EV talk



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Time to vote on EV opportunity

When Australians go to the ballot box on May 18, they will have a stark decision to make.

It will be between parties and independents who see the electric vehicle revolution for the opportunity it is, and those who do not.

Just as they will on climate change more broadly.

But this is not just about the environment. It's about our economy, jobs, public health, and national security.

For anyone out there who still doubts the future of transport is electric, look no further than Ford's announcement last month that it will invest a half-billion US dollars into EV ute and SUV start-up Rivian.

It's the latest evidence that the world's car manufacturers are voting with their feet and their wallets, and shifting their R&D budgets to focus on EV technology.

The world's biggest car maker, Volkswagen, plans to invest $134 billion to put 300 EV models on the market by 2030.

And at the centre of it all is one simple reality - price.

While currently EVs cost more than petrol and diesel equivalents, year-on-year improvements to battery density and reductions in price mean that EVs will be cheaper to buy in coming years.

Bloomberg New Energy Finance expects upfront cost of EVs to be cheaper than petrol and diesel equivalents by around 2025.



By independent senator for South Australia **Tim Storer**, who is not seeking re-election for family reasons.

When total ownership costs are taken into account, which see EV owners paying significantly less for fuel and servicing, *BNEF* predicts some EVs will reach price parity with petrol and diesel equivalents in Australia by as early as next year.

That will mean anyone taking a long-term view of their car ownership will start to seriously consider buying an EV from 2020.

BNEF's modelling also assumed owners would be paying for their electricity, so the cost effectiveness for those households who now produce their own electricity through rooftop solar (two million and climbing), will be even more pronounced.

A report by PWC from last year

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VW ID. 3 could arrive in two years

Volkswagen has opened the order book for its first electric ID. Vehicle, the ID.3 which will be offered first in Europe and may reach Australia in 2021 or 2022.

A 420km range special edition ID.3 (Intelligent Design class 3 compact segment) is expected to have a European starting price of under 40,000 euros (A$64,400) and can be pre-ordered for a 750 euros deposit with about 30,000 units first produced.



The ID.3 will have its official world premiere at IAA 2019, the International Motor Show Germany in Frankfurt on September 12-22.

"With the ID.3, we are starting from the centre, the Volkswagen brand's core, in which the majority of the models and sales volume can be found," VW brand management board member for sales, marketing and after sales **Jurgen Stackmann** says.

Offering a preview of Volkswagen's e-mobility campaign, VW aims to

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EDITOR
Geoff Dobson
geoff@automediagroup.com.au
+64 21 881 823

CHIEF REPORTER
Scott (Muzza) Murray
+61 426 365 774
scott.murray@automediagroup.com.au

BUSINESS MANAGER - EVTALK
James Henderson
021 778 745
james@automediagroup.co.nz

RECRUITMENT SPECIALIST / PRODUCTION
Fran Da Silva
+64 21 933 279
fran@automediagroup.co.nz

GROUP GENERAL MANAGER
Deborah Baxter
+64 27 530 5016
deborah@automediagroup.com.au

MANAGING EDITOR
Richard Edwards
+64 21 556 655
richard@automediagroup.com.au

PUBLISHER
Vern Whitehead
+64 21 831 153
vern@automediagroup.com.au

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Italian on world Tesla trip

A Dutchman did it and now an Italian is following suit – travelling the world in an EV, including Australia.

Tesla Owners Club Italy vice-president **Pierpaolo Zampini** is touring in a Tesla, naturally, and has been driving around Australia for three weeks.

He was able to use one of Evee's Tesla Model S cars, shared by its Australian owner.

Zampini travelled from Sydney to Adelaide to Townsville along the coast and then back through inland routes, visiting main cities as well as remote locations where electric cars haven't been seen before.

He documented the 5000km Tesla trip on social media as part of his global mission to demonstrate EVs are not just the future but already present and available to many shortly.

Dutchman **Wiebe Wakker** has just completed a similar EV journey in a converted Volkswagen station wagon around Australia, driving 95,000km from Amsterdam to Sydney where he finished on April 7.

He's now continuing his EV trip in New Zealand during May to July before returning home to write a book about it, saying it has proved the viability of EVs.

Zampini is the chief executive officer of Ecolibera, a property development company which provides "Energy Plus" housing solutions in Italy and is helping with his EV journey.

The homes produce all the energy needed with zero emissions, mainly through solar panels, enough even for an electric car.

Once back in Italy, the Ecolibera Tesla will stop in Asti, where the first Energy Plus house is taking shape. It's a villa that can be disconnected from the electricity grid and aims to have a zero power bill, the energy coming from a 20kW photovoltaic system which combines with a 42kWh Tesla Powerwall to recharge an electric car and power home utilities.



Pierpaolo Zampini in Beechworth, Victoria



Slava Kozlovskii

Since 2016, Zampini has traversed Europe, the USA, the United Arab Emirates, and now Australia. He is heading to Japan next.

Evee founder **Slava Kozlovskii** says his company helped make Zampini's Australian visit possible.

"We are the only Australian platform providing Tesla [and soon other EVs] for rent," he says.

"The owner of the vehicle was also very happy to share his car with a fellow Tesla enthusiast from Italy. This is a great example of the global EV owners' community wanting to connect and share their cars with each other.

"Zampini's Australian tour proves that long distance travel in an EV is already a reality - a view not currently shared by many in Australia, especially the Government," he says.

"When someone from a different country can land here for the first time and immediately set off to drive 5000km in just three weeks, it defeats the very notion of range anxiety."

Kozlovskii says Zampini's drive is the longest road trip an Evee customer has undertaken.

