



Airline's fleet move sets electric pace

Air New Zealand's commitment to using electric vehicles (EVs) as part of its ground fleet continues to grow.

The company has gone one better on its promise to replace 75 of its ground fleet vehicles with EVs. It now has 76.

It announced the plan in March 2016.

"As an early adopter of EVs, we had to do extensive research on the options available and talk to numerous potential partners to ensure we got the vehicles to best fit the needs of our business," an Air New Zealand spokeswoman says.

Its EV fleet includes 36 BMWi3 vehicles for the sales team, 12 Mitsubishi Outlander Plug-in Hybrids for longer range trips and 28 Renault Kangoo electric vans for use on and around airports.

Air New Zealand chief executive

Christopher Luxon says the fleet transition is part of the airline's commitment to sustainability and carbon reduction across the business.



Christopher Luxon

"We recognise the opportunity electric vehicles present both for New Zealand and our

airline and we are making the most of the country's renewable electricity supply by transitioning our ground fleet off fossil fuels where we're able to."

As a result of increasing its own fleet, the airline has had to construct a series of charging networks throughout the country.

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New report show EV batteries are long-lasting

New research commissioned by the Energy Efficiency and Conservation Authority (EECA) shows electric vehicle (EV) batteries are reliable and long-lasting.

The report by Verdant Vision, an Australia-based electric vehicle consultancy, is part of the Government's EV information campaign.

The report reveals that many manufacturers are so confident in their new car batteries they guarantee 75% to 80% of original battery capacity – normally over a five-year period, with one even stretching to ten years.

It also looks at several studies that show batteries don't degrade particularly quickly.

One study that focused on the Tesla Model S showed only 5% battery degradation after 100,000km.

And another study by Idaho National Laboratory showed the hot climate in the testing location of Phoenix, Arizona caused more degradation in Nissan Leaf batteries than fast-charging and slow charging options.

In terms of battery replacement, it can stretch into the thousands,

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EVtalk

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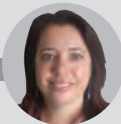
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**DRIVE
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Leading the Charge hits the road

A road trip that will see electric vehicles traversing the length of New Zealand is about to get on the move again.

Leading the Charge is organised by the Better NZ Trust to help promote the uptake of EVs and introduce people to the technology.

The event has come a long way from its first year when just two Teslas completed the drive with little planning.

This year vehicles doing the whole trip include five Teslas, two BMW i3s, two Hyundai Ioniqs, one PHEV Outlander, one PHEV Audi and a Nissan Leaf. Many more are likely to join for different legs along the way.

Two planned routes will see the cars drive eastern and western sides of both the North and South Islands, with some overlap.

The drive starts in Bluff on April 19

and arrives in Wellington on April 27.

It starts again on May 1 and finishes in Cape Reinga about May 10.

The trust says the road trip reflects the rapid growth in EVs and charging infrastructure throughout New Zealand, with a wide range of vehicles that weren't around even six months ago taking part.

It is also working with the Energy and Efficiency Conservation Authority to manage and promote events like International Drive Electric Week after the success of Leading the Charge. ■



The Leading the Charge route.

New report show EV batteries are long-lasting

Continued from page 1

with an estimated \$7700 plus fitting cost for a Nissan Leaf 24 kWh battery all the way up to \$35,000 for a Tesla Model S 85kWh.

A case study in the report shows a cost of ownership comparison between a Nissan Leaf and Nissan Pulsar.

If the Leaf needs its battery replaced, the total cost of ownership after seven years is \$28,913 – still less than the cost of the Pulsar which racked up a figure of \$29,338.

Advice for making an EV battery last includes minimise the use of fast charging, don't recharge to full every day unless you need to, always try to park in the shade, rather than in full sun and during extreme hot or cold weather, park in a sheltered garage.

The research, and a guide based on

it, will give owners valuable information about their vehicle's battery and is a useful resource for people considering buying an electric vehicle, EECA transport general manager **Elizabeth Yeaman** says.

"Electric vehicle batteries are an impressive technology and not everyone realises how long-lived and reliable they are," she says.

"This report will help owners look after their batteries to get the most out of them. It will also help inform people considering purchasing an electric vehicle."

To read the full report go to www.energywise.govt.nz/ev and click on the electric vehicle battery life link in the menu.

For general information about electric vehicles, see www.electricvehicles.govt.nz ■



Elizabeth Yeaman

Electric vehicle challenge sparks response

A bid to break the New Zealand record for the most electric vehicles in one place could go down to the wire.

More than 25 EV owners have responded to the New Zealand EV Challenge call to assemble at Hatea Drive car park in Whangarei on April 15 at 10.30am.

That's barely half of what's needed to beat the 59 EVs assembled at Auckland's Museum of Transport and Technology (MOTAT) last September.

But one of the Northland event organisers, **Joseph Camuso**, expects many more will show up on the day.

"Most will be Nissan Leafs but we are also expecting

Renault Zoes, Kia Souls and Tesla Model S cars," he says.

Three Domino Pizza electric delivery scooters will add to a strong electric bike community showing.

"We have great support from our local electric lines company Northpower," Camuso says. He's hoping for good Easter Saturday weather and is expecting some interesting appearances.

