says.

"There's lots of early adopters. There's so many people throwing money at connected and autonomous technology.

"It's about building on the little successes."

ITS systems can be disabled

Intelligent Transport System units that conflict with local radio spectrums by broadcasting on the 760MHz range can be deactivated, Toyota New Zealand says.

In New Zealand the 760MHz band is owned by telecommunications companies for 4G networks. Toyota is fitting the technology to cars sold new in Japan.

If active, the transmitters would make the car an illegal import.

The system that creates

the issue is Toyota's ITS Connect unit, which is an optional extra on cars fitted with the brand's "Safety Sense" suite of intelligent safety technology – a package of items such as autonomous emergency braking and lane departure warnings.

It is available in only a small number of models but one is the high-volume Prius.

Safety Sense is also becoming more widespread. Toyota Japan confirmed last month all Vitz would be fitted with Safety Sense from this year.

As of October 2016, around 50,000 vehicles carried the ITS Connect system.

Toyota NZ spokesperson **Morgan Dilks** says the brand has been working with the Ministry of Transport and VIA to provide access to cars in Japan for testing and confirmation of how the system works and how it can be disabled.

The system can be identified through a dash screen

menu and disabling it is as simple as cutting a wire – although access is reported to be difficult.

It does not affect other safety systems.

"The ITS system (which has the conflicting frequency in New Zealand) can be disabled by removing the power input to the ITS computer in the vehicle," Dilks says.

"This is detected on the multi-display when the ignition is turned on.

"Disabling the system through cutting the power input does not impact on any of the vehicle's other safety features."

But it might not always be that simple, Dilks says.

"Currently, while the ITS system can be disabled in isolation without affecting other vehicle features (such as safety), ITS is manageable.

"In the future, if ITS systems are more tightly integrated, then it could be more difficult to disable in isolation." ■

Ride Mango, the all-electric urban two-wheeler

Continued from page 15
at speeds that could put other pathway users at risk.

No real problem there as the 23km one-way ride between downtown Auckland and Swanson in West Auckland (mainly along the north-western cycleway) saw difficulty exceeding much more than 22kmh.

Going downhill with a tail-wind could produce more than 30kmh but steeper uphill slopes (like the Nelson St cycleway heading south) reduced the speed to around 10 to 12kmh.

Still, it had the power to get up

the steepest sections, especially one where I'm normally in the lowest gearing on my road bike and working hard to make the top.

All-in-all it's a great form of personal transport around the city or suburban areas, especially if you're doing no more than about 20km.

The Mango is priced at \$2485, including GST, and comes in black, red wine or army green.

Visit www.ridemango.co.nz, contact **Paul Eva** on **021501659, 09 479 7990** or email **shop@ridemango.co.nz** for more information. ■



EVTalk business manager Rachel Hadfield demonstrates the Mango's portability.



Plug-in at launch for new Volvo

It is a rare move when a distributor launches the plug-in hybrid version of a new model at the same time as the rest of the range. Even more so when it is the obvious flagship for the range.

But Volvo, which has made it clear it is on a rapid track for electrification, did just that last month, bringing the new XC60 mid-size SUV to market with a range topping T8 plug-in model. What's more is that of customer pre-orders so far, the T8 has made up nearly half of demand.

The entire XC60 range is powered by 2-litre turbo-charged engines in petrol and diesel form. The T8 shares its drivetrain with the same variant in the XC90 range. This pairs a 235kW petrol engine with an electric engine powering the rear wheels producing a further 64kW. Combined, the pairing is good for 300kW and 100km. An eight-speed automatic is standard, and Volvo claims the car is capable of 2.1-litres per 100km. We think that is rather hopeful, though how often you plug in will obviously affect how much fuel you use.

The battery is bigger than that in the '90, now at

10.4kWh. Charging takes two and a half hours on the included charger through a type-one port mounted ahead of the passenger side door, and range, if driven frugally, is around 40km. We didn't get a chance to test this on the launch. The XC can be driven in modes for EV-only, Eco, Performance or off-road settings.