"Many don't realise that there are more power sockets in more remote areas than petrol stations. And each of those power sockets is a source of energy for your electric car."

More Tesla tourers P3.



Zampini and Liliana Modoran

Tesla tourers plan global EV travel guide

World Tesla travellers **Ralf Schwesinger** and **Nicole Wanner** have thoroughly enjoyed their 45-day tour of New Zealand and are now spending three months journeying around Australia.

The couple, who call their global sojourn "Mr and Mrs T on Tour", travelled 6310km in the country and also joined the New Zealand Tesla Supercharger Rally before leaving for Australia from Queenstown on May 3.

They used a Tesla Model X belonging to a Tesla Owners Club of New Zealand member during their stay.

"Outside of Europe, where we used our own Model S, using a local car is the most sustainable option. We are very grateful for the support provided by other owners, allowing us to complete our mission," Schwesinger says.

In fact, their story began in 2015 when the Swiss-based pair began looking for a new car.

Wanner wanted a car that was safe, clean and aesthetic while Schwesinger hankered for a fast and roomy sports car.

They found their dream car on a visit to the Geneva motor show in 2015 and ordered their Tesla.

"We did not know that this new car would change our lives entirely," they say.

It led to them hearing Tesla chief designer **Franz von Holzhausen** speak at a Model 3 preview in Tesla's Fremont factory in California. They took his message to heart about venturing outside your comfort zone to experience something truly special and quit their jobs (he was in banking and she was in tourism/marketing) and home to travel the world in a Tesla for a good cause.



Nicole Wanner and Ralf Schwesinger at the start of their world tour

"The weekend getaway that never ends" started in April 2018 when they left their rented apartment to travel around Europe in their Model S.

Tesla heard about their drastic lifestyle change and offered support, sending a film crew to document their story and record their first three days on the road to share their message.

"They liked the story that we were dropping everything to support Tesla's mission and a more sustainable lifestyle," Schwesinger says.

Their beginnings were published under "customer stories" on all European Tesla websites and in a YouTube video.

"We are traveling in a Tesla, because we support their mission to accelerate the world's transition to sustainable energy," the couple says. They also have a very clear message: "Acting more sustainable does not end with owning an electric car, but it is surely a good start!

"Our journey takes us from the heart of Switzerland around the globe, travelling Europe, New Zealand, Australia, North America and Asia – all along the Tesla Supercharger network. We want to discover and share the beauty of our planet and inspire more people to protect it."

Schwesinger, 44, and Wanner 47, have fallen in love with New Zealand, describing the people as extremely friendly and open, supportive of EVs, and the scenery spectacular.

"Yes, based on the growing Supercharger network, Tesla makes it easy for us to travel and there are also more and more hotels which provide charging infrastructure to their guests.

"In New Zealand we were also very positively surprised by the fantastic network provided by ChargeNet NZ. They do a great job offering open fast charging infrastructure to all EVs, because this is what it takes," Schwesinger

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Ralf Schwesinger and Nicole Wanner

Tesla tourers plan global EV travel guide

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explains.

They're funding their global Tesla tour from their savings, saying people have also been generous in providing support – particularly through Tesla Owner Clubs.

"With regards to the cars in Europe, New Zealand and Australia we were also lucky as all cars still have free Supercharger use so we don't need to pay for our energy consumption and travel for free," Schwesinger says.

They have garaged their Model S in Switzerland and cut down on any fixed costs to make things work. Shipping their car to other continents was never an option as this would have been bad sustainability.

Other than that, shipping costs and other issues like different charging infrastructure, insurance and more contributed to their decision, so they try to use local cars instead with Tesla owners being very supportive.

There's more to their journey than just having fun, meeting like-minded people and the thrill of Tesla travel. Their website rates hotels and other accommodation they use (generally Destination Charging Partners where possible), with the eventual plan to produce a world travel guide for all EV users.

"Our EV travel guide will be the first of its kind and we are close to signing a contract with a globally operating publisher," Schwesinger says.

"We have to pay for the book to be published, but if you want to make the world a better place by inspiring others you can't wait until someone else is taking the risk paying for it. We have to take the first step and time will show where that guides us," says Schwesinger, who welcomes sponsorship and other support for it.

As soon as the contract is signed, people will be able to pre-order the guide through their website with publication planned in about November 2019. They also plan for a founders' edition, offering a nice extra feature for early supporters who order via their website. To be informed once the book is available you can sign-up to their newsletter via **https://mrandmrstontour.com/newsletter/**

One of the reasons the couple wanted to travel was to check out EV-friendly accommodation world-wide themselves.

"We are looking for places where you can charge your car as well as your own batteries. We provide our honest opinion and if the accommodation doesn't meet our expectations then it's not mentioned," Schwesinger says. He says that's illustrated by the fact that of 145 hotels they've stayed at, about 90 feature on their website.

Their EV travel guide will include their favourite hotels and accommodation they endorse, plus will have general information of places they visited, day trips, restaurants and other aspects travellers want to know.

A third section has EV charging, including general information and simple ways to charge.

"Our main message is to tell and demonstrate to people that EVs are a good thing as they're not completely understood by everybody," Schwesinger says.

"We tell people about our own experiences. EVs are cool, fun, quiet to drive, easy to use and very practical – on top of all of that they are much better for our environment."

They've travelled about 40,000km through 16 countries, planning to visit Canada and the US after Australia, used about 8745kWh of free power, taken over 39,000 pictures and videos and been supported by 22 Tesla Owners Clubs.



The Tesla tourers love NZ



Charging up

Both are aware of other EV travellers such as Italian Tesla traveller **Pierpaolo Zampini**, who they knew through the Tesla Owners Club Italy (he's vice-president) and Dutchman **Wiebe Wakker**, both who've just completed journeys around Australia.