"We have a local bee keeper that uses his Nissan

Leaf to tow his bees and tend his hives - truly zero emissions honey."

Some kiwi-fruit growers are bringing an EV van, while two other farmers who sell their organic fruit and vegetables at the Whangarei Growers' Market using their Leafs are

also expected.

Camuso says the challenge started as friendly rivalry about two years ago, with Christchurch taunting other New Zealand groups to beat their 37

or so EV gathering.

About three months later, in August 2015, Whangarei organised and tried to claim the title with more than 30 cars. Then Auckland rallied 59 cars at MOTAT, about 15 of them from Whangarei.

Christchurch hopes to take the record back on April 22 when the Leading the Charge road trip stops there.

Whangarei gets the short end of the road trip stick, Camuso says.

"All the main cities - Christchurch, Wellington and Auckland - have weekend stops. Whangarei is scheduled for May 9 so no chance for us to try to break a record on a weekday." ■



Joe Camuso

Airline's fleet move sets electric pace

Continued from page 1

"We have been progressively installing charging points at our key internal parking sites to support our EV vehicles," the spokeswoman says.

"This is in addition to the charge points already installed in a number of our customer parking facilities."

Staff reaction been to the gradual introduction of EVs has been positive, she says.

"Staff at Air New Zealand have welcomed our transition to EVs and are realising the benefits the vehicles bring both environmentally and economically too."

Following on from Air New Zealand's announcement about its own fleet,

the company joined forces with Mercury and Westpac to launch an initiative that will attempt to increase the number of EVs in New Zealand by 75% within three years.

More than 30 leading businesses have committed to the transition which will see at least 30% of their vehicle fleets converted to plug-in electric vehicles by 2019.

"We wanted to get the business community together to lead the way on EVs and create the

critical mass of demand necessary to really launch the market in New Zealand," Luxon says. ■



EVs charging up the sales list at Auto Court

Electric vehicles (EVs) are growing in popularity.

So much so that Auto Court's **Nelson Cottle** of Dunedin predicts some dealers and manufacturers will be providing only EVs in a few years.

He saw the light early. Although the first EV Auto Court received about 18 months ago took "a couple of months to sell", Cottle says the dealership now stocks more than 40 and they're a big part of its monthly sales.

So what's changed? People are more familiar with EVs now and they're more affordable too.

The technology is changing quickly and there's a wider range of EV vehicles coming out, providing better selection.

The Nissan Leaf is one of the most popular EVs, probably the biggest selling in the world.

While Auto Court has

many of them, it's also bringing in commercial vehicles from Japan and the United Kingdom, including vans varying from two to seven seaters.

A popular EV in the UK is the Renault Zoe, which Auto Court is also introducing. Prices have dropped on this brand from around \$75,000 new last year to about \$35,000 now for former demonstration models.

Cottle says little was known here about EVs over a year ago.

"When we got the first EV in I didn't know much about it."

It's been a steep learning curve and he's learned a lot in a year, he says.

"There's more information out about EVs. These vehicles are getting longer range between charging and more charging stations are becoming available too."

Cottle attended the first Otago Polytechnic EV

courses for those working with the vehicles, helping provide some material and information.

And Auto Court is sponsoring the Dunedin leg of the Leading The Charge 2017 road trip, which stops at the Octagon on April 20.

The tour by EVs, run under the Better NZ Trust, aims to help inform the public about the vehicles. It starts in the South Island on April 19 and finishes at the top of the North Island on about May 10.

It's planned to coincide with the Motor Trade Association centenary celebrations in Wellington, with the roadshow having a stand and letting people test-drive different EVs.

Auto Court also sponsored the Dunedin screening of the documentary *Who Killed the Electric Car* last July.

It's not the first time the dealership has been at the

forefront in New Zealand's vehicle industry.

Cottle's dad Neil, who is still involved with the business, was a pioneer of the used imported vehicle trade.

He served on several trade organisations and recalls a meeting of the forerunner to the Imported Motor Vehicle Industry Association in Christchurch, waiting for the then-minister to announce the removal of the vehicle import licensing regime in 1988, which freed up imports.

Auto Court became a major New Zealand importer of new and used cars from Japan and can now have about 150 on its yard at any one time, with sport utility vehicles (SUVs) especially popular with customers.

So it's no surprise they're leading the charge with EVs now. And who's buying them?

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EVs charging up the sales list at Auto Court

Continued from page 5

Usually those in the 50-plus age bracket but that's changing too.

"Now it's people from all walks of life – the youngest is their mid-20s," Nelson Cottle says.

Customers like EVs for their zero emissions and low running costs and the fact that they're becoming more affordable for younger people.

Cottle says Auto Court tests the batteries on them to ensure they're good when sold. It also offers EV customers advice and

provides English information manuals with most EVs it sells.

"We do tell people what they need to have done to them and make sure they get it done right," Cottle says.

He believes many people have preconceived ideas about EVs.

"A lot of people are under the misconception that EVs are gutless wonders. But that soon changes once you get them out for a ride

in one and they experience the torque and power of the electric motor."

And many brands are now bringing out sports and high performance models. Luxury car brand

Aston Martin, for instance, is launching its first EV car, the RapidE, in 2018.

Suddenly, it seems EVs are taking off.