Standard features include a 360-degree camera, navigation, Park Assist Pilot, keyless entry, handsfree tailgate and Apple Carplay / Android Auto integrated into the Sensus system with its nine-inch touch screen. Also standard is Lane Keeping Aid. Oncoming Lane Mitigation and Steer Assist will join the standard Intellisafe City Safety system, which includes pedestrian, cyclist, vehicle and large animal detection with automatic emergency braking.

Options include Nappa Leather seats with ventilation and massage, Bowers & Wilkins Premium Sound and four-corner air suspension provide XC60 customers with the opportunity to add even more personalisation. Optional air suspension is priced at \$4200.

The T8 R-Design is priced

at \$117,900.

Volvo Cars NZ boss **Coby Duggan** says the old model XC60 has sold out, and it is expecting strong interest in the model - although they are limited in supply. They did 191 cars last year, and have sold 101 to the launch date of the new model. They are holding orders for between 70 and 90 new models in 2017, with 240 next year. That will take them to 10% of the segment. Next year will also see a reduction in variants from the seven on offer at launch.

On the road the handling felt especially confident and fuss free, though the steering offered little in the way of response or feedback for the road. This is to be expected for an SUV, though disappointing against models like the new X3.

The T8 is an absolute barnstormer, with a huge amount of performance available on tap. It does feel a little heavier on the road than the non-hybrid models - though not enough to make it unenjoyable.

Performance in electric-only mode is limited, though more than enough for a city crawl-commute. If you live within 15km of the office

you can expect a reasonable level of fuel-free commuting.

Fit and finish felt excellent, and comfort in the front of the cars is great - these are some of the best seats fitted to any car in the market. Rear legroom is a little tight, though a six-foot passenger can sit behind a six-foot driver.

BMW built to be electric

Volvo have made little secret of its plans to have a plug-in version of every model by the end of this decade, with a full electric model also on the way.

Last week their competitors at BMW launched their X3 in the market, directly competing with the XC60. There is no plug-in model for now, however underneath the skin it hides the fact it was built to be fully electric.

The brand has confirmed an all-electric, not plug-in hybrid, version is coming in 2020. But that is all it can tell us for now.

"This has been developed for a fully electric drive train from day one," says BMW NZ spokesman **Paul Sherley**. "That it is being released in 2020 is the only information we have." ■

Drone delivery: Publicity stunt or game changer?

Drone delivery's short-term potential might have been exaggerated but the technology has a long-term future, particularly within the trend to automate as much as of the logistics chain as possible. But patient investment in research and development, trials, constant negotiation with regulators, and wholesale re-organisation of distribution points and practises will be needed..

IDTechEx research director Dr Khasha Ghaffarzadeh outlines the situation in his report *"Drone delivery: Publicity stunt or game changer in instant fulfilment?"*



Dr Khasha Ghaffarzadeh

The idea of drone delivery sharply divides commentator opinion.

Some dismiss it as a mere publicity stunt and others consider it a game-changer that will bring near-instant product fulfilment to e-commerce, stripping traditional shops of their last major differentiator.

In our report *Mobile Robots and Drones in Material Handling and Logistics 2017-2037*, we have analysed the technologies that are emerging in the last-mile delivery space, including drones and autonomous mobile ground robots (or droids).

We provide a quantitative picture of the market evolution, in unit numbers and revenues, over a 20-year period (2017-2037).

We do this for all aspects of mobile robotics in material handling and logistics also including autonomous trucks and light vans, autonomous mobile material handling carts and vehicles (forklifts, for example), AGVs and AGCs, and mobile picking robots. We provide technology assessments, detailed 20-year market forecasts, and company



Photos of select delivery drones. First row, from left: Matternet, Zipline; second row, Google, DHL, Connect Robotics; third row, Flirtey, Amazon, Alibaba.

overviews/profiles.

In this article we paint a big picture of how we see the emergence of drone delivery.

Industry changing character

Drone delivery must be first viewed within the context of the emerging drone industry.

This has grown rapidly with the market leader's income reaching \$1.5 billion per year. The industry is now led not just by Made-in-China but also by Designed-in-China.

