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EV talk

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AUSTRALIA NOW HAS AN ELECTRIC MERCEDES

"To us, the EQC means the start of a new era," Mercedes-Benz Australia/Pacific chief executive officer **Horst von Sanden** told *EVtalk* at the EQC's launch event in Melbourne.

"The start of being in full electric vehicles in Australia for the first time is exciting because we have had quite some customer interest long before we actually launched," he says.

"We are absolutely happy, it's the start of something exciting and new for us."

The customer interest von Sanden is talking about [in part] is the in-depth analysis they did on the 4000 potential customers that registered their interest in the EQC and, more specifically, those that went on to register to purchase.

"There are people that want a full-electric vehicle," von Sanden says.

"Yes, of course hybrid is an alternative and we will continue to offer that, but there is a passionate group of people that want a full-electric car and they have shown enormous interest in this car and they have already ordered or bought them."

The results Mercedes-Benz uncovered during its research proved to be very enlightening.

For example, the age range of those who had registered to purchase (and outlaid a sizable deposit) was between 18 and 86 with an almost an even split between 29-59 (29-38 19%, 39-48 23%, 49-58 26%, 59-68 17%).

And "technology & innovation" led the charge in "what's important when purchasing an EQC" at 45%, sustainability second at 27%, driving experience 10% and trendsetting at 5%.

The question: "Where are you most likely to charge your EQC?" uncovered some other revelations. At home 70%, work and public charging 7%, and unsure 16%.

For public charging in Australia, Mercedes-Benz has partnered with Chargefox, the largest ultra-rapid EV charging network in Australia.

A five-year Chargefox subscription is included as standard for EQC 400 4Matic customers offering free and unlimited charging at Chargefox ultra-rapid stations.

By the time EQC deliveries start, about 20 ultra-rapid charging stations will be available for travel between Adelaide, Melbourne, Sydney and Brisbane with additional stations in Western Australia and Tasmania.

"There is enough charging infrastructure in metropolitan areas, and if you have something at home then you get by," von Sanden says.

"The whole point is how much do you actually drive, how much do you need to recharge. I think Australia is ready enough."

According to the research on "how many km do you drive each day?" Mercedes-Benz found that 37% travelled less than 50km, 34% 51-100km, 10% 101-150km and this progressively dropped with 3% claiming they travelled more than 400km.

We asked von Sanden about the delay in launching the EQC.

"Mercedes-Benz doesn't want to be first at every cost," he replies.

"We take the time to develop a product to a level that we are comfortable with launching it and from that perspective we are absolutely happy. We are confident

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we are launching a fantastic vehicle, and if that is at the expense of a year or two so be it, we're happy with that."

What about the future for EQ? - the division of Mercedes-Benz that's been established to guide the company's transition to electric mobility.

"Electric does not stop with normal vehicles," von Sanden says.

"There are seven vehicles in the pipeline for a period until 2023 and the models will be up and down from this one, into the higher and lower segments, including AMG," he says.

Mercedes-Benz Australia/Pacific media relations and public relations head **Jerry Stamoulis** says there are three pathways of electrification.

"One is 48-volt mild-hybrid, there's plug-in and full-electric. By 2023 everything will be electrified in some way."

Will this mean a move away from diesel?

"When you look at GLC and below, yes it's safe to say - but above that there's still demand for a 700Nm GLE or GLS for towing or whatever you need this vehicle for."

With the launch of the EQC in Australia, Mercedes-Benz has opted to handle the transactions at brand level rather than at dealerships.

We wondered what prompted this move?

"At the moment, the thought process [behind this move] is that we want to make the customer experience more pleasant," von Sanden says.

"We want to make sure that the stock we have is available where it's needed. This is why we will basically use the dealer as an agent. We need the dealer because we still believe that you have loyalty to a person or to a team, so we want the customer to have a loyal relationship to the retailer.

But we want to cut out the uncertainty or lack of transparency by introducing a set price and basically making all the cars that are in the country available to every customer.

"So it doesn't matter if you go to your dealer today and your dealer has a certain stock level and he doesn't happen to have the car you're asking for, what could possibly happen is he tries to sell you something else from his stock.

"We are looking to make it simpler and smoother for the customer to get the EQC that they want, from the national stock."

Is that only for the EQC?

"At the moment, yes," von Sanden says.



"But it also gives us the opportunity to learn and look at whether this could be a model down the track beyond EQ."

We asked if the New Zealand market experience had assisted in any way.

"New Zealand has developed a very strong market share, we are quite happy with our performance there," von Sanden says.

"In terms of the EQC there's obviously big interest. I think New Zealand has always been ahead of Australia in terms of interest in electric vehicles. It has more of a focus on environmental topics, so New Zealand is an important market for us, a different size of course, but we still learn from what happens in New Zealand," he says.