"These are exciting times," Cottle says. ■



Neil Cottle left, and son Nelson are helping lead the EV charge.

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Ginza: home to Nissan's future EVs

Tokyo's famous Ginza district is the unlikely setting for a display

of future Nissan EV models. The Ginza is what Times Square is to Manhattan -

home to luxury department stores, designer boutiques, and one of the busiest

intersections anywhere in world.

Now it is home to Nissan Crossing, a corner structure with a dazzling mesh facade that displays over two floors, concept cars including the next-gen Nissan Leaf, due for production later this year or in 2018.

Alongside it is Nissan's IDX concept car - a gob-smacking, futuristic sports car design that will change most peoples' image of EVs.

Settled in another prominent spot is an 'art car' - a Nissan Leaf with a special paint job undertaken by a famous Japanese artist. OMG!

Up an escalator to another floor and the all-new Nissan Note

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Signature coffee, too

Nissan Crossing is open to the public, seven days a week and is well worth a visit for anyone Tokyo-bound.

As well as the latest of Nissan's products and concepts, the building houses a cafe and coffee drinking facilities.

The coffee is something special too.



Continued from page 7

takes pride of place. It's an EV plus, with a supplementary small ICE (internal combustion engine) that doesn't drive the wheels, but does provide additional electricity to the electric motors.

The Ginza location is nothing new to Nissan. In 1963, it was the site of the Nissan Gallery, whose all-female staff were famous in automotive circles around the world.

Each of the female staff was a "Miss Fairlady", named after the equally famous sports car. There were Miss Fairlady beauty pageants, and photos of the beehive hair-adorned, bathing-suit wearing sales staff became collectors' items.

But in 2009 Nissan traded Tokyo's most expensive real estate for a new building and tax breaks in neighbouring Yokohama. The landmark Nissan Gallery



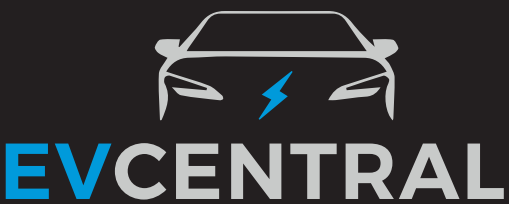
was moved to Kanagawa as well, and the showroom remained a neglected symbol of Japan's lost economic power.

Now the old Nissan Gallery is back as the Nissan Crossing - more glamorous than ever. ■



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	e-NV200	BEV	\$30k - \$40k
BMW	i3 Full Electric	BEV	\$42k - \$50k
Mitsubishi	i-Miev	BEV	\$13k
Renault	Zoe	BEV	\$35k - \$43k
Hyundai	Ioniq	BEV	\$48k
Kia	Soul EV	BEV	\$35k - \$39k
Volkswagon	e-Golf	BEV	\$42k
Tesla	Model S	BEV	\$90k - \$200k
Mercedes Benz	C350 e Sedan	PHEV	\$83k
Toyota	Plug-in Prius	PHEV	\$20k - \$40k
Audi	A3 Sportback E-Tron	PHEV	\$55k
BMW	i3 REX	PHEV	\$41k - \$64k
	225xe	PHEV	\$63k - \$75k
	330e	PHEV	\$60k - \$92k
	X5 xDrive40e	PHEV	\$140k
	i8	PHEV	\$150k - \$170k
Mitsubishi	Outlander	PHEV	\$35k - \$64k
NEW EVS			
MAKE	MODEL	TYPE	PRICING RRP est
Tesla	Model S	BEV	From \$122,300
	Model X	BEV	From \$154,000
Renault	Zoe	BEV	\$74,990
	Kangoo	BEV	\$74,990
BMW	i3 Full Electric	BEV	\$74,300
	i3 with Range Extender	PHEV	\$85,300
	i8	PHEV	\$276,000
	225xe	PHEV	\$68,500
	330e	PHEV	\$89,900
	740e	PHEV	\$199,000
	X5 xDrive40e	PHEV	\$149,900
Hyundai	Ioniq	BEV	\$59,990
	Ioniq Elite	BEV	\$65,990
	Ioniq Hybrid	PHEV	\$46,990
	Ioniq Elite Hybrid	PHEV	\$52,990
Mitsubishi	Outlander	PHEV	\$59,990
Audi	A3 Sportback e-tron	PHEV	\$75,000
Mercedes Benz	C350 e Sedan	PHEV	\$96,290
	C350 e Estate	PHEV	\$98,500
	E350 e Sedan	PHEV	\$143,500
	GLE500 e	PHEV	\$150,290
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How do we spread the EV message?

Those who live and breathe electric vehicles (EVs) know they are here and now and they work.

But the average Joe Public is still barely aware of their existence, let alone how easy they are to live with.

In late 2015, the Automobile Association surveyed just under 2000 members in a bid to understand their level of awareness and enthusiasm for EVs. Their responses showed:

89% didn't know much about them;

Just over 50% thought EVs were "unaffordable" but about 32% thought they were "possibly affordable";

Nearly 40% would benefit from knowing that charging an EV costs a lot less than paying for fuel (they either thought it cost the same, more or had no idea);

93% weren't confident about who could maintain their EV;

Unsurprisingly, range anxiety, purchase price, battery life and charging infrastructure were common reasons not to buy one.