The market is, however, in the midst of changing its character.

The consumer drones' hardware platform has become rapidly commoditised with prices falling, according to our data, by more than 60% in the past two years or so.

The growth in unit sales is yet to catch up, causing many to feel the pain and laying off staff en masse. Investment levels are also showing signs of slowing down, prompting concerns about a potential crash after

the hype.

Investment rose nearly 50-fold between 2012 and 2016, exceeding \$450m in 2015.

Investment peaked in 2015 as industry moved past the hype and as the platforms commoditised. New opportunities beyond platforms are now sought in specialised software, hardware components such as sensors and drone services.

The new prevalent strategy is to pivot towards commercial drones. The drones will be higher performance and potentially application-customised, leading to higher prices.

This will hold true in the medium-term but there will be no escaping the ultimate fate - hardware platform commoditisation. The rise of prosumer drones - with prices already pinned down close to the consumer end - attests to this.

The lasting source for value, however, is likely to be found (a) in specialised vertical (or application) focused software (apps) providing a higher value service; or (b) in specialised

Continued on page 23

Continued from page 22
hardware components such as sensors or batteries.

Indeed, the value of drone-enabled services will only grow as the installed base of drones expands, creating an infrastructure that will support large-scale service deployment. This is not much different to the rise of mobile phone apps that followed the large user base.

Drone delivery is also part of the same trend - pivot towards specialised hardware platforms enabling a new commercial service.

The idea of drone delivery entered mainstream media in late 2013. Around that time, drone delivery of e-com-

merce parcels was first demonstrated while, in parallel, drones successfully delivered medicine to remote areas.

Since then numerous deliveries have been made, partnerships announced and substantial sums invested (Matternet and Zipline raised US\$12.95m and US\$41m, respectively).

Despite that, the industry is still in its infancy.

What compensates for poor productivity?

Drone delivery faces critical challenges.

Individual drones offer limited productivity compared to traditional means of delivery – for example, consider a van

delivering 150 parcels in an eight-hour shift).

They can only carry small payloads and battery technology limits their flight duration, constraining them to around a 30-minute radius of base, and the downtime needed for re-charging/re-loading further lowers their productivity.

But that, in our view, is not a showstopper. Fleet operation will compensate for poor individual drone productivity.

The unit cost of drones will be substantially lower than, say, a van, enabling the conversion of a few, highly productive vehicles into many small drones with high productivity at the fleet level.

It will require a further major reduction in hardware costs for commercial drones but if the past is our guide, this will be inevitable, as explained earlier.

As a general point, autonomous mobile robotic technology is causing a paradigm shift in the way we envisage many commercial vehicles. Take an unrelated example – tractors in agriculture. Here, the traditional design objective has been to make the tractor bigger and faster to amplify the productivity of the driver.

Autonomous mobility can up-end this by converting a few, fast, heavy tractors

Continued on page 27

Car loans from 9.55% p.a.
With fast approvals.

Apply now at www.udc.co.nz

Lending criteria, terms and conditions apply.

UDC
New Zealand's Finance Company

EV DIRECTORY

The comprehensive guide to every service an EV owner or dealer could use

EV CHARGING

charge.net.nz

CHARGENET NZ
0800 2 CHARGE
(0800 224 274)
info@charge.net.nz
www.charge.net.nz
New Zealand's only nationwide network of Rapid DC Chargers for electric vehicles.



ChargeMASTER LTD
021 448 107
nigel@chargemaster.co.nz
www.chargemaster.co.nz
Our mission is intelligent charging - for residential, commercial/fleet, public & high capacity bus/port/mining charging.



YHI (NEW ZEALAND) LTD
A subsidiary of YHI International Limited
YHI (NEW ZEALAND) LTD
Freephone 0800 877 359
ev@yhi.co.nz
www.rolec.nz &
www.yhipower.co.nz
YHI offers nationwide product solutions for electric vehicle charging and power systems.

EV EQUIPMENT

OEM AUDIO
0508 6362 8346
sales@oemaudio.co.nz
www.oemaudio.co.nz
EV Charging cables that are made, tested & compliant for the NZ market.