"The EQC is a vehicle that we can proudly launch as a true Mercedes. It ticks all the boxes. It's a new drivetrain, it's fully electric but it's also a full Mercedes," von Sanden says. "And this is why maybe it took a little bit longer to get it to this stage - but we're very proud of it.

"Just to add to that, what makes it a real Mercedes is that you can drive any other Mercedes-Benz, jump into the EQC and you don't have to change anything you do and that's really important.

"So you don't need to 'relearn' driving. You just jump into the EQC and drive. The only thing you're missing is the engine noise and you get used to that pretty quickly."

The Mercedes-Benz EQC 400 4MATIC is priced at $137,900 (MRLP). It is now on sale and available to view in EQ showrooms, with first customer deliveries beginning early 2020.

The Australasian launch event began at Mercedes-Me store/cafe in Melbourne, with an initial briefing that was succinct and to the point, an introduction to the salient points about the EQC 400, including design, powertrain and suspension - the front axle has steel springs and passive dampers with the electric motor positioned above hub, while the rear has air springs, passive dampers and the electric motor positioned below hub.

Although the EQC is based on the GLC platform, it shares just 15% of its components with the popular SUV, with much of that being steering and suspension.

The new EV SUV's 4.77m long, 1.88m wide and 1.62m high body has been designed to look modern and aerodynamic but it's also not overtly futuristic. Up front, the black panel grille bears the brand's iconic three-pointed star below a softer more rounded bonnet.

It's large multi-beam LED headlights are connected via a near full-width LED light bar, while to the lower corners, side air scoops channel airflow to the EQC's specifically designed halo-ringed 20" alloys (or 21-inch option).

Aerodynamically, the EQC boasts a 0.28Cd drag coefficient that's been optimised with regressive roof tilt towards the rear, a prominent roof spoiler for improved flow and a smooth underbody

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allowing for unhindered air flow. At the rear, LED lighting and another LED full-width light bar grabs much of the attention, with the tailgate granting access to 500L of seat up luggage space.

The interior is unquestionably modern Mercedes-Benz but with subtle nods to its electrical evolution. It has leather luxury and exposed stitching throughout, however, the air vents have a copper wire inspired insert design with circuit-board surrounds. Dual 10.25-inch display screens that are touch, pad and voice controlled and come complete with the latest MBUX iteration.

Those that have been inside any current Mercedes-Benz vehicle will find it all instantly familiar, but one point of particular interest is the "range cloud" that overlays your vehicle's range on to the EQC's navigation screen as a cloud. It's real time, based on your current driving performance.

As expected, the EQC is a front runner in terms of safety and driver's aids. Attention assist, pre-safe plus, pre-safe sound, active parking assist, active blind spot assist, evasive and active steering assist, multibeam LED, active distance assist distronic, active brake assist - to name but a few.

Plus, in the new EQC 400's five-star Australasian New Car Assessment Program (ANCAP) safety rating, it scored 96% for adult occupant protection and 92% for child occupant protection. That represents the highest-ever adult occupant score for an electric car and the equal highest-ever child occupant score of any car.

Regenerative braking levels are managed or controlled via steering wheel paddles. Upon start-up the EQC begins in drive with a more natural brake bias. Paddle up to D+ and the EQC offers virtually zero motor braking, D- moderate braking and D - offers full regen.

This new Mercedes-Benz EV is powered by two 150kW electric motors generating a total of 300kW of power and 760Nm of torque. Generally speaking, when you're driving around town, the front motor is the one that's engaged for everyday driving, but if you're asking more of the car in dynamic, both motors are engaged. It comes with an electric drivetrain, direct drive, fixed ratio transmission for each axle, that offers smooth and linear acceleration and improved efficiency - 0-100km/h is 5.1 seconds.

The 405-volt output, 80kWh (usable) lithium-ion 625kg battery forms part of the EQC's floor, providing a low centre of gravity and comes with an eight-year/160,000km warranty, while a three-year, unlimited-kilometre vehicle warranty applies to all other items, with annual servicing intervals.

Energy consumption for the EQC is rated at 21.4kWh/100km. With a full charge on board, the EQC can travel between top-ups for up to 434km (ADR) or 353km WLTP. Charging 110kW DC/7.4kW AC. Type 2 AC charging 4km/30minutes via a domestic socket, CCS DC 220km/30mins via ultra-rapid charge.



IKEA EV delivery trucks on the road

IKEA DELIVERIES VIA EV TRUCK

Queensland's first all-electric delivery truck for IKEA's planned zero emissions truck fleet by 2025 is on the road.

Fleet service provider All Purpose Transport (APT) is deploying the truck after a three-year project in conjunction with Melbourne-based automotive technology company SEA Electric.

IKEA's vision for a 100% electric home delivery fleet by 2025 is seeing fleet delivery services such as APT partner with SEA Electric to build all-electric delivery trucks.

"All Purpose Transport is a progressive transport business that wants to take a leadership role in Queensland towards reducing emissions with the introduction of electric vehicles," general manager **Paul Kahlert** says.