"Every effort, big or small, that's being done to support the movement is great," Schwesinger says.

While Zampini often returns to Milan after most of his trips, "Mr and Mrs T" are unsure when they'll eventually get back to Switzerland. "It's a journey with an open end and time will show where it will bring us," Schwesinger says.

They're enjoying being on the road and contributing by living a life they previously thought impossible.

Any advice for others? "If you've never tried an EV, try one now. You will be amazed," Schwesinger says.

"We're one EV community and we all share the same mission. The more who join the better for our planet. Everybody can do something and as I said, driving an electric car is surely a good start."

Visit **www.mrandmrstontour.com** for more information and **www.patreon.com/MrandMrsTonTour** to support them. ■

‘Killer blow’ coming in 2023

Smaller pure-electric cars will have a lower upfront price than internal combustion equivalents around 2023.

This is the opinion of **Dr Peter Harrop**, a leading expert in electric vehicles and chair of the IDTechEx group in the United Kingdom.

He describes this as the “killer blow” for conventionally powered cars.

“Like most other new products, electric vehicles sell in an S curve of a slow start with over supply. Then comes fastest growth with supply sometimes unable to keep up with demand, then comes saturation.”

Harrop says pure electric cars are now near to the fastest-growth stage at around a 70% increase in numbers sold yearly.

“Subsidies are already less critical because price parity is approached earlier with small vehicles.

“This time China is in sync with the rest of the world; it has the largest pure electric car sales and is expected to dominate global manufacturing of EVs just as it has grown to be the biggest global manufacturer of conventional vehicles,” Harrop says.

“Evidence from Norway - with the largest percentage of pure new EVs in the world - suggests that the biggest obstacle to speeding up the electrification of road transport could now be a lack of e-vehicles.

“The Kia Niro is on one-year delivery in Norway and the Tesla Model 3 is still keeping customers waiting. Volkswagen even announced that the Passat GTE and the Golf GTE have been ‘closed to ordering’ due to the exceptionally long waiting times.”

Harrop says that in the pure electric buses sector, China rapidly deployed 400,000 - 99% of the total number in the world - then it collapsed subsidies causing a collapse in deliveries.

“The rest of the world, however, is beginning to compensate. For example, Qbuzz in the Netherlands has ordered 159 pure electric buses, Helsingborg Sweden 76, Brussels Airport 30 and London 68 pure electric double deckers. Cities across the UK recently placed a total of 263 orders for zero-emission buses.

“Warsaw will order 130 pure electric buses for delivery by 2021. Kazakhstan is expecting 700 electric buses, and Azerbaijan another 500 over the next three years.

However, India has the largest potential with a government plan for an initial 10,000 pure electric buses replacing some of the 1.6 million buses there - all of which must go, says the Indian government, sensitive to the deaths they cause.

“The Indian state of Uttarakhand has ordered 500 pure electric buses and Tata Motors in India has orders from six other cities for a total of 255 pure electric buses.”

Harrop says that China is now at the top of the growth curve and everywhere else is at the fast growth part in electric buses, but China may see another S curve based on free market demands when pure electric buses have price parity.

“Until now battery costs have been a primary impediment in the uptake of electric buses. However, in an interesting development, busy bus routes are seeing progress to lesser battery reliance.

“Eight countries have 10-second charging super-capacitor large buses now and non-stop top-up charging in many forms has arrived from solar bodywork to intermittent catenary, rails, and coils in the road.

“Top-up, including stationary forms with gantries etc at bus stops typically leads to 80% less battery. This, and the ongoing reduction in battery prices has led to some projections that the battery will be a mere 6% of bus cost in 10 years’ time

“This will hasten the day when the up-front price of pure-electric buses is at parity with diesel. The rising cost of diesel powertrains also helps.

“When you take into account diesel fume reduction measures such as 48V mild hybridisation, and the extra cost of adding equipment to treat diesel emissions, we currently predict price parity of large pure electric buses by 2030 - but as we have seen so often with electric vehicles, the future can come early.”

‘Staggered’ at advances in two years

EVtalk publisher **Vern Whitehead** is staggered at the advances made by EVs in Europe in the last two years.

He has just returned from EV conferences in Oslo and Berlin.

“The progress made is immense - not only with EVs themselves, but also in the field of charging with fast chargers highly visible in all cities and towns.

“The rapid adoption of EVs has also led electricity suppliers to move to cleaner, green energy, with wind and solar farms mushrooming around the countryside.

“In March, Norway’s sale of new pure EVs reached 58% of the total for all light vehicles sold in that country, and that total does not include plug-in hybrids.

“Now Norway plans to ban sales of petrol and diesel powered cars from 2025, a staggering development in only a handful of years.”

Whitehead attended the Berlin conference on EVs two years ago, and in coming weeks will tell EVtalk readers of some of the almost unbelievable advances made since time. ■

Harrop says that the killer blows for conventionally engined vehicles will be 2023 for small cars, and nearer 2030 for larger buses. ■

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Which EV is better - batteries or hydrogen?

Rather than pick a winner between battery electric vehicles (BEVs) and hydrogen fuel cell electric vehicles (FCEVs), energy expert **Stephanie Moroz** aims to provide a balanced discussion at an upcoming clean technology conference of how the different technologies complement each other.

Speaking at the 2019 **National Clean Technology Conference & Exhibition** on the Sunshine Coast from May 29-31, Moroz says it's a shame our culture seems obsessed with having a single winner because one solution would deplete resources for it far quicker than applying a mix of technical solutions.