EV IMPORTER

METRO CHRISTCHURCH LTD
03 348 5855
chris@metrochch.co.nz
www.metrochch.co.nz
Registered dealer and specialist importer of electric vehicles, custom orders available, ships nationwide.

EV MEMBERSHIP ORG

DRIVE ELECTRIC
drive@driveelectric.org.nz
www.driveelectric.org.nz
Drive Electric is a not-for-profit membership organisation with one goal – making EV ownership in NZ mainstream.

FINANCE & INSURANCE

UDC
New Zealand's Finance Company
UDC FINANCE
0800 500 832

www.udc.co.nz

Quick and easy car loan applications. Fast approvals. Rates from 9.55% p.a. UDC lending criteria, terms and conditions apply.

Find out more

PROVIDENT INSURANCE

0800 676 864
info@providentinsurance.co.nz
www.providentinsurance.co.nz

VEHICLE INSPECTION



VINZ
Vehicle Inspection NZ
0800 GO VINZ
enquiries@vinz.co.nz
www.vinz.co.nz
NZ's independent vehicle inspection specialists – ask about our hybrid & electric vehicle safety check.

VEHICLE SERVICING

GILTRAP NISSAN
09 522 9928
service@giltrapnissan.co.nz
www.giltrapnissan.co.nz
Nissan NZ Authorised EV Service Centre conveniently located in Newmarket, Auckland. Open 6 days.

Do you sell EVs?

Talk to Rachel Hadfield about advertising your business here with EVTalk

- in print and online



Phone: +64 21 778 745 or
Email: rachel@automediagroup.co.nz

EV fleet reaches 5341

Electric vehicle numbers in New Zealand have well exceeded the 5000-mark, figures released on November 6 show.

The previous government's target for EVs was 4000 by the end of this year, then doubling next year to 800, then 16,000 in 2019, 32,000 in 2020 and 64,000 in 2021.

A total of 5341 EVs were recorded in October by the Ministry of Transport, continuing the year's upward trend from 2751 in January.

In terms of fleet size, most (2690) are in the used light pure-electric category, 268 more than previously recorded to the end of September.

By comparison, new EVs are up to 1113 – 108 more than recorded up to the previous month's end.

New light plug-in hybrids total 1129, up 28, and used plug-in hybrids reached 335, up 26.

Heavy EVs were at 74, with 75 the previous total.

Monthly registration comparisons show 294 used light EVs were registered in October while 247 were registered in September. For new light EVs, 136 were registered in October compared to 89 the previous month.

For the first time, plug-in hybrids were included in used import electric vehicle model charts this month,



though that didn't stop the Nissan **Leaf** from dominating.

The model set a new month record of 226 units, taking it well into the overall top 20 most popular used cars.

The plug-in hybrid Toyota **Prius** was second on 14 units, followed by the Nissan **eNV-200** on 11.

The Renault **Zoe** was next on eight, followed by the petrol-extended version of the BMW **i3** on six.

Almost more impressive than the Leaf's effort was Hyundai's staggering result of 85 new Ioniqs. Considering the life span on the road and its purchase price, the impact of this result is arguably larger than the Leafs.

Tesla was second with 11 Model S and tied for third with **Volkswagen** with four Model Xs and eGolfs each.

car is not a Nissan Leaf nor a Tesla but the Chinese BAIC EC.

BAIC stands for Beijing Auto International Corporation.

In fact, Chinese-made cars made five of the top 10 models tweeted by JATO Dynamics.

The BAIC EC sold 37,900 units globally from January to September this year.

Second was the Nissan **Leaf** with 35,400 and the Tesla **Model S** third with 33,200.