He says ATP is aiming for 10% of its IKEA delivery fleet to be all-electric by the end of 2020.

The delivery truck is built on a Hino 917 glider with the SEA-Drive 120a power system.

"The 100% electric power-system offers a range of up to 300km [unladen], zero emissions saving an estimated 36 tonnes of CO2 per annum when compared to a typical diesel equivalent, enhanced driver comfort and safety with little heat and noise, and reduced cost of total ownership," SEA Electric Oceania regional director **Glen Walker** says.

ATP operates an owner driver model and has purchased the SEA Hino 917 delivery truck to test the business benefits of running it.

An EV leasing scheme to its owner drivers is planned by ATP for a sustainable business model.

IKEA is a corporate member of the EV100 group of companies, joining the likes of DHL, Heathrow Airport, Hewlett Packard and Swiss Post.

Another IKEA fleet partner, Sydney-based ANC has had three IKEA SEA Electric delivery trucks on the road for the past 10 months.

Collectively the three ANC electric trucks have travelled 85,000km, travelling an average of 185km daily on a single charge, and made more than 5000 deliveries with an average weight of around 2.5 tonnes.

In 10 months the three ANC electric trucks are estimated to have saved 90 tonnes of CO2.



ANC electric trucks charge up

SEA Electric founder and chief executive officer **Tony Fairweather** was invited to the ATP EV truck launch.

"The event was well represented by IKEA and many All Purpose Transport clients, as well as being supported by the Queensland Government with minister [for transport and main roads] **Mark Bailey** addressing the room."



Mark Bailey, left, was at the launch



The converted Hino 917 glider

Fairweather is encouraged by Bailey's speech, "with his acknowledgement of this fast transitioning segment and that Australia has been slow to adopt strategies to support it, however, implying this would soon change."

A further discussion following the minister's address suggests electric rubbish trucks should be supported in Queensland.

"I am confident that this will be the start of many more electric commercial vehicles for Queensland," Fairweather concludes. SEA Electric has had several commercial EV orders in Australia, New Zealand, the USA and Thailand and plans an assembly plant in the Latrobe Valley in regional Victoria.

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FEELINGS MEAN A DRIVERLESS FUTURE MAY NOT BE SMOOTH



by **Raul A. Barreto**
Senior Lecturer
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There is a reasonable expectation that autonomous vehicles (AVs) will dominate the future of transport.
Utopian visions suggest these driverless vehicles will lead to dramatic changes to our cities and their transportation.
AVs operating on a network would allow traffic to move safely and seamlessly through cities. They would use less space per vehicle. Traffic flow would be unhindered by traffic lights or other traditional driver signals.
More efficient transportation would use less fuel. Urban spaces could be repurposed as parking needs virtually disappear.
But this vision depends on a range of factors. In particular, these predictions largely rely on how car drivers respond to the advent of AVs.
Our research suggests people's attitudes to driving and their cars could limit the predicted benefits to traffic flow and city efficiency, at least during the initial transition to driverless vehicles.

What did the research look at?

The research uses the city of Adelaide as a test case. We surveyed commuter preferences for the acceptance and use of driverless vehicles, as compared with their current preferences.
We then developed two scenarios. One is for the medium to long term, when vehicles are fully autonomous. The other is for the short-term transitional phase, during which a mix of conventional and driverless vehicles share the roads.
Using traffic-flow data for Adelaide, we analysed the implications of a shift towards driverless vehicles for:

- Traffic flow
- The number of vehicles needed to service commuter demands
- Parking
- Broader land use in the city centre.

Adelaide is unusual, as a result of its history as a planned city, in having a discrete number of entry and exit points. This allows us to map more accurately average daily traffic flows in and out of the city centre.
Our analysis focuses on three of the city's gateways, as shown below.
We measured flows through these intersections on a typical day. Using minute-by-minute real-time data, monitored at traffic signals, we created a picture of typical traffic flows into and out of the CBD.
We also surveyed commuters to discern their transport preferences versus their perceptions of the hypothetical future.
Combining this information, we then describe possible outcomes of the transition to automated vehicles.

What did the survey find?

Above is a summary of the survey of a representative sample of 526 regular commuters into the Adelaide CBD.
Data: How Might Autonomous Vehicles Impact the City?

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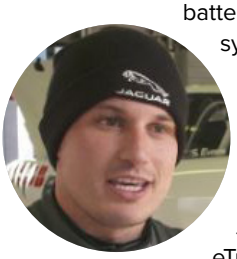
JAGUAR I-PACE RANGE EXTENDED

Jaguar is giving I-Pace customers an early Christmas present with a complimentary update giving increased real-world range.

An extra 20km (8%) of range can be added, thanks to technical knowledge gained from the I-Pace eTrophy race series.

Range-boosting software has been developed as a result, available to I-Pace customers with the complimentary update installed at retailers.