"Every technology that is widely implemented will have a major impact on the environment through its consumption of natural resources, and so the most important solution of all has been woefully neglected, namely energy efficiency," says Moroz, who is principal at Davanz, advising on strategy, innovation and commercialisation of energy technologies.



Toyota's Mirai FCEV

Moroz was named one of Australia's "Most Innovative Engineers" in 2016, and she has more than 20 years of product development experience in companies ranging from high volume manufacturing to venture capital backed start-ups.

With particular expertise in hydrogen, internal combustion engines (ICE) and batteries, her automotive work has included leading the fuel cell integration into the Mercedes F-Cell vehicle in Germany and developing engine systems using petrol, diesel, biofuels and synthetic fuels in France.

Prior to Davanz, Moroz was chief executive officer at Nano-Nouvelle, developing high performance lithium-ion battery materials.

Asked how Moroz sees hydrogen fitting into the low/zero emissions equation – such as suiting longer range transport like trucks, ships and trains, Moroz says hydrogen is receiving more support for longer range transportation because, for larger systems, increasing the hydrogen storage is less expensive and requires less weight and volume than an equivalent increase in range using battery storage.


Stephanie Moroz

"As battery prices come down and as hydrogen system costs come down, I would expect to see increasing overlap in the applications," she says.

"There are many aspects to consider in choosing a technology, for example, the fuel cost and availability, so that regional economic factors may favour either electricity or hydrogen."

At least one power company involved in renewable energy sees little point in producing hydrogen because it uses three times the amount of electricity to make it (electrolysis). So, what does Moroz think?

"If the hydrogen is produced at the same location with the same electricity that would otherwise recharge a lithium ion battery, a much larger amount of electricity will be necessary to produce the hydrogen that powers the car an equal distance," she says.

"However, there are usually many factors at play in any given situation, for example, often there is no requirement that the hydrogen would come from the same electricity source, for example it could be produced in bulk somewhere else where electricity is cheaper.

"The electrolyser producing the hydrogen may also have benefits to grid stability beyond what a battery system is capable of providing and thereby offset the cost of the hydrogen provided to vehicles.

" Nevertheless, there is a real need to develop more renewable sources of hydrogen and researchers are working on other ways to split water such as solar thermal, photocatalysis, biological systems, fermentation, and biomass or waste conversion."

Moroz says batteries have had much more research and development money invested in them over the past 20 years than hydrogen technologies. "So, there is still a lot of opportunity for hydrogen to make progress."

Asked about the costs of hydrogen infrastructure such as storage, transport and vehicle refuelling, Moroz says hydrogen infrastructure is far more developed than Australia in other parts of the world.

"Typically, it begins at local refuelling hubs to service fleet vehicles that always return to the same place to refuel," she says.

"Jumping to a broad network is a bigger challenge though because a refuelling station is not profitable if there aren't enough cars, and people won't buy hydrogen cars if they don't have enough options to refuel them.

"This is where typically a consortium of industry players agree to work together to build out an infrastructure rapidly, as is the case in parts of Europe and Asia.

"Existing service stations can often be used, but their suitability depends on the local regulations around compressed flammable gases and whether they have the space available for another fuel supply."

Moroz was also asked where and when she sees hydrogen becoming a viable fuel, particularly with fuel cell electric vehicles (FCEVs) like Toyota's Mirai and the Hyundai Nexo available.

"It depends entirely on decisions that will be made by industry and government regarding investment, incentives and taxation," she says. "The technology exists, and with investment the costs can come down, so it depends on policy decisions."

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Time to vote for those who will drive towards our EV opportunity

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found that if EVs were to make up 57% of new car sales in Australia by 2030 – a mere 7% higher than the ALP has proposed – it would boost our national GDP by $2.9 billion, net employment by 13,400, and save EV owners $1700 annually.

It would also reduce our reliance on imported foreign oil by 16 million barrels a year, enhancing our energy security and independence.

In spite of all this, EV uptake in Australia has been depressingly slow. They made up just 0.2% of car sales last year, equating to around 2400 vehicles.

Five million Norwegians buy more EVs in a week than 25 million Aussies do in a year. Closer to home, New Zealand has around 2000 more EVs on the road than we do, despite having a population smaller than Sydney.

More than a dozen countries have already announced plans to completely phase out the sale of diesel and petrol cars in coming years, including the United Kingdom, France, China, India, Ireland, Israel, and the state of California.

Furthermore, the lions' share of the EV investment announced to date is being made in developed countries, with Germany and the US leading the race.

It's clear that EVs are the future. The question for us here in Australia is: Do we want to be technology takers, or technology makers?

We have all the natural and human resources needed to build EVs here. We are already the world's biggest lithium exporter, and still have a skilled car manufacturing workforce that can be re-engaged.

Our geographic proximity to emerging markets in Asia is also an advantage.

It doesn't make sense for us to be shipping off raw materials needed to make EVs, only to buy them back as finished products.

We should be looking to capture more of the value of our resources here in Australia. We have a huge economic opportunity, and we are currently squandering it.

Through my Senate inquiry into EVs, we heard from a number of companies that are interested in setting up EV manufacturing bases in Australia.

Global manufacturer **Sanjeev Gupta** and the Swedish EV start up Uniti, for example, have both talked about setting up operations in my home state, South Australia.



Tim Storer with a BMW i3

The Adelaide-based company Precision Buses is already building electric buses at the old General Motors Holden site in Elizabeth.

With the economic opportunity EVs present for Australia, it's no surprise that I have been vocal about my deep concern with the anti-technology EV scare campaign being run by the Government and some within the media in the lead-up to Election Day.

It is akin to someone in 1990 arguing mobile phones were not going to take off.

It flies in the face of facts, and the public should not buy it.