Other top ten sellers in order were the **Zhidou** 32,600, **Tesla Model X** 23,500, **Renault Zoe** 23,200, **Surui** 21,700, **Emgrand** 16,500, **Bolt EV** 16,000 and the **IEV 5** 15,300. ■

World's best-selling EV

The world's top-selling electric

USED IMPORTS OCT 2017

Vehicle Make	Vehicle Model	Total Vehicles
NISSAN	LEAF	ELECTRIC 226
TOYOTA	PRIUS	PLUGIN PETROL HYBRID 14
NISSAN	E-NV200	ELECTRIC 13
RENAULT	ZOE	ELECTRIC 8
BMW	I3	ELECTRIC [PETROL EXTENDED] 6
MITSUBISHI	OUTLANDER	PLUGIN PETROL HYBRID 4
TESLA	MODEL S	ELECTRIC 1
MITSUBISHI	OUTLANDER	PETROL ELECTRIC HYBRID 1
AUDI	Q7	PLUGIN DIESEL HYBRID 1
BMW	I3	PLUGIN PETROL HYBRID 1

NEW MAKES AND MODELS OCT 2017

Make and Model	Oct 2017
ELECTRIC	
HYUNDAI IONIQ	83
Tesla Model S	11
Tesla Model X	4
VOLKSWAGEN GOLF	4
BMW I	2
PLUG-IN PETROL HYBRID	
MITSUBISHI OUTLANDER	21
BMW I	6
AUDI A3	1
BMW 2 SERIES	1
BMW 7 SERIES	1
PORSCHE PANAMERA	1
VOLVO XC90	1



October 2

EV partnership

Toyota and Mazda have formed a partnership to develop electric vehicles.

Automotive components company Denso is the third party in the joint venture with the mission to develop basic structural technologies for EVs.

The trio will develop several models together, establishing a new company to produce mini-vehicles and passenger cars, SUVs and even light trucks.

Buy your first EV now – poll

Buying an electric vehicle immediately can save most New Zealanders more than five times the interest on any loan needed to meet the extra cost of buying one.

That's the finding of Flip the Fleet, a citizen science collaboration of more than 330 EV owners who share data from their cars' dashboards each month.

The median return on investment on a notional loan for the added cost of their EV in August was 526%.

October 3

GM aims for 20 EV models

General Motors intends rolling out at least 20 new all-electric vehicles by 2023.

It's introducing two within 18 months, likely to be based on its Chevrolet Bolt sedan.

It's part of an updated strategy towards the company's goal of an emissions-free fleet, some including hydrogen fuel cell technology.

E-bus plans explained

Infrastructure plans to help power the country's first fleet of battery-powered buses have been revealed to Island Bay residents in Wellington.

The Greater Wellington Regional Council plans to install two charging poles in Reef St, where buses currently terminate, to provide fast top-ups for 10 electric double-deckers that will operate between Island Bay and Johnsonville from July.

The Island Bay Residents' Association heard from council staff about details of the new technology, along with artist impressions of how the street will look with the poles in place.

VW e-Golfs here soon

Volkswagen e-Golfs are coming to New Zealand in mid-November.

A limited supply is expected to be available from dealers in Auckland, Wellington and Christchurch, Volkswagen New Zealand says.

The price will be around \$61,990, plus on-road costs.

October 4

Leaf Nismo concept on show

Concept cars and production vehicles revealing Nissan's newest and future innovations will be displayed at the 45th Tokyo Motor Show.

A highlight is expected to be the Leaf Nismo concept car, Nissan's flagship EV with intelligent mobility such as single-lane autonomous driving and self-parking, along with the e-Pedal allowing the

driver to accelerate, slow, stop and hold the car using just the one accelerator pedal.

The concept has a sporty new look designed by Nismo, Nissan's motorsports and in-house tuning division, a sport-tuned suspension and high-performance tyres, plus a custom-tuned computer providing instant acceleration at all speeds.

Tesla battery truck exposed?

Tesla was to unveil its all-electric truck on October 26 but a photo purporting to show it had already been put on social media.

On reddit, a user posted a photo reportedly from "an undisclosed place in California where they test Tesla vehicles", *electrek* reports.

"The headlights and fenders match up, the nose looks like it doesn't have an engine in it and the angle of the windshield looks similar to the teaser photo."

More range for e-NV200

The Nissan e-NV200 has a new 40kWh battery providing about 60% more range.

The size and weight of the high-voltage battery is unchanged but with almost double the battery capacity customers can drive more than 100km per battery charge.