That's why the information and promotion campaign component of the Government's Electric Vehicles Programme is so important.

Public events like Leading the Charge road trips are also essential in raising the profile of EVs among ordinary New Zealanders and getting them behind the wheel.

Some car dealerships are now using EVs as loan cars while the customer's car is in for repair. What a great idea.

Let's have EVs as taxis so even more people can experience them. Green Cabs was a successful applicant to the Government's Low Emissions Vehicles

Contestable Fund after committing to introducing electric taxis to help "normalise" them.

One thing we do know is that the more we can get people to experience an EV, the more they will discover how much fun they are.

By Mike Noon,

Mike Noon is the AA's general manager motoring affairs and leads its advocacy work. This focuses on improving road safety, better roading infrastructure, and being the motorist's champion for the AA's 1.4 million members. Mike is a member of the EV Leadership Group.



riverfront drive shared with cars, cyclists and pedestrians.

The well-publicised trial has proven so popular, passengers have to book well in advance.

What was it like? After

Publicity is one reason the AA supported the Government's proposed law change to enable road controlling authorities to make bylaws to allow EVs access to special vehicle lanes.

The cost to implement will be low - save for some new road markings and enforcement - but general traffic will get to see numerous EVs of different shapes and sizes and hopefully be envious of the faster travel times enjoyed by the occupants.

At an EV seminar hosted by the Energy Efficiency and Conservation Authority (EECA) last year, United States EV advocate Chelsea Sexton, who helped develop the General Motors EV1 in the 1990s, said access to transit lanes was the "number one" non-financial incentive that authorities could introduce to facilitate their uptake.

And talking of the here and now, another technology ordinary Kiwis might not realise is up and running in this country is the autonomous vehicle.

Christchurch International Airport recently began trialling a fully autonomous 15-passenger electric shuttle although initially not as a public trial.

But in Singapore and Perth and elsewhere, identical autonomous ve-

hicles - with no drivers and not even a steering wheel - are carrying passengers on public roads.

A few months ago, a couple of AA staff had the chance to experience the autonomous electric shuttle in Perth. It operates on a popular scenic

overcoming the initial excitement of something new - and the strangeness of a vehicle with no driver's seat, let alone any controls - it was surprisingly ordinary.

You soon realised it was just like any other shuttle-type service. After all, how many people travel on trains or trams and never see the driver?

On the go, the shuttle stopped a couple of times when it identified oncoming vehicles crossing its path and took evasive action when being passed. But as passengers, you felt completely safe and confident that it was identifying risks and taking appropriate action.

Clearly, this new technology works and is coming fast. ■

EVtalk

Keep up with the Electric Vehicle industry news

evtalk.co.nz

The cool electric road trip

Steve Greenwood will be purring around the North Island in an electric Renault Zoe from late April to early May, offering drives.

It's part of the Leading the Charge tour, run under the Better NZ Trust, which aims to help inform the public about electric vehicles.

The EV Central Taupo manager is keen to let people try the car, or at least have a look at one of the top 10 best-selling EVs in the world.

EV Central started just over a year ago as part of the Central Motor Group (formerly Central Ford) in Tuwharetoa St, Taupo.

So how did it get into EVs?

"It was pretty random really," Greenwood says.

About 12 months ago the dealership heard a bit about EVs and decided to put a Nissan Leaf on Trade Me. It was snapped up within an hour.

"On arrival we drove the car and fell in love, got four more EVs and sold them, then 20 and here we are today buying in lots of 50."

Greenwood says it's really exciting times for the industry and he can see New Zealand following Norway's lead in getting a massive uptake of EVs within the next few years.

"We bring in a mix of new and second-hand ones," Greenwood says.

The latter are usually up to six months old and have low mileage.

Greenwood is also bringing in other EV brands, like a VW e-Golf, along

with the Hyundai Ioniq, BMWi3s and Kia Soul EV.



Steve Greenwood

People are now more aware of what EVs offer and the technology is improving all the time, Greenwood says.

"I think we're in for a huge year with EVs. So many new models are coming out, which helps as well."

A chance to try various EVs will come during the Leading the Charge EV roadshow which starts in the South Island on April 19 and finishes at the top of the North Island on May 9.

event is at the TSB Arena on April 29-30.

Greenwood will drive a Zoe from Kapiti to Tauranga, while another Zoe advocate, Mark Nixon, will drive one from Timaru on April 21 right up to Cape Reinga.

Nixon's a keen supporter of EVs – he bought a Nissan Leaf in 2014 and added the Zoe in December last year.

He bought the Zoe from the United Kingdom and immediately took it on a 370km, 12-hour trip (which included six hours of charging) from his Christchurch home to Nelson for a family summer holiday. He reckons at two cents a kilometre, it was far cheaper than petrol.

EVs are great, Nixon says, "I've always been interested in EVs and it's something to help reduce New Zealand's carbon footprint."

Since his first trip, more charging stations have been installed and he's confident of making Cape Reinga without too much trouble.

Meanwhile, EV Central is also sponsoring

the Documentary Edge Festival, or "Doc Edge".

Three EVs will chauffeur moviegoers in Wellington during the May 10-21 festival there and again in Auckland from May 24-June 5. About 20,000 people are expected to attend.

A competition to drive an EV for a week is also running.