Now, more than ever, we need leadership from our elected representatives to seize the opportunity that the electric vehicle revolution presents. ■

Which EV is better - batteries or hydrogen?

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Moroz adds that the BEV market has taken off overseas and a good range of models are starting to arrive in Australia

"Meanwhile, hydrogen fuel cells for automobiles have had their ups and downs over the years, but they appear to be finally gaining some initial traction in overseas markets, which has drawn the attention of various Australian industry and government bodies.

"The debate is now raging; which electric vehicle is better, batteries or hydrogen? Is the internal combustion engine dead, or can we find alternative fuels for it? Which technology will 'win' this race?"

Those at the clean technology conference will learn more and, if as Moroz says, there is more than just one winner.

The event will have about 250 delegates, 40 exhibitors and 55 speakers, along with study tours, workshops and two full days of conference sessions. ■

VW ID. 3 could arrive in two years

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become the number one brand globally by 2025, with more than 20 purely electrically driven models and more than a million vehicles sold annually, all networked and emission-free.

Following the launch of the ID.3, additional models will roll out, such as those previewed by the concept cars ID. Crozz, ID. Vizzion and ID. Roomzz which will in the future also be named with model numbers.

VW Australia has indicated VW international models could be here from 2021, although much may depend on the May 18 federal election result.

The ID.3 will have about four battery pack options, the first likely to be a 58kWh battery pack providing 420km range with others including a 48kWh pack (330km range) and an 82kWh (550km range).

The 48kWh is expected to cost under 30,000 euros (A$48,320). ■



Britz EVolve: A guilt-free holiday?

If you've made the jump over to electric, returning to a fossil-fuelled vehicle is not always the nicest experience. For a start, you've become used to the lower noise levels and smooth progress, there are no smelly hands after a fill-up - and having to burn carbon for progress when you know it is just not necessary can be a little irritating.

Until now, if you wanted to take a motorhome holiday - arguably one of the best ways to see New Zealand - you had no choice but to grab a vehicle that ran on diesel.

Tourism Holdings Limited, our biggest motorhome rental company with its prominent Britz and Maui brands, decided to do something about it - working with its Action Motorbodies subsidiary and LDV to create the Britz EVolve, one of the first electric motorhomes available in the world.

And while initially a concept, the EVolve has been put into production - 12 have been built - and you can rent one now. They are not expensive either, the two-berth vehicle costing around the same to rent as a Maui two-berth.

Of course, take into account that you don't have to pay for fuel, or even fast charging (it is included in the rental), or Road User Charges, as there are none.

It is not as simple as switching a camper from diesel to electric, there are compromises to be made. Well one major one, and that is range. A diesel vehicle will go 500+ km on a tank, while a standard EV80 around 180km. The EVolve, with its vast new body, a shower, toilet, kitchen and water tanks weighs a lot more.

Britz recommends a range of 120km between charges. To fix this, they've developed two routes, one in the North Island around the Waikato and Coromandel, and one in the South Island, from Christchurch around Central Otago.

Around the routes are campgrounds especially prepared for the EVolve, with sites fitted with both house power and an EV charger. With a 7kW onboard charger, the LDV fills up overnight. There is no gas on board the camper - this is entirely fossil fuel free - so you need to be plugged in to cook and shower. Freedom camping is not ideal for this vehicle.

When Britz gave *EVtalk* the chance to take the Evolve for a spin, we said "heck yeah" and planned a five-day trip on part of the North Island loop.

Day one - Auckland to Miranda

Our first day on the road started mid-afternoon with a visit to Britz's base near Auckland Airport. A quick run through of the vehicle - and a bit of paperwork - and we were on our way. The van comes ready to go, topped up with electrons, bedding and water. Before leaving we loaded the fridge - which runs continuously from the house batteries - with food for the trip.



Collecting bikes from Darleen Tana at Bikes and Barbers

Rather than head south, we had to first pop into Newmarket to visit **Darleen Tana** at Bikes and Barbers. She loaned us a couple of e-bikes for the trip, a Smartmotion Pacer and Smartmotion X-City. The EVolve features a rear-mounted bike rack for two - although it should be noted the maximum weight per bike is 30kg.

Why take bikes? Our theory was that when the camper was charging, e-bikes would be a great little satellite EV for shopping trips and exploring. We were very right, with the bikes really making the trip.

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After loading up, we turned south (finally) and cruised down the Southern Motorway, then off to the Miranda Holiday Park. We checked in and grabbed the swipe card for the charger. We plugged into the type 2 charger, plugged in house power, and hit the hot pool.

Travelled: 97km. Charging: Just overnight.

Day two - Miranda to Rotorua

After a great night's sleep on the double/queen size bed - which is created by lowering the dining table - we cooked breakfast on the camper's induction stove before heading off. First, we headed for Morrinsville where we left the van at the ChargeNet DC charger at New World while grabbing a quick lunch with friends. ChargeNet units currently are a slight inconvenience with the vehicle as the cable is not long enough and you need to park on an angle.



With the Mamaku Ranges ahead we topped up to a little higher than the recommended 80%. We didn't need to, as despite the steep incline gentle driving got us over the hills with mileage to spare. We arrived at the Rotorua Top 10 Holiday Park, where the staff were intrigued by their first EV - so we showed them how it worked.

Off came the Smartmotion bikes, and we headed to town for errands, and to grab a bite at the tourist mecca's fabulous night markets. Here we picked up the most Kiwi of bike punctures - the pin from an Anzac poppy.

Travelled: 164km. Charged: DC charging, then overnight.