The e-NV200 is now ideally suited for business customers such as parcel and delivery services, Nissan says.

EV interest growing fast

More Kiwis are considering electric vehicles, particularly in Auckland, Wellington and Canterbury regions, Trade Me Motors says.

The number of views on EVs increased by a whopping 330% in the last year, according to its latest data.

Electric vehicles are becoming "an attractive alternative" for car buyers, Trade Me Motors head Alan Clark says.

October 6

Toshiba works on new battery

A new electric vehicle battery that could charge in six minutes with a range of 320km is being developed by Toshiba.

The company says its latest SCiB battery will enhance technology it has already developed.

"Rather than an incremental improvement, this is a game-changing advance that will make a significant difference to the range and performance of EVs," Toshiba's corporate research and development centre director Dr Osamu Hori says.

EV fleet nearly 5000

The electric vehicle fleet is fast approaching the 5000 milestone, with a big month for the Nissan Leaf leading the charge.

The model entered the top 20 used import passenger car list with 182 vehicles registered.

The overall electric fleet totals 4909 vehicles, boosted by 334 extra units in September – 245 used imports and 89 new vehicles.

October 9

EVs at Big Boys Toys

Electric vehicles will join their more conventional counterparts at the Big Boys Toys show in Auckland on November 10-12.

Tesla features, along with The Better NZ Trust's Leading the Charge display with visitors able to drive any of six different EVs at the ASB Showgrounds, Greenlane.

The Manta 5 hydrofoil bike, an electric bike that rides across water, will be launched at the show and there's a range of road electric bikes, such as the Rayvolt, on display.

Ioniq added to finalist list

An electric Hyundai Ioniq is included among the 10 finalists in the 2017 New Zealand Car of the Year.

Continued on page 26

Continued from page 25

EVs have their own category for the first time, too, although they've been included in the general line-up before with the BMW i3 taking top honours in 2015.

The new EV category reflects the increasing numbers available and growing market interest.

October 10

Tesla launch delayed again

Tesla's electric truck is now likely to be launched on November 16.

The unveiling of the Tesla Semi had been first expected in September but was delayed until late October.

Now Tesla chief executive Elon Musk says it will be revealed on November 16 as the company diverts resources to fix Model 3 sedan production bottlenecks and increase battery production for hurricane-hit Puerto Rico's power supply.

October 11

GM moves towards driverless EV

General Motors is buying Californian company Strobe in a further step along the road to driverless electric vehicles.

Strobe produces laser imaging technology called Lidar, a key component for autonomous EVs.

It's reported Strobe will work with the GM Cruise Automation team working on Chevrolet Bolts in San Francisco to develop Lidar further.

Dutch target zero emissions

The Netherlands Government has confirmed it plans to ban new petrol and diesel cars by 2030.

Its detailed proposal includes making all new cars emission-free by 2030 – virtually banning petrol and diesel-powered cars in favour of EVs, *electrek* reports.

The four coalition parties released their agreed plan after

negotiating since the March election.

October 17

Tesla reveals dual connector

Tesla has revealed an updated Model S and Model X design featuring a new dual connector charge port system to support more than one charging standard.

The charge port on all Tesla vehicles is currently within the driver's side taillight but the actual connectors are different depending on the market.

Tesla's own proprietary connector features in the United States and Canada, but in Europe the electric automaker uses the standard Mennekes plug.

October 18

Polestar first of new breed

Volvo Car Group's Polestar has unveiled its first car as a new standalone electric performance brand.

The 600hp Polestar 1 is scheduled to go into production mid-2019 but customers will rent rather than own one on a two or three-year subscription basis.

It's the first of three models which will soon have a fully electric powertrain.

Electrified trucks and buses

Volkswagen will spend A\$2 billion on developing electric power trains for its trucks and buses during the next five years.

It will also use autonomous driving and cloud-based technologies.

VW executives presented the new electric truck and bus initiatives during the company's "Innovation Day" in Hamburg.

'Switch' tax for EVs

Not-for-profit group Drive Electric is encouraging the new Government to look at a

fringe benefit tax innovation that would encourage corporate uptake of electric vehicles.