If you miss the chance to check out EVs during any of this, there's another with the EV World NZ Show at the Vodafone Events Centre in Manukau on September 8-9. It's open to the public on the second day. ■



Steve Greenwood, right, and staff at EV Central in Taupo.



An electric Renault Zoe of the type on tour.

The tour is planned to coincide with the Motor Trade Association centenary celebrations in Wellington, with the roadshow having a stand there. The

Is New Zealand the EV's El Dorado?

Whether New Zealand is the coming El Dorado of the electric car (EV) is being pondered in Canada.

In a country that produces more than 90% of its electricity from renewable resources, New Zealand is emerging as the new hope for the development of the EV market, the *Quebec Times* reports.

Likening it to Canada in terms of being one of the world's largest renewable energy producers,

the article says New Zealand has the potential to supply a future fleet of EVs that could reach around three million.

It quotes from a report by Waikato University professor Barry Barton who studied laws and policy measures that could be introduced to encourage the uptake of EVs.

The Canadian newspaper notes that green electricity could feed 80% of the fleet of "this archipelago off the coast of Australia".

It says by early this year there were more than 2000 zero emission vehicle



owners here. Most opted for the Nissan Leaf, the world's best-selling EV at

250,000 units.

New Zealand companies and individuals are already

anticipating a more massive arrival of EVs but the necessary investments in infrastructure have been slow.

However, with the likes of ChargeNet and

others, the charging network will be strengthened next year, the paper says. ■

POWER DEALS FOR EV USERS

Company	EV Deal	Where	Cost to charge LEAF*
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Ecotricity	Ecosaver – designed with lower night rates and can buy back solar energy	Auckland Wellington Christchurch	\$5.73 \$4.75 \$4.95
Electric Kiwi	Bonus Hour of Power 1 Free Hour of Off-Peak power (9am-5pm and 9pm-7am) daily	Auckland Wellington Christchurch	\$6.69 \$6.69 \$6.36
Flick Electric #	Variety of Plans available – they use wholesale prices direct from the spot market, plus their fee	Auckland Wellington Christchurch	\$4.64 \$3.86 \$3.86
Genesis Energy	Variety of Plans available – we have used their flexible Classic plan with uncontrolled rates.	Auckland Wellington Christchurch	\$6.81 \$4.35 \$3.89
Mercury	EV Discount – includes 20% off your electricity costs between 11pm and 7am daily for first year	Auckland Wellington Christchurch	\$6.23 \$6.08 \$6.03
Meridian	Rest Easy EV plan - lower night rate from 9pm to 7am for a 3 year term.	Auckland Wellington Christchurch	\$5.50 \$4.65 \$3.39
Paua to the People	Using their Simple As Plan - Fixed rate, set quarterly	Wellington	\$3.35

*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, Kelburn in Wellington and Linwood in Christchurch. It will also depend on your meter type, the company you use and will also vary at the different times of the day and year eg Christchurch has significantly higher Winter rates. The rates we have used above were calculated in April 2017 using a low user cost, overnight rates, includes the daily charge and GST. It does not include extra discounts that companies have available eg Electric Kiwi's hour of power, prompt payment or online discounts, etc.

Flick Electric's prices have been calculated using an average overnight spot price of 5.5c per kWh. The Auckland plan used is their Smart Plan with Time of Use Tariffs. For Wellington, we have used their new EV tariff which will be available before the end of May.

BMW offers another VIP option

Photo credit: Dave Moore

The Green Party was disgusted when the Government opted to stick with the diesel-powered BMW 7-Series for its VIP fleet late in 2015.

Its transport spokeswoman Julie Anne Genter said at the time the Government had wasted the opportunity to lead the way and start replacing the Crown fleet with electric vehicles.

She also suggested most of the journeys the cars made were 20km round trips from Wellington airport to Parliament.

Now BMW has given Internal Affairs, which buys and runs the VIP fleet, the chance to have its cake and eat it too. It's offering the 7-Series in plug-in form.

In fairness, it's not the fully electric car the Greens would like to see but a 740Le plug-in hybrid version, a car with a relatively short 30-40km electric range but enough for Genter's suggested 20km round trip.

BMW is supplying one to the department free to trial, a move VIP transport manager Steve Dyhrberg has welcomed.

"This is an exciting opportunity for the department to test a plug-in hybrid electric vehicle at no additional cost and with no obligation."

He believes it could offer some cost savings along with environmental benefits.

"We will be testing the vehicle in various locations across New Zealand and it will be trialled for as long as necessary to determine if it is fit for purpose," Dyhrberg says.

"We have had some positive feedback from the initial testing and our chauffeurs are really excited about getting behind the wheel of this car more often."



Public can also plug-in

While the Government is testing a long-wheelbase model of the car, the public can pick up a standard version of the 7-Series with the same drivetrain, the 740e iPerformance.

The 740e has a similar drivetrain to the BMW 330e, with primary power coming

from a two-litre four-cylinder turbocharged petrol engine producing 190kW and 400Nm of torque. It is teamed with an 83kW electric motor with 250Nm. Together they output an effective 240kW of power.

BMW claims the 740e can be charged in four hours when it's plugged into a home socket using the charging cable stored in the huge boot.