Changes to the all-electric model will improve battery performance and deliver up to 20km of additional real-world range on a full charge, with race-derived enhancements delivered through optimisation of battery management, thermal systems and all-wheel drive torque improvements.



Simon Evans

The update will also add enhanced software-over-the-air functionality.

Jaguar introduced the eTrophy in 2018 as the world's first all-electric production-based international race series supporting the ABB FIA Formula E racing. The aim was to leverage technical expertise to develop future electric road cars as part of Jaguar's "Race to



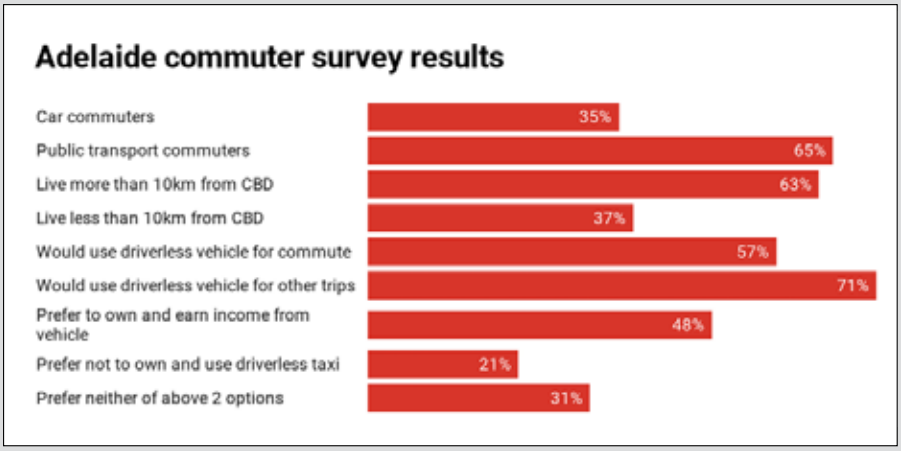
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We queried respondents' willingness to carshare by taking advantage of common knowledge of real-world company Uber.

We also investigated respondents' attitudes by positing a scenario in which driverless vehicles are the norm and conventional driving is a luxury. We assessed likely resistance to AVs by considering their willingness to pay to continue to drive traditional vehicles in this scenario.

Key results are shown below.



Attitudes and costs will shape transition

Two observations flow from the responses.

First, it seems likely drivers' prevailing attitudes to vehicle ownership may be influencing their attitudes to autonomous vehicles. For many, their car represents a status symbol. They feel a strong personal attachment to it.

Second, cost may be a crucial factor in take-up of driverless vehicles. As costs fall, most commuters might bow to financial pressure to shift to autonomous vehicles. However, a minority might lobby to keep a mix of driverless and conventional vehicles on the road.

Our analysis suggests Adelaide could reduce its current vehicle fleet by as much as 76% in the Utopian driver-less future. This is due to current high car dependence and long commuting times and distances at peak periods. Yet some predicted benefits, notably the very large reduction in vehicle numbers and better traffic flows, might not be achieved in the near to medium term. This is due to uncertainty about how the transition to a totally driverless city will be achieved and how long it will take.





TESLA'S "BAJA RALLY" READY CYBERTRUCK

Tesla chief executive **Elon Musk** says the company's all-electric pick-up truck will be ready to tackle the Baja Rally.

The Cybertruck has been revealed in California, promising fully adjustable air-suspension, dampers, ride height and a superior approach, breakover and departure angle to rival or better other offerings like the Ford Ranger Raptor.

Tesla says the Cybertruck offers 16 inches (40cm) of ground clearance - better than the Raptor's 28.3cm - and gives 35 degrees of approach, and 28-degrees of departure angle, both also better than the Blue Oval's "off-road warrior".



Tesla CEO Elon Musk says Cybertruck looks nothing like the rest.

"It'll basically be able to do the Baha rally," Musk says tongue-in-cheek.

Musk says he's particularly proud that the overall dimensions of the Cybertruck are less than a conventional pick-up truck but can offer 1.98 metres of tray area, and says it will even tap into the adjustable air suspension to offer an on-board compressed air supply to inflate tyres.

The reveal event also showed a video demonstration of a tug-of-war with a Ford F150 pick-up where the Cybertruck's instant torque easily overwhelmed what is the best-selling vehicle in the US.

"The top three selling vehicles in the US are pick-up trucks, so we have to have one ... but they all look pretty much the same," he says.

Cybertruck's maximum towing capacity is cited as 6.35 tonnes (14,000lb), with a payload of 1587kg (3500lb) on the top-spec model, or 3.4 tonnes of towing on the base-model.

"The top three selling vehicles in the US are pick-up trucks, so we have to have one ... but they all look pretty much the same," he says.

"This looks nothing like any other pick-up truck," Musk attests.