Day three - Rotorua to Waitomo

First thing in the morning we grabbed another hot pool soak before heading into town for breakfast and a puncture repair from the great team at Happy Ewe Coffee and Bike Repairs. We loaded up the van, and stored our type 2 cable and house power cable in one of the handy side storage units on the van and headed out for the day.

First stop was the Redwoods on the edge of town, again to warm ourselves up with a blast on the Smartmotions. For two people not used to running up and down trails, the electric boost of an e-bike is a real help and encourages you to get out there and get active.

We then made the short hop over to Tokoroa, where we again found a New World housed ChargeNet unit for a fill-up. We pushed on next on our longest single leg, to Waitomo.

The twisty backroads we chose worked well with the EVolve's performance. It will do 100kmh, but really it prefers 80-100kmh. It also makes it clear how heavy it is around corners - it's not unstable, but likes a gentle hand. Be kind and pull over for others to pass.

On arrival in Waitomo, we experienced the only charging we had to pay for. The Waitomo Top 10 Holiday Park is a lovely spot but asks an additional $15 to use their type two charger. Plus, their charger is on a sloped site, and on grass rather than a hard surface. Paying for charging is a broader debate, but it should be noted this was the only park that did so.

Travelled: 163km Charged: DC charging, then overnight ($15).

Day four - Waitomo to Raglan

After a wander around Waitomo, and a shower in the camper (it is warm, and the pressure good), we had to deal with the less fun part of camping - waste. The toilet and tanks are relatively easy to empty but can be a little wiffy. Thankfully gloves are provided!

We set out on a relatively short run today, just north to Raglan. We will admit we did not plan on going to a campsite that night, we had Airbnb





booked, so on arrival in town, we filled the van at the WEL charger on the main street. It is a tight squeeze here, but the van does fit. Just!

Again the e-bikes came out and made short work of the hills in and out of town. A night out without having to worry about parking - just chain up to the nearest bike stand.

Travelled: 104km. Charged: DC charging

Day five - Raglan to Miranda

Overnight it rained. It rained a lot, so the day became part of a comfortable trip home. The Smartmotions were put away for the last time, and we headed into town for a little more breakfast before turning back across the Waikato for a top up at Morrinsville, then north to Miranda. We returned there because this site makes tremendous sense as a gateway in and out of Auckland for the EVolve, and their EV-prepped spot is just lovely.

Plus, hot pools. Who does not love a hot pool?

Travelled: 144km. Charged: DC charger and overnight.

Day six - Miranda to Auckland

Our last day was a reverse of the first, a slow start before a trip to Newmarket to return the bikes (thanks Darleen), and then out to Britz. Drop off was easy thanks to the express return package - which I highly recommend.

What did we think of the EVolve experience? It is great. Britz's two touring routes look great, but I think anyone with a little EV knowledge can easily venture far further afield. Yes, more range would be excellent, though we probably travelled as far per day as we would really want to and still have a relaxed holiday.

So if you are considering a getaway, consider giving the EVolve a go. It is fun, it is practical, and yes, it is totally guilt-free.

Australia's largest single site EV charger installation

Putting 40 electric vehicle chargers in one Sydney apartment development will establish a record for the largest single site apartment installation of such chargers.

So says EVSE Australia, a leading supplier of EV charging stations, cables and accessories, which is installing the 40 EO Genius charging stations at the Infinity Cove project in Lane Cove, Sydney.

Installation is expected to be completed later in May.

EVSE Australia is also in the process of fitting out 11 chargers across five carparks for North Sydney Council and putting another 22 chargers in a St Leonards Square apartment development by Mirvac.

Chargers have already been installed in some Mirvac shopping centres in preparation for customers and retailers using EVs.

Mirvac is investing in charging stations and is designing future car parks and freight areas for EVs.

A range of chargers is offered by EVSE Australia, particularly fast chargers which can top up an EV in hours or minutes.

"We are working with several large developers already to include these charging stations in new developments," EVSE Australia sales director **Sam Korkees** says.

"It is far easier to set these buildings up to be EV ready from the outset, rather than try and retrospectively upgrade. The beauty of our EO Genius system means that once they have the backbone infrastructure set up, adding more chargers in the future is far simpler and more cost effective as the product is designed to be scaleable and futureproof from the outset."

EVSE Australia has been installing chargers for more than four years and has noticed a significant increase in demand from developers and commercial builders in general for EV charging.



An artist's impression of Infinity Cove

The developer initially wanted to install a provisional 10 EV chargers in his carpark to attract potential buyers to his development and increase the value of his proposal.

He then started to offer apartment owners the option of upgrading to an EV charger in their apartment carpark. More than 40 new residents took up the offer. The developer also had 7kW EV charging systems installed to ensure all residents would have access to fast home charging.

Challenges in ensuring electricity supply were overcome with EV charging distribution boards and using a smart EV charging system (EO Genius) to manage peak load demands on the system.

Using a smart system enabled more EV chargers to be installed on the available infrastructure.

Also, the body corporate has full visibility of the EV charging systems and electricity usage, meaning EV users can be billed for the exact electricity used automatically via credit card or through quarterly strata bills.

The fact that residents can comfortably buy an EV and charge at home removes a barrier to owning an EV, EVSE Australia says.

About 90%-95% of EV charging is done at home, so the residents can now easily access the charging infrastructure daily.

The huge demand from residents confirms industry reports showing a large proportion of drivers are considering buying an EV in the next five to 10 years.

Visit **www.evse.com.au** for more information.



Hybrids charge ahead

Hybrids remain the flavour of the month.

Hybrids continue making big gains in the passenger market, especially against diesel vehicles which are declining in droves.

Electrics and plug-in hybrids (PHEVs) are playing catch up with hybrids in most cases, according to the last VFACTs April new vehicle sales figures.