But when we plugged in from empty, the car indicated it would take closer to six hours. When plugged into a more powerful public or fixed charged, that time drops to under three hours. The 740e cannot be fast charged.

How far will it go? The claimed range is 40km but BMW's communications manager Paul Sherley acknowledges that the real world range is closer to 30km - a figure we found achievable during our time with the car.

The car is absolutely loaded with technology. It comes standard with a display key, gesture control for the audio system, a Driving Assistant Plus package that includes steering and lane control assistant, cross traffic warning (front and rear), active cruise control and traffic jam assistant.

Luxury features also abound and include air suspension, ambient lighting, multi-zone climate control air-conditioning, heated and ventilated front seats, keyless entry and start, soft closing doors and leather upholstery - upgraded to a plush Nappa leather in the car we got to test. There is also a large sunroof.

Pricing begins at \$199,900 but because our review car featured the enhanced leather, 20-inch alloy wheels, sun-protection glazing, rear-seat heating, a leather finish for the dash, BMW Laserlight headlights, an anthracite headlining and an upgraded Harmon Kardon surround sound system, the cost shot up to \$218,950.

EV enough

With a full battery, the 7-Series can be driven around in electric-only mode. Provided the car is in eDrive, it will avoid using the petrol engine at speeds up to 140kmh. In automatic mode, a heavy throttle will bring the petrol motor into play from around 80kmh.

There's a setting that allows the car to charge itself from the engine, useful if it needs to silently waft into a VIP event that's further away

Continued on page 16

BMW offers another VIP option



Photo credit: Dave Moore

Continued from page 15

than battery range allows.

The petrol motor is smooth and quiet when it does join the party which it does almost seamlessly. When pushed it does sound a little like a hard-working four-cylinder, something that seems odd for a large luxury car.

Its power delivery is, how-

ever, perfect. The combination of the engines means you are never left wanting for torque, the feel being like that of a larger diesel unit.

If it sticks to short range trips, the 7-Series is super-efficient. BMW claims it will use 2.2 litres per 100km but that would be based on a cycle where most of the driving is done on electricity.

We had a day where we could only do around 20% of our driving on electricity, giving us a result of around 6.5 litres per 100km. In comparison, fuel economy for a 740 diesel is 5.3 litres per 100km.

Why not a Tesla?

Having such a short range before the 740e becomes

less efficient than its diesel counterpart begs the question: why bother? Wouldn't a fully-electric Tesla Model S be a better option?

The answer lies in space. In the past month, I have ridden in the back seat of both the Tesla and the 740e and they are like chalk and cheese.

If you are tall, you have little room to work with in the back of the American car and there's little chance of getting three people in the back.

By contrast, the BMW has acres of space and that's in the standard wheelbase car, not the extended wheelbase version the Government specifies.

Do I care if ministers have a lot of space? No, put them in a Nissan Leaf. But I do see why they prefer the bigger car.

I'm not sure the 740e is the right car to replace the entire VIP fleet but for cars just doing short distance airport runs, it is perfect.

Perhaps a mixed fleet of electric, plug-in hybrid and internal combustion engine cars is the way to go.

Hopefully, the Greens will be happy too. ■





March 1

China pushes towards leadership in EVs

China is going all-out in an effort to sustain leadership in electric vehicles – and to make sure that Chinese companies win a dominant share of future EV sales.

This week the City of Beijing announced plans to transform its entire taxi fleet to electric propulsion. Within five years, electric cars and SUVs will replace the 70,000 gasoline and diesel-fueled taxis now cruising the streets of the capital, reports *Forbes*.

Beijing is not the first city to mandate electric taxis. Shenzhen, the booming tech city of 10.8 million population across the border from Hong Kong, declared that all new taxis entering the fleet will be electric. The changeover starts this year.

March 2

Half of future Qld car buyers considering EV purchase

Home battery storage systems and electric vehicles are more popular than ever in Queensland, according to a survey of household energy use.

The Queensland Household Energy Survey canvassed the views of more than 4500 residents around the state providing information on energy use, awareness and intentions, as well as current and forecast trends regarding electrical equipment in homes.

Energy minister Mark Bailey says a key finding of the survey is that half of all Queenslanders who are in the market for a new vehicle are willing to consider an electric vehicle (EV) or hybrid.

March 8

Half of Norway's new registrations EVs

Norway, which already boasts the world's highest number of electric vehicles (EV) per capita, has officially reached the half way mark when it comes to new EV registrations so far this year.

"This is a milestone on Norway's road to an electric car fleet," climate and environment minister Vidar Helgesen says.

"The transport sector is the biggest challenge for climate policy in the decade ahead. We need to reduce [CO2] emissions by at least 40% by 2030 and this requires the electrification of the car fleet," Helgesen told AFP.

March 10

New Mini EV for NZ

The first ever electric-drive Mini Cooper S E Countryman ALL4 model range will arrive in New Zealand in 2017.

Mini spokesman Paul Sherley says the company is aiming to release the car here mid-year.

It was unveiled officially for the first time in Europe at the weekend.

The first Mini plug-in hybrid model features a three-cylinder engine up front. This powers the front wheels, while the electric motor drives the rear wheels.

Tesla has potential to be the most powerful GT car

Formula E runner-up Lucas di Grassi has tested electric GT's development Tesla and thinks the final version has the potential to be the most powerful GT car in the world.