The extremely angular Cybertruck's body design also boasts a superior monocoque chassis design using high-strength steel that enabled Musk to demonstrate live hitting the vehicle's panels with a sledge hammer on stage. Having also hit a conventional pick-up's passenger door several times leaving large, virtually irreparable dents, the Cybertruck, as **Musk describes, is "a truck you can take a hammer to, won't scratch, and a 9mm bullet shot at the door the skin is so strong it is basically bulletproof."**

Three Cybertruck models will be available, including the top-spec 500+ mile range, tri-motor, all-wheel drive version capable of 0-100km/h sprints of 2.9 seconds (costing US$69,900/ A$103,000).

The Cybertruck range will start at US$39,900 (A$58,700) with a 250+ miles of battery range for a single-motor rear-drive layout.

Three Cybertruck models will be available, including the top-spec 500+ mile range, tri-motor, all-wheel drive version capable of 0-100km/h sprints of 2.9 seconds (costing US$69,900/A$103,000).

The conclusion of the reveal also announced Tesla's foray into the motorcycle market, with Musk almost forgetting: "Oh, we also made an ATV".

A four-wheeled ATV was ridden onto the stage and up on to the Cybertruck using built-in ramps where: "You can load an ATV or dirt bike on the back and adjust the suspension, and it'll plug-in and charge in the Cybertruck," Musk revealed.

Tesla is now taking orders for the Cybertruck.



SELLING HEAVY CARS PUMPING UP EMISSIONS

Australia's real-world emissions are trending upward and show no signs of slowing down as brands and dealers continue selling heavier cars to demanding consumers.

University of Technology Sydney adjunct professor **Robin Smit's** report, *Real-World CO2 Emissions Performance of the Australian New Passenger Vehicle Fleet 2008-2018,* has found the 19.5 million cars on our roads are emitting record levels of carcinogens, carbon dioxide, and fine soot particles.

Despite the introduction of Euro 5 emissions standards and the widespread adoption of fuel-saving engines and transmission technology from vehicle manufacturers, such as direct-injection, continuously variable transmissions (CVT), variable valve timing, turbocharging, and stop-start engine shutdown and cylinder deactivation features on many models, emissions continue to rise. Why?

"There is a general expectation and acceptance that mean CO2 emission rates of the Australian new passenger vehicle fleet will autonomously reduce over time, due to technological improvements enforced by overseas vehicle emissions legislation," Smit reports.

"This assumption is likely incorrect, and that CO2 emissions performance of new passenger vehicles has, in fact, stabilised, and increased in recent years. This creates a significant policy issue," he explains.

Smit's 24-page report which draws on data and analysis from the EPA, ClimateWorks, the Bureau of Infrastructure, University of Queensland, the Australian Greenhouse Emissions Information System, the statistics bureau, the National Transport Commission and many more, says Australia nationally remains hands-off in its approach to plugging tailpipe emissions.



Robin Smit

"Australia does not have mandatory fuel efficiency and/or CO2 vehicle emission standards, which are internationally recognised as a key and fundamental policy measure to reduce GHG emissions," Smit writes in the introduction.

"The majority of state and territory governments across Australia have either announced or are developing zero emission and/or electric vehicle policy frameworks," he acknowledges.

"There are, however, no co-ordinated national policy measures in place in Australia that specifically mitigate CO2 emissions – or rather greenhouse gas (GHG) emissions from road transport," Smit explains.

The professor says available evidence shows emissions continue to increase every year due in part to Australia's national fleet distance-travelled average rising from 142 billion kilometres in 2000, to 176 billion kilometres in 2016 - and CO2 dominates the greenhouse emissions from Australia's road transport, at an estimated 74.8 million tonnes of “carbon dioxide equivalent” or CO2-e emissions entering the atmosphere annually.

Diesel passenger vehicle sales have increased dramatically in the last 10 years as well, which is another factor blamed for Australia's emissions increase.

Diesel passenger vehicle sales made up 12% of the 2008 fleet, increasing to 19% in 2012 and remaining "more or less stable" from 2013-2018, fluctuating between 17-18%, the report notes.

However, those diesel vehicles, including medium and large SUVs, duel-cab utes and people movers, "are, on average about 40% heavier than petrol PVs".

The diesel-only Toyota Hilux and Ford Ranger remain the two most popular vehicles sold in Australia, while other prominent diesel models including the LandCruiser and Prado, Hyundai Tuscon and Santa Fe, Kia Sorento and Sportage, the Mazda CX-5 and BT-50, the Holden

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Colorado, Volkswagen Amarok, Isuzu D-Max and MU-X, Nissan Navara and X-Trail, remain among the most popular vehicles routinely sold in Australia – all with diesel engines either optional or exclusive.

Light commercial diesel sales are the dominant powertrain preference going back years, with over 40,000 new diesel LCVs sold in 2019 thus far and over 63,000 reported sold in 2018.