The biggest increases for hybrids are in the private and non-private passenger segments, recording 552 for April (up nearly 68% on April 2018) and 1024 (up 58% on April last year) respectively.

Year-to-date (YTD) totals in that category show the drive for hybrids is on with 2187 in the private passenger market, up 88% on the same time last year. And in the non-private passenger category the YTD figure is 3812 – a 66.8% rise.

It's not so good for hybrids in the SUV private and non-private categories though.

In April, hybrids accounted for 65 sales in the private sector and 70 in the non-private SUV segment. The first category was up by just six on the same month last year and the latter market down 15.7% in monthly comparisons, with YTD totals little better (about 28% up for private and down the same amount for non-private).

Electrics and PHEVs only really made substantial gains in the SUV private and non-private sectors – up 516.7% to 74 and up 157.7% to 67 respectively, so not huge numbers. YTD totals in those categories were 201 private – up 337%, and 492 – up 256.5%.

In private passenger sales, electrics and PHEVs recorded a small increase with 22 for April – up five on April 2018, and 123 YTD compared with 73 previously (a 68.5% rise).

The dropped in the non-private passenger area, just 18 electrics and PHEVs sold in April – down five on the previous month with only 84 YTD were down 53.8% on the previous YTD total of 182.

There was no movement at all in the light commercial non-private electric/PHEV sector which stays at just five YTD.

Whether those figures change after the May 18 federal election remains to be seen.

But the April sales statistics certainly show vehicle sales generally are down.

Federal Chamber of Automotive Industries (FCAI) chief executive **Tony Weber** says it's a continuing trend.

"The results for April are in line with trends for year-to-date 2019. We have seen a decrease of around 8% across the first four months of the year.

"This decrease is the result of a number of factors in the Australian market, including the downturn in the housing market, the tightening of lending practices, environmental factors such as drought and flood, and, of course, the imminent federal government election."

Until such time as a national EV target is set, various incentives introduced and charging infrastructure improved, the vehicle sales figures for the electric/PHEV categories in particular are not expected to change much either.

Recent studies and agencies like the Electric Vehicle Council say Australia runs a real risk of being left behind on vehicle technology unless political action is taken nationally. ■

NEW VEHICLE SALES BY BUYER TYPE AND FUEL TYPE — APRIL 2019

	Month		YTD		Variance +/- Vol. & %			
Total Market	2019	2018	2019	2018	MTH	YTD	MTH	YTD
ELECTRIC								
Passenger Private	22	17	123	73	5	50	29.4%	68.5%
Passenger Non-Private	18	23	84	182	-5	-98	-21.7%	-53.8%
SUV Private	74	12	201	46	62	155	516.7%	337.0%
SUV Non-Private	67	26	492	138	41	354	157.7%	256.5%
Light Commercial Non-Private	0	1	5	1	-1	4	-100.0%	400.0%
Sub Total	181	79	905	440	102	465	129.1%	105.7%
HYBRID								
Passenger Private	552	329	2,187	1,163	223	1,024	67.8%	88.0%
Passenger Non-Private	1,024	648	3,812	2,286	376	1,526	58.0%	66.8%
SUV Private	65	59	278	217	6	61	10.2%	28.1%
SUV Non-Private	70	83	243	337	-13	-94	-15.7%	-27.9%
Sub Total	1,711	1,119	6,520	4,003	592	2,517	52.9%	62.9%
TOTAL	**1,892**	**1,198**	**7,425**	**4,443**	**694**	**2,982**	**57.9%**	**67.1%**

Similar rise in EV registration rate prompts incentives call

The increase in New Zealand's electric vehicle registrations remains steady, leading to calls for the government to do something or risk not meeting a goal of 64,000 EVs by 2021.

New Zealand now has 13,659 electric vehicle registrations – up more than 470 in April compared with March.

That's a similar increase to the March and January results, although about 60 down on the February figure, according to newly released Ministry of Transport EV statistics.

Most of the April rise is again in used light pure electrics – up 270 on March to 7894 in April with the Nissan Leaf the most popular in that category.

New light pure electric registrations increased by 95 on March to reach 2322 in April.

A jump in new light plug-in hybrids (PHEVs) was recorded in April, up 63 on the previous month to 2238.

Used light PHEVs reached 1071 in April – an increase of 45 on March.

Heavy EVs stayed the same at 134.

Drive Electric chairman **Mark Gilbert** reckons a 400-500 EV increase per month may be insufficient to achieve the target set by the previous National government at 64,000 EVs on the road by 2021.

He's among EV advocates calling on the present government to do more to encourage EV uptake, such as introducing incentives like "feebates" aimed to reward EV purchases and penalise polluting vehicles.

A feebate to support electric vehicle uptake and a halt to importing fossil fuel cars from 2030 are sought by the Wellington City Council, for instance.

These are among proposed measures in a draft plan on how Wellington can reach a zero-carbon future by 2050.

In a message to central government, no feebate and no restriction on fossil fuel vehicle imports could make it difficult for Wellington to achieve its goal, the report *Te Atakura – First to Zero, Wellington's blueprint for a Zero Carbon Capital* indicates.

Drive Electric and other EV advocates expected to hear something around encouraging EV uptake from the government by now, or in the May 30 budget at latest.

Gilbert says the previous government's 64,000 EV target is "dead" and an apparent lack of government progress on EV incentives is "disappointing".

Everything's gone quiet [from government] – it's gone into a big Bermuda Triangle," Gilbert tells *EVtalk*. "We don't know what's going on and this was supposed to be the year of delivery."

Both associate transport minister **Julie Anne Genter** and climate change minister **James Shaw** have previously suggested new incentives are on the way, the Productivity Commission recommending last year that the government take steps to boost EVs and reduce transport emissions.