The Audi driver completed more than 20 laps over half a day's running at Vallelunga in the Tesla Model S P85+ last Saturday.

Di Grassi has been a part of Formula E since its launch and is a keen supporter of the Roborace driverless racing car project.

Renault Trezor EV takes home Concept Car of the Year award

The Renault Trezor has been voted 2016's Concept Car Design of the Year, based on the votes of a 20-strong judging panel.

The Trezor is a fully electric coupe which can accelerate from 0-100kmh in less than four seconds.

The car regenerates power using the Renault Formula E braking system, while each of its electric motors has a cooling system.

March 13

Wikileaks shines a light on car hacking

Recent Wikileaks documents reveal that the CIA considered a "mission" against vehicle computer systems is a warning sign for consumers and carmakers.

Security experts cite the hypothetical example of a remote attack on a fully autonomous vehicle with no steering wheel or brakes, in which the passenger would have no recourse to regain manual control of the car.

"You have a lot of car companies trying to design cars to be better suited to automation, which means they're more attractive to hackers," says auto consultant Roger Lancot of Strategy Analytics.

March 14

Driving support systems demonstrated

How robotics will change your world is demonstrated at an international digital technology trade fair in Germany from March 20-24.

For the first time Toyota Motor Corporation, Aisin Seiki and DENSO Corporation (DENSO) of the Toyota Group are at CeBIT 2017, organised by Deutsche Messe AG in Hanover.

It's at one of the world's largest international trade fairs for cutting-edge technologies in information and communications.

March 16

Traditional brands most trusted under autonomous revolution

Established car manufacturers like Ford, Audi and Tesla would be the preferred provider of autonomous cars in Britain, a new study has found.

Auto Trader UK research shows British drivers would be more trusting of traditional brands rather than new players in the industry, like Apple, Amazon and Google.

The survey questioned 5500 UK motorists about their future buying thoughts, the Daily Mail reports.

March 17

Jaguar's first electric vehicle in New Zealand next year

Jaguar unleashes its first electric vehicle on the road next year.

The I-Pace will be available in the second half of 2018, and launched in New Zealand late that year.

A preview SUV, the I-Pace Concept, had its first street drive at London's Olympic Park.

"The feedback on the

Continued on page 18

Continued from page 17
I-Pace Concept has been fantastic," Jaguar design director Ian Callum says. "With the I-Pace Concept we've torn up the rule book to create a vehicle with supercar inspired aesthetics, sports car performance and SUV space, in one electric package."

March 20

EV registrations hit 3000

The popularity of electric vehicles in New Zealand continues to grow, with more than 3000 now officially registered, transport minister Simon Bridges says.

This year there has been 517 EV registrations, bringing the total number of EVs in New Zealand to 3005, he says.

That is already half way to achieving the 2017 target.

"While 1513 EVs were registered in New Zealand in 2016, in Australia only about 220 EVs were."

Eco-car a star

A little eco-car from Canterbury University has won a major international design excellence award.

The car, designed and built by a team of eight engineering students, gained the prestigious Design Award at the Asian leg of the Shell Eco-Marathon in Singapore on Sunday, *Stuff* says.

Judges say its build quality is the best they have ever seen.

Tesla Model 60 cars discontinued

Tesla Model S 60 and 60D cars are being discontinued.

The Model S 60 kwh battery was introduced a year ago as a more affordable op-

tion to accelerate the adoption of electric vehicles.

However, most customers ended up buying an equivalent to the Model S 75 kwh, Tesla says. It says removing the 60 kwh option from the line-up will simplify the ordering process for customers.

March 22

People not ready for autonomous cars: BMW boss

Autonomous cars may be closer than society realises, but BMW global boss of sales and marketing Ian Robertson is questioning whether people are ready for them.

The company's first fully autonomous car will be ready for sale by 2021, but Robertson commented at the Geneva Motor Show that society's acceptance of machine learning is a bigger hurdle than any technology or regulatory barriers.

"We are going to see cars becoming a lot safer, but there is going to be a mismatch for decades. The legislation around it is also very immature and we are just beginning to ask the questions 'what if?'," drive.com.au reports.

"Does the car have the ability to answer the life or death question? Yes it does. Are we ready for that? No we're not. It will be limited not by the technology but by society."

March 24

Toyota supports progress on Paris climate commitment

Toyota New Zealand is calling

on businesses to work towards the climate change and reduction targets in greenhouse gases to meet the Paris climate commitment.

"Business can't succeed in a society that fails, or on a planet that fails – so Toyota has a highly developed sense of responsibility for the world around us," says Alistair Davis, Toyota New Zealand chief executive.

Davis, who is also the chairman of the Sustainable Business Council, says Toyota New Zealand wants to work with the Government to transition to a low carbon economy.

EV DC rapid charging plug type set to change

ChargeNet NZ has announced a forthcoming change to its DC fast charging network from a Type 1 CCS charging plug to the Type 2 CCS charging plug.

BMW Group New Zealand and ChargeNet NZ entered into an agreement in 2016 to support the installation of over 100 DC rapid chargers across the length of New Zealand.

Both parties were involved in the extensive industry consultation, which has resulted in the MIA and NZTA announcing the new recommended EV charging standard for New Zealand.