Drive Electric's suggested "Switch" scheme would involve the incoming EV attracting the lower FBT rate of the outgoing fossil fuel vehicle.

FBT is lower on fossil fuel vehicles because they are much cheaper than EVs at present, Drive Electric chairman Mark Gilbert says.

October 19

Globally compatible charging

What's the best way to deliver efficient, fast and convenient EV recharging?

Different infrastructures, vehicles types and applications require different solutions so Continental has developed a portfolio of scalable, globally compatible charging technologies.

Many for cable-based and wireless charging were presented at the 30th International Electric Vehicle Symposium & Exhibition in Stuttgart, Germany.

Toyota to install free charging

Free electric vehicle charging points will be installed at Toyota dealerships around New Zealand.

It will start with Manukau, Greenlane, Auckland city, Hawke's Bay, Manawatu, Wellington and Christchurch later this year, Toyota New Zealand chief executive officer Alistair Davis says.

The move will help overcome the challenge of limited availability of public charging stations.

October 20

Nissan's electric mini-van

Nissan Motor Company in Japan will unveil the e-NV200 Fridge concept at the 2017 Tokyo Motor Show.

The urban delivery vehicle uses an all-electric drivetrain

to perform last-mile and run-about delivery work.

Renault-Nissan LCV Business Unit senior vice-president Ashwani Gupta says it will create huge value for commercial users, generating more business as well as reducing the cost of ownership.

October 24

AA launches e-bike service

AA Roadservice is extending its cover to AA members' electric bikes.

Those who have a problem with their e-bike on their route can call *222 or use their AA Roadservice mobile app to summon help.

If roadside help is unsuccessful, the e-bike would be recovered rather like if your car broke down.

Tesla charger tally rising

A Tesla Supercharger has opened in Taupo.

The supercharger is at 1 Kaimanawa St, next to Unison Charger.

It's among several Superchargers scheduled – the others are planned for Sanson this year and then Auckland next year.

October 26

BMW breaks 10,000 barrier

BMW Group sold 10,786 plug-in cars globally during September, the first time it's topped 10,000 EVs in a month.

And it says sales of electrified vehicles are higher in the first nine months of this year than for the whole of 2016.

A total of 10,786 (up 50.5%) BMW i, BMW iPerformance and Mini electric vehicles were delivered in September, bringing the year-to-date total to 68,687 (up 64.2%), BMW Group says.

Daimler on board

Electrification of all new trucks and buses in coming years has been announced by Mitsubishi

Continued on page 27

Continued from page 26

Fuso Truck and Bus Corporation, part of Daimler Trucks, under its E-Fuso brand.

The news came as the company unveiled its E-Fuso Vision One at the Tokyo Motor Show.

The all-electric heavy-duty truck concept has a 350km range, a gross vehicle weight of 21 tonnes and can carry more than 10 tonnes.

Plug-in hybrids ideal for Kiwis

Plug-in hybrid electric vehicles (PHEVs) are an ideal electric option for New Zealanders,

Flip the Fleet's latest monthly survey shows.

The survey of about 420 EV owners concludes PHEVs are suited to those with just one car in the family and a need to regularly travel long distances or tow loads.

PHEVs overcome range anxiety among prospective buyers and encourage more people to switch to EVs, Flip the Fleet says.

Europcar NZ tests e-Golf

Europcar NZ's pure electric vehicle fleet is now available for rent to the public in Auckland

and Christchurch.

The new e-Golfs are part of Europcar NZ's long-term sustainability strategy, a collaboration between the company, Volkswagen New Zealand and Auckland, Wellington and Christchurch airports.

The joint venture involved corporate travellers driving the e-Golfs on business trips free, instead of being taxied around. ■

NZ EV INDUSTRY NEWS

EVtalk

Register for
FREE
news updates

Receive
thrice-weekly
news alerts to
your email

www.evtalk.co.nz

Drone delivery: Publicity stunt or game changer in instant fulfilment?

Continued from page 23

into a fleet of many slow, small driverless agrobots. This process has begun and drone delivery can be viewed as part of this same long-term trend.