But the overtaking of SUVs from passenger cars as the preferential consumer choice is supporting the emissions increase – almost 200,000 petrol SUVs were sold privately last year and they've just passed 170,000 year-to-date in 2019.

Other diesel vehicle design parameters also adversely affect CO2 emission rates, the report shows, such as having a higher proportion of 4WD vehicles, with 15% higher engine capacity and a lower proportion of CVT transmissions.

"A climate friendly and low greenhouse gas emission image is incorrect for Australian diesel cars," the report says.

Smit's report suggests using fleet average data to track emissions, which shows Australia's average fleet emissions as trending downward from 2006-2015 before plateauing in 2016 is inaccurate when compared to real-world data from the NTC which shows CO2 has increased since 2014, and from the Transport Energy/Emission Research organisation which shows CO2 in 2018 surpassed levels recorded in 2008.

The report also finds that engine downsizing from 2008-2018 has seen mean engine capacity and number of cylinders in vehicles purchased has reduced 13% and 8% respectively, showing a trend to reduce the engine size of the passenger fleet.

Performance of those engines has also increased slightly overall by 3% in that 10-year period, however, weight has dramatically increased, nullifying those increases in efficiency and output.

"Both tare weight and gross vehicle weight have consistently increased over the period 2009-2018," the report says.

Tare weight has risen by 15%, gross vehicle mass (the maximum legal mass a vehicle is allowed to weigh) has grown by 17%, which " is well known to strongly affect fuel use and CO2 emission rates, as heavier vehicles require more energy to move," the report states.

"Vehicle manufacturers have not applied changes in vehicle specifications in a way that would have consistently improved fuel efficiency and reduced CO2 emissions," the report explains.

"This is likely caused – to some extent – by a lack of nationally coordinated policy measures and incentives in Australia, such as mandatory GHG emission or fuel efficiency standards for new motor vehicles."

Total real-world CO2 emissions from passenger vehicles are estimated to have increased roughly 10% in the period 2008-2018, from about 37 million tonnes in 2008 to 40 million tonnes in 2018.

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Innovate" mission.

The series puts the all-electric SUV through extreme use conditions and the first competitive season yielded critical learnings for the durability and thermal control of the battery and torque management systems, Jaguar says.

Jaguar engineers have also analysed data from more than 80 million kilometres of real-world journeys across the world.

Jaguar's first full battery-electric vehicle has a 470km range from its 90kWh lithium-ion battery.

While the new software upgrade doesn't change the official certified range figure, the marginal gains developed from eTrophy analysis will give customers access to an improvement of up to 8% dependent on usage – potentially an extra 20km of real-world range.

Changes include all-wheel drive torque distribution alterations between the front and rear motors to deliver greater efficiency when driving in ECO mode, refinements to thermal management control making greater use of the active radiator vane system and closing the vanes more frequently to enhance aerodynamic performance more.

Updates allow the battery to run to a lower state of charge than previously, without affecting driveability, durability or performance.

Additional changes derived from real-world data analysis include more efficient energy harvesting from regenerative braking when the battery is in a high state of charge. The amount of energy recovery has been increased at lower driving speeds to maximise efficiency and range.

Changes to the predictive range calculation algorithm will deliver a more accurate and consistent estimate of vehicle range, while being more reflective of an individual's driving style.

After receiving the latest software, more electronic modules will be able to receive remote updates, providing ongoing enhancements.

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EVS AND HYBRIDS CONTINUE TO CLIMB

Sales of electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs) and hybrids continue to rise across all new vehicle sectors while their petrol and diesel equivalents fall.

That's according to new vehicle sales figures for November 2019 released by the Federal Chamber of Automotive Industries (FCAI).

Hybrids are hitting the high notes, recording generous sales increases in most categories.

For instance, hybrids in the non-private passenger segment show 2026 sales for November – up 95% on November 2018's 1039 and a 70.4% increase year-to-date (YTD), going from 7540 in 2018 to 12,849 this year.

They've rocketed in the popular SUV categories too.

In the private SUV segment, hybrids have leaped from just 46 in November 2018 to 638 in November 2019 – up more than 999%, while YTD figures are nearly as good, up 675.1% from 610 in 2018 to 4728 this year.



Hybrid SUVs in the non-private sector have gone up 708.6% in November comparisons (58 to 469) and 292% in YTD comparisons (865 to 3391).

Electric vehicles and PHEVs are making giant strides too, but not quite in the same numbers.

In the private passenger sector, electric/PHEVs go from 20 in November 2018 to 73 in November 2019 – up 265%, while they rise from 228 in 2018 to 454 in 2019 (99.1%) in YTD comparisons.

Hybrids in that same segment go from 502 in November 2018 to 764 in November 2019 (52.2%) and from 3613 in 2018 to 6103 in 2019 (68.9%) in YTD sales figures.

In the non-private passenger category, electrics/PHEVs rise from 26 in November 2018 to 105 in November 2019, up 303.8%, and from 372 to 533 YTD (43.3%).