March 27

Crash leads to Uber suspending self-driving cars testing

Uber has suspended testing of self-driving cars after a US crash.

The ride sharing service has taken its fleet off roads in

Arizona while it investigates a crash there that left one of its SUVs sitting on its side, *The Washington Post* says.

Police in Tempe, Arizona, were called to a crash on Saturday (New Zealand time) to find that the Uber SUV was hit when another vehicle failed to give way, according to the Tempe Police Department.

March 29

Automated drive test Mercedes-Benz coming to New Zealand

Mercedes-Benz is looking to New Zealand this year during development of future automated-drive models.

A vehicle fitted with the factory's latest active safety and advanced driver-assistance systems is on Australian roads, covering up to 100,000km over the next year and gathering data on different road conditions and configurations, *Stuff* reports.

Mercedes-Benz Australia intends bringing the car here this year.

Boost to EV fleet

Eastland Group in Gisborne is hosting a forum to encourage more businesses to use electric vehicles.

As part of its commitment to ensuring at least 75% of its non-commercial vehicle fleet is electric by 2019, Eastland Group business development general manager Gavin Murphy says its EV fleet has increased for the second time this year, the *Gisborne Herald* reports.

The additions, a plug-in BMW i3 hybrid and a fully-electric Nissan Leaf, bring the group's EVs to eight. ■



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Fleet officially tops 3000

The fleet of electric vehicles on New Zealand's roads has officially crossed 3000 vehicles.

The tally at the end of March hit 3120, a near 2000 unit jump from 1216 this time last year, the market tracking well ahead of the government's wish to double the number of EVs each year.

Ministry of Transport figures say

206 plug-in vehicles joined the fleet during the month. Registration figures can account for 41 new vehicle registrations and 117 used import vehicle registrations - it is impossible to count

all currently due to how vehicles are identified when entered into the fleet.

The Tesla Model S was the most popular new battery electric vehicle on 14 registrations, followed by the Hyundai Ioniq on six - both essentially in their launch month

to the market.

In new plug-in hybrids, the Mitsubishi Outlander dominated, 30 updated versions hitting the road.

In the used import market, the Nissan Leaf had a strong month, accounting for half of all EVs on 103 vehicles. ■

USED IMPORTS MARCH 2017		
Vehicle Make	Vehicle Model	Total Vehicles
NISSAN	LEAF	103
BMW	I3	7
MITSUBISHI	I-MIEV	3
VOLKSWAGEN	GOLF	2
NISSAN	E-NV200	1
TESLA	MODEL S	1
Total		117

NEW MAKES AND MODELS MARCH 2017	
Make and Model	March 2017
ELECTRIC	
Tesla Model S	14
Hyundai IONIQ	6
Tesla Model X	4
BMW I	2
Total	26



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NZs EV Charging Infrastructure

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
Silverdale - Kings Plant Barn, 17 Hibiscus Coast Highway, Silverdale 1025
Albany - 186 Don McKinnon Drive, Albany, Auckland 0632
Hobson St - 21 Hobson St, Auckland, 1010
Z Beach Rd - 150 Beach Rd, Auckland 1010
Newmarket - 1 Gillies Ave Newmarket, Auckland 1023
Greenlane McDonald's - 356/320 Great South Rd, Greenlane, Auckland 1051
BP Pakuranga - 322 Pakuranga Rd, Pakuranga Heights, Auckland 2010
Z Botany Downs - 550 Te Irirangi Dr, Botany Downs, Auckland 2013
Airport Shopping Centre - 400 George Bolt Memorial Dr, Auckland Airport 2022
Z Skyway - George Bolt Memorial Dr, Auckland Airport 2022
Takanini Village - 30 Walters Rd, Takanini, Auckland 2112
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
Raglan - 43 Bow St, Raglan 3225
Tauranga - The Strand, Tauranga, 3110. (BYO cable)
Mt Maunganui - Bayfair, 19 Girven Road, Mt Maunganui Rd 3116
Te Awamutu - 10 Scout Lane, Te Awamutu 3800
Whakatane - i-SITE, 30 Quay St, Whakatane 3120
Rotorua - 1134 Haupapa St, Rotorua 3010
New Plymouth - 66 Courtenay St, New Plymouth 4310
Napier - 206 Dickens St, Napier 4110
Hastings - 100 Queen St W, Hastings, 4122
Mangaweka - 2 Koraenui St, Mangaweka 4797
Waipukurau - 34 Russell St, Waipukurau 4200
Palmerston North - i-SITE, The Square, Palmerston North, 4410
Otaki - 155-163 Main Hwy, Otaki 5512
Porirua - 2 Serlby Pl, Porirua 5022
Featherston - SuperValue, 42 Fitzherbert St, Rimutaka Hill, Featherston 5710
Lower Hutt - Dowse Art Museum & Dowse 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
Timaru - 26A North St, Timaru 7910
Waimate - 125 Queen Street, Waimate 7924
Oamaru - Eden St Carpark, 3 Eden St, Oamaru 9400
Dunedin - Filleul St Carpark, 193 Moray Pl, Dunedin 9016
Balclutha - 23 Charlotte St, Balclutha 9230
Invercargill - 116 Esk St, Invercargill, 9810