Limited payload is also not a showstopper because, according to Amazon statistics, around 85% of packages weigh below 2.26kg.

And the fall in delivery costs and time for customers is changing purchasing habits. Frequent orders of small items are replacing that big infrequent order. That matches well to the strong points of drones.

The limited range is also not a showstopper even in suburban areas where customers do not live close to a distribution point.

It will, however, mean a gradual yet wholesale change in the location of warehouses, with more placed closer to end customers, or the use of large mobile drone carrier vans.

The former is already happening in the background and the latter has

also been demonstrated as a concept.

Will safety concerns stop the show?

The most critical challenge is safety.

It can indeed be a showstopper and will almost certainly limit the market scope to sparsely populated areas.

Regulatory framework is already being relaxed for commercial drones but it still rightly continues to put brakes on large-scale deployment of beyond-line-of-sight commercial drones.

Indeed, there are many accidents waiting to happen - mechanical failure causing crashes, software failure leading to early release of payloads, etc.

Safety concerns will be a major damping factor. Together with technology limitations, they will limit the market scope.

Indeed, our market roadmap suggests that drones will initially be constrained only to deliveries to remote areas.

Technology evolution will enable them to move towards deliveries of urgent vital items and then towards places with low sprawled-out population densities.

High-density apartment urban environments will remain largely out of reach.

Our forecast model and technology roadmaps show delivery drone sales will remain limited to a few hundreds a year between now and 2027/28.

Demand will then start to take off, reaching sales volumes exceeding 50,000 a year by 2038.

Thanks to accumulation effects, we expect to see major drone delivery fleets in operation within our 20-year forecast period.

Long-term future

Drone delivery is still in its infancy. Its short-term potential has been exaggerated.

However, the technology has a long-term future, particularly within the context of the bigger trend to automate as much as of the

logistics chain as possible.

Its realisation will require patient investment in research and development and trials, constant negotiation with regulators and wholesale re-organisation of distribution points and practices.

The technology will therefore be a loss marker for its main users for years to come. But the ultimate grand prize of instant fulfilment will drive the industry forward.

Players will have no choice but to continue to sink money into distribution technology or services, viewing them as marketing expenses in their battle for market share against each other as well as against traditional stores.

Despite their ultimate rise, however, drone delivery will remain only a small part of the much bigger commercial drone story.

Visit www.IDTechEx.com for more information on the report *Mobile Robots and Drones in Material Handling and Logistics 2017-2037*. ■

NZ EV Chargers

Fast Charger Locations – North Island

Kawakawa - 4 State Highway 1, Kawakawa 0210
Dargaville - 111 Totara St, Dargaville 0310
Tikipunga - Paramount Plaza, 1 Wanaka St, Whangarei 0112
Whangarei - Northpower Substation, 11 Alexander St, Whangarei, 0110
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
Rosedale - McDonalds Constellation Dr, 14-16 Constellation Dr, Rosedale, Auckland
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
Pukekohe - Counties Power, 14 Glasgow Rd, Pukekohe 2120 (Business hours only)
Coromandel - 44 Woolams Rd, Coromandel 3506
Whitianga - 4 Lee St, Whitianga 3510
Tairua - Tokoroa Rd Carpark, 6 Tokoroa Rd, Tairua 3508
Thames - 505 Mackay Street, Thames 3500
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
Hamilton - Caro St, Hamilton City 3204
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 Givern 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
Taupo - Tesla Supercharger (x4), 1 Kaimanawa St, Taupo
Gisborne - 21 Gladstone Rd, Gisborne, 4010
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



Destination Charger Locations



Tesla Charger Locations



Fast Charger Locations – South Island

Takaka - 16 Willow St, Takaka 7110
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
Geraldine - Cox St Carpark, 14 Geraldine-Fairlie Highway / Cox St, Geraldine 7930
Tekapo - Tekapo 7999
Alexandra - 9 Thompson St, Bridge Hill, Alexandra 9320
Timaru - 26A North St, Timaru 7910
Kurow - Wynyard St, Kurow
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