Mark Gilbert

But a spokesperson for Genter's office says the minister now expects options to go to Cabinet in the first half of this year, *Stuff* reports.

Genter told television Three's *Nation on* April 27 that before new targets are announced the government needs to ensure it has the policies to make it more affordable and give New Zealanders greater choice around cleaner cars.

EVtalk's attempts to learn more from both ministers drew no further comment.

Trade Me Motors says it's seen a month-on-month drop in the average price on site from $25,000 in March to $24,000 in April.

More new EV listings and more interest in EVs has been noticed on Trade Me Motors in April compared to March as well.

It says new EV listings were up 10.1% month-on-month and up 30.2% compared to the prior year.

EV watchlists increased 4.5% compared to March and were up 18.8% on the previous year.

GVI general manager **Hayden Johnston** says they had a steady April for EV sales with increased enquiries and sales of hybrid vehicles.

An increasing number of customers are asking about proposed government incentives and rebates on EVs with a number sitting on their hands and waiting to make a decision until something is officially announced either way, he says.

National New Energy Development Centre for Taranaki

A multi-million dollar clean energy centre will be established by the Government in Taranaki to help lead New Zealand's transition to a low carbon future, including electrics and hydrogen for transport.

"The centre will look at the full range of emerging clean energy options such as offshore wind, solar batteries, hydrogen and new forms of energy storage," New Zealand prime minister Jacinda Ardern says.

That's expected to have wider implications for transport, particularly with electrification and hydrogen fuel.

The new centre will enable a co-ordination function across industry and research organisations and across locales, providing opportunities for testing and trialling of new technologies. It is not replacing the new energy work of Crown Research Institutes, Independent Research Organisations or other

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New EV campervans available

Customised electric campervans are being prepared by Jucy for international tourists and are expected on New Zealand roads from July.

The Nissan e-NV200 40kWh vans adapted at Jucy's Auckland workshop will be its first fleet of fully electric rental campervans available to tourists and are able to be booked this month.

Five are being readied while a further five will be available later.

The new campervans are the first of a much larger and longer range new EV fleet to be developed after a successful nationwide trial involving two French eco-tourists, Jucy chief executive officer **Dan Alpe** says.



The French students

Students **Heloise de Bokay** and **Solene Trinquet's** plans to travel New Zealand in an EV were picked up by Jucy after featuring in *EVtalk*.

The pair drove a 24kWh prototype Jucy electric campervan more than 13,000km to 45 destinations over five months last year, recording data and charging infrastructure as well as attitudes towards EVs.

While the trial found it was feasible for tourists to traverse the country it identified some gaps in the fast-charging network in parts of the South Island.

Alpe says these have since been addressed with new longer-range batteries and redesigned interiors.

"We have since been able to analyse the data from their experience and incorporate it into the new vehicles, which have lighter weight interiors and can travel significantly longer on a single charge.

"This allows tourists to travel up to 180-200km - around twice as long as the prototype - with each charge," he says.

The self-contained vehicles have a roof-top solar panel which charges a secondary or domestic battery while driving, a router for wireless internet, device charging ports, an electric blanket for the sleeping area, and induction cooking. A mobile app will advise campervan users when battery levels are low and plot a course to the nearest fast-charging facility.

A pop-up roof-top tent provides accommodation.

The new EV campers will be rented at about the same daily cost as new internal combustion engine (ICE) models but at the equivalent of about NZ30 cents per litre and will have a fraction of the running costs; savings which will make it less expensive for tourists to travel, Alpe says.



Dan Alpe

"Ultimately if we can switch as many tourists from an expensive imported commodity such as petrol or diesel to a low cost, renewable energy source, that allows them to inject that additional disposable income from their travel budget into other parts of the New Zealand economy.

"Since our trial last year, a number of tourism operators and regional towns have seen the potential opportunity around EV travellers and invested in new charging infrastructure in the hope of attracting more visitors using this mode of transport.

"Each battery charge would take around 40-60 minutes at a rapid charge station - which is additional time tourists will spend in many of our provincial town centres or attractions," Alpe says.

Jucy's announcement coincided with TRENZ, New Zealand's largest tourism conference, in Rotorua from May 13-16. ■

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government research organisations, a briefing explains.

To tackle the long-term challenge of climate change, the Government will also invest in early stage research into cutting-edge energy production.

"The National New Energy Development Centre will help create new business and jobs in Taranaki while helping New Zealand move towards clean, affordable, renewable energy and away from fossil fuels," Ardern says.

"Our global confrontation with the changing climate requires us to face the long-term challenge of sustainably powering our economy over the next 30 years to ensure we are the best place in the world to live, to work, to raise a family and to get ahead.

"For decades, Taranaki has been our top energy producing region and now, in the 21st century, the region can be a leader in clean energy as well. It's well known that local businesses and workers already have the skills, experience and international links to support new developments in clean energy technology and infrastructure.

"That's why the Wellbeing Budget is investing NZ$27 million to set up the centre in Taranaki, alongside $20m over four years to establish a new science research fund for cutting-edge energy technology so that we can look into the likes of organic photovoltaics, super conductors, nanotechnologies and inductive power."

The centre came through the region's 2050 roadmap process, first prepared by Taranaki's economic development agency Venture Taranaki, that brought together business, unions and iwi leaders to chart a future path for the local economy.

"This centre will complement our investments in hydrogen, Green Finance Ltd, the Zero Carbon Bill and our upcoming renewable energy strategy to help New Zealand create new jobs in new industries while moving away from fossil fuels that cause climate change," Ardern adds. ■

EV Charging Infrastructure