Rises are also recorded for sales of SUV electric/PHEVs in both the private and non-private segments.

They go from 27 in November 2018 to 61 in November 2019 (125.9%) and 172 in 2018 to 739 in 2019 YTD (329.7%) in the private category.

And in non-private sales they climb from 29 to 81 in November comparisons (179.3%) and 465 in 2018 to 960 in 2019 YTD (106.5%).

The only other segment to record electric/PHEV vehicle sales is the non-private light commercial category which sees one sold in November 2019 compared with none for the same month in 2018, YTD totals showing a near doubling from 14 in 2018 to 26 in 2019 – up 85.7%. ■

NEW VEHICLE SALES BY BUYER TYPE AND FUEL TYPE OCTOBER 2019

	Month		YTD		Variance +/- Vol. & %			
Total Market	2019	2018	2019	2018	MTH	YTD	MTH	YTD
ELECTRIC/PHEV								
Passenger Private	73	20	454	228	53	226	265.0%	99.1%
Passenger Non-Private	105	26	533	372	79	161	303.8%	43.3%
SUV Private	61	27	739	172	34	567	125.9%	329.7%
SUV Non-Private	81	29	960	465	52	495	179.3%	106.5%
Light Commercial Non-Private	1	0	26	14	1	12	-	85.7%
Sub Total	321	102	2,712	1,251	219	1,461	214.7%	116.8%
HYBRID								
Passenger Private	764	502	6,103	3,613	262	2,490	52.2%	68.9%
Passenger Non-Private	2,026	1,039	12,849	7,540	987	5,309	95.0%	70.4%
SUV Private	61	27	739	172	34	567	125.9%	329.7%
SUV Non-Private	81	29	960	465	52	495	179.3%	106.5%
Sub Total	2,932	1,597	20,651	11,790	1,335	8,861	83.6%	75.2%
TOTAL	3,253	1,699	23,363	13,041	1,554	10,322	47.8%	79.2%

JAGUAR I-PACE CLAIMS NEW ZEALAND CAR OF THE YEAR 2019

The Jaguar I-Pace has been named the 2019 New Zealand Car of the Year – the first time a full battery electric vehicle has won the award.

The BMW i3 was the first plug-in to win the award in 2015, but at the time was offered with a range-extending petrol motor.

Members of the New Zealand Motoring Writers' Guild made up of over 20 professional journalists with specialist expertise in the automotive industry, reviewed and voted for the SUV throughout the year.

Guild president – and Auto Media Group managing editor – **Richard Edwards** says the I-Pace's innovative design and feature set led to its selection as this year's overall winner.

"We are delighted to name the Jaguar I-Pace as the 2019 New Zealand Car of the Year. With it already holding the 2019 World Car of the Year title, it is a real endorsement of our independent voting process.

"The Jaguar I-Pace is an impressive car. Its unique design offers buyers the chance to have both a sports car and SUV at the same time, while also offering the latest in convenience and safety features."

"The fact that it is all-electric with a very usable range is an absolute bonus. New Zealand is ideally placed with its huge share of renewable energy to make the most of the advancements in electric vehicles the new vehicle industry is providing us," he says.



Jaguar NZ general manager **Steve Kenchington** says the award caps off an exceptional launch for the new model which has been a pioneer in the premium EV category.

"The I-Pace won an unprecedented three awards at the World Car of the Year as well as more than 70 international awards including Car of the Year awards in more than a dozen countries – from Canada through to Germany since its global launch.

"The acknowledgement from New Zealand's Motoring Writing Guild members, a highly experienced group who have reviewed hundreds of vehicles from almost every marque available on the market today, is particularly gratifying for the Jaguar team at a local level.

"Today's award is recognition of the hundreds of hours that have been invested by world-class engineers and designers in developing the technology behind the I-Pace," he says.

The 21 voting members of the Guild evaluated the I-Pace against a range of criteria including how the vehicle performs its intended role; its styling, interior design and accommodation; fit, finish and quality; ride and refinement; performance; road-holding and handling; value for money; active and passive safety and environmental responsibility.

The Jaguar I-Pace beat out nine other finalists in the New Zealand Car of the Year awards, including two other EV's to take the top honour. This year's finalists were the Audi e-tron, Ford Focus, Holden Acadia, Hyundai Santa Fe, Jaguar I-Pace, Mazda 3, Mercedes GLE, Peugeot 508, Tesla Model 3 and Toyota RAV4.

The award itself is named the Peter Greenslade Award, after late member **Peter Greenslade**.

EVS PASS 18,000 IN NEW ZEALAND

Electric vehicle registrations hit 18,186 in November – up 554 on the previous month.

That's more than 2000 past the 16,000 EV target set for the end of this year to achieve 64,000 EVs on our roads by the end of 2021.

But the rate of increase is insufficient to reach the 20,000 milestone by December 31.

Used light pure electrics lead the charge with 9987 registrations up 253 on October's 9734 recorded by the Ministry of Transport.

New light pure electrics come in at 3698 – 145 up on October's 3553.

That figure may well be boosted early next year by more expected Tesla Model 3 deliveries, the Model 3 leading the list in that category for November with 52 sales.

For the plug-in hybrid (PHEV) category, new light PHEVs lead the way with 2844 registrations in November, up 82 on the previous month's 2762.

Used light PHEVs reached 1488 – 68 more than October's 1420 registrations.



Heavy EVs continue their slow climb, up six on October to 169 registrations in November.

NZ'S FIRST INTER-CITY HEAVY EV ROAD FREIGHTER LAUNCHED

New Zealand's first long-haul EV road freighter has been launched on November 27 at Auckland's Eden Park by Alsco NZ.

The company, which provides linen, uniforms, floorcare, hygiene and first aid products, consumables and other rental services to more than 27,000 Kiwi businesses, will use the heavy EV for transporting such goods about 286km daily between Taupo, Rotorua and Tauranga.

Energy and resources minister **Megan Woods**, climate change minister **James Shaw**, Taupo mayor **David Trewavas** and other representatives attended the launch ceremony, along with Energy Efficiency and Conservation Authority (EECA) chief executive **Andrew Caseley**.

aAlsco NZ received $50,126 towards the project in January from the low emission vehicles contestable fund administered by EECA.

"This will test the performance of EV technology in the freight sector," Woods says.

The launch sent a message to the business community about the financial and environmental advantages of using a new class of EV transport.

"The transport industry and wider business will be most interested in the comparative capex and opex figures of a heavy EV compared to a diesel," Alsco Group general manager **Mark Roberts** says.

"By adapting the build, and our operational model slightly, we are looking to demonstrate that the new EV technology is financially viable. That it is potentially a game-changer. It is an exciting step for Alsco, and for the heavy transport industry."



Based on a Hino GH 1828 with an electric SEA-Drive 180 power system, the freighter weighs about 22.5 tonnes full, has 200km range, provides 372kW maximum power and 3500Nm torque, saves an estimated $49,740 in annual operational costs (no road user charge, halves maintenance and saves 25,000 litres of diesel and 67,610 kg of CO2 a year).

Alsco also advocates how wider business can better support regions by adopting cleaner and more financially viable transport options.

Converting a third of its fleet of 350, including 15 diesel freighters, to EVs and eliminating coal as an energy source are among four key sustainability goals Alsco NZ has through to 2030.

Shaw says the transition to a more climate constrained world will be one of the greatest drivers of innovation, the launch providing a classic example.

YOOGO SHARE REBRANDS AS ZILCH

Electric car sharing service Yoogo Share has relaunched as Zilch.

Zilch means "zero" or "nothing", as in zero emissions.

Zero emission car sharing is a way for organisations and individuals to significantly reduce their carbon footprint, the company says.


Kirsten Corson

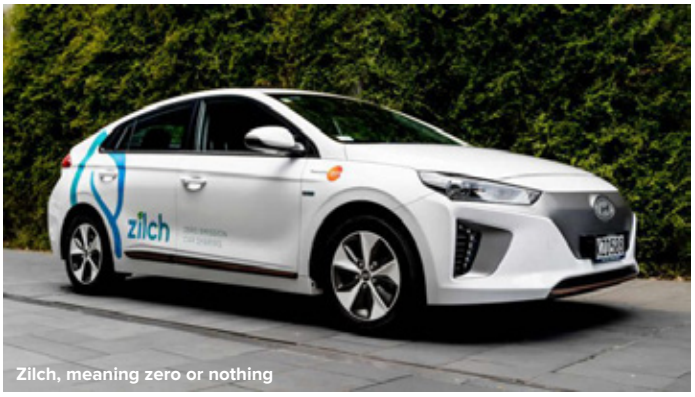
Yoogo Share was launched in Christchurch in February 2018, with prime minister **Jacinda Ardern** doing the honours.

As Zilch, the car share intends making sustainable mobility a part of everyday life, the name aiming to better align the brand to the vision.

While changes may be made to the way the service looks, Zilch says it provides business as usual for its forward-thinking customers already on board.

It already has more than 2000 bookings monthly in Christchurch and has saved about 240 tonnes of carbon in the city, running mainly Hyundai Ioniq and BMW i3 EVs.

"We've recently opened a hub in Fanshawe Street in Auckland," Zilch co-founder and general manager **Kirsten Corson** says.



Zilch, meaning zero or nothing

"Investment from Genesis Energy is allowing Zilch to expand its Auckland operations and also to launch next year in Wellington."

Corson says some Hyundai Kona EVs will be added to the Auckland fleet and that a new hub will be opening soon at Auckland Airport, with further hubs opening in 2020.

EV Charging Infrastructure

