EV talk

AUSTRALIA'S NEWS SOURCE FOR ELECTRIC, INTELLIGENT AND AUTONOMOUS TRANSPORTATION VOLUME 1 | ISSUE 10 | JUNE 2019

# SEA Electric set for global expansion

Australian automotive electric technology company SEA Electric is gaining strong momentum and expanding the battery-powered commercial vehicle revolution around the world.

**The company recently established its own site in Los Angeles and appointed its first US-based employees to guide new products and future projects through US certification and distribution.**

SEA Electric managing director **Tony Fairweather** says establishing a US presence was a logical step given the market and its demand for EVs.

"We see a lot of opportunities in the States, it's an extremely large commercial vehicle market with a strong interest in sustainability – the US is an important part of our growth plans.

"The country's high urbanisation and sprawling cities also provide conditions where EVs can deliver operators a lot of efficiency gains, not to mention the obvious environmental benefits," Fairweather says.

**SEA Electric is entering the European market too, opening in Vienna.**

Its vehicles were on show at the Brisbane Truck Show in May and at California's Advanced Clean Transportation (ACT) expo in April.

"Feedback in the US to our SEA Electric technology from both government and private buyers has been extremely positive with several customers already placing orders," Fairweather says.



SEA Electric is expanding from Australia into other countries

**The SEA-Drive powered vehicles are ideal for urban and metropolitan back-to-base distribution applications where they can be conveniently charged, off-peak, overnight and ready to go again the next morning, he says.**

SEA Electric sources batteries from China and motors from Canada, and is also working on electric trucks in New Zealand where EV vans are planned too.

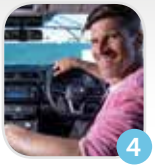
SEA Electric New Zealand general manager and cousin **Stephen Fairweather** says:

**"Our system's designed to fit into a standard rigid chassis. So, we don't mind what brand of truck it is."**

The vehicles are very configurable, with batteries from 70kWh to 216kWh and have a range around 200km for trucks and 350km for vans.

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# Orders open for Tesla Model 3, due August

Tesla Model 3 pricing starts from $66,000 excluding on-road costs and a delivery fee, with deliveries due August.

Orders are being taken for the Performance (560km NEDC range) and Standard Range Plus (460km range) models.


The right-hand drive Tesla Model 3

The price varies according to stamp duty and registration fees in the various states and territories, Tesla adding that the fuel-efficient vehicles attract less Luxury Car Tax, leading to a saving of up to $3034.

**The Standard Range Plus Model 3 gets to 100km/h in 5.6 seconds while the Performance does the same in 3.4 seconds.**

The Model 3 configurator is open to reservation holders and the general public with deliveries prioritised based on reservation date, delivery location and configuration options.

Supercharging for the Model 3 is provided through a CCS Combo 2 charge port, while dual charging cables supporting both CCS Combo 2 and Type 2 charging standards

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# Record entries for 2019 Bridgestone World Solar Challenge

A total 53 teams from 24 countries comprises the largest line-up yet for the 2019 Bridgestone World Solar Challenge across Australia on October 13-20.

**Bridgestone welcomes the announcement from the solar car race organisers as a demonstration of the increasing relevance of the event and its relation to the future of the automotive industry.**

Interest in the challenge highlights the worldwide pursuit for sustainable mobility, the company says.

Entrants design, build and develop solar powered cars to traverse 3000km from Darwin in the Northern Territory to Adelaide in South Australia.

Headlining the record entry list are 30 Challenger Class entries, which will compete for outright honours. A 23-strong contingent is in the Cruiser Class, a category which challenges teams to deliver a practical, marketable solar electric car judged on design appeal as well as energy consumption.

Bridgestone has been the title sponsor of the event and has continuously supplied teams with specially developed solar car tyres since 2013.

**Through its involvement in the event, Bridgestone aims to help foster the development of sustainable mobility while supporting the ambitions of young engineers.**

The announcement of the record entries, held at the finish line of the event, Adelaide's Victoria Square, was attended by Bridgestone brand strategy and communications division director **Kazutoshi Oyama**, Bridgestone Australia and New Zealand managing director **Stephen Roche**, South Australia trade, tourism and investment minister **David Ridgeway**, and Bridgestone World Solar Challenge event director **Chris Selwood**.




**The start of the last Bridgestone World Solar Challenge in 2017 at Darwin's Hidden Valley Raceway**

"Bridgestone is committed to the Bridgestone World Solar Challenge on a global level because we share the same values as the event," Roche says. "We are delighted that this year's Bridgestone World Solar Challenge boasts the largest field ever, and we are encouraged to see so many students sharing our passion for the pursuit of sustainable mobility."

Roche explains that through sponsorship of the World Solar Challenge, Bridgestone Corporation develops new technologies for customers around the world.

"Our low-rolling resistance, fuel efficient Ecopia tyres are an example of innovation and technology linked directly to the event."

The rise of hybrid technology and the growing popularity of electric vehicles around the world means developments from the Bridgestone World Solar Challenge are proving to be increasingly relevant for the future of automotive design.

**"The point of this challenge has always been to realise a more sustainable way to travel and we are now so much closer to the reality of sustainable, energy positive, solar electric cars," Selwood says.**

"BWSC solar cars are no longer the realm of fantastic, imaginary vehicles dreamed up by enthusiasts and niche inventors. The research and development being tested in this event now makes its way into mainstream commercialisation, such as Bridgestone," he says.

"With the Paris Agreement deadlines, European bans and phasing out of petrol and diesel cars becoming a reality, the BWSC is globally significant." ■



**At the launch of the 2019 event are, from left, South Australia events executive director Hitaf Rasheed, Chris Selwood, David Ridgeway, Kazutoshi Oyama and Stephen Roche**

# Melbourne for Uber Air flying taxi service trial

Melbourne is the third pilot city for the Uber Air flying taxi service, following on from Dallas and Los Angeles.

**Demonstration flights of the electric vertical takeoff and landing (VTOL) aircraft are likely in 2020 with commercial operations planned from 2023.**

Described as an "urban aviation ridesharing product", Uber Air aims to ease traffic congestion.

"Over the next few years, Uber will continue to work closely with city and country stakeholders to create an aerial ridesharing network that's intended to be safe, quiet, and environmentally conscious, and to support other transportation options.

"In the long term, the vision is for safe, quiet electric vehicles transporting tens of thousands of people across cities for the same price as an UberX trip over the same distance," Uber says in announcing the Australian pilot.

**The company earlier announced possible markets in Australia, Brazil, France, India, and Japan, and confirmed customers will be able to get a flight on-demand in Dallas and Los Angeles from 2023.**

It announced partnerships with Macquarie, Telstra, and Westfield-operator Scentre Group.

Uber indicated in June last year it was considering Melbourne, Sydney and Auckland for one of the Uber Air operations outside the US.

Its Uber Elevate encompasses the Uber Air aerial electric ride-hailing service, as well as any other initiatives (such as possible food delivery) that may benefit from air transport.

Uber will work with existing partners including Melbourne Airport to develop the infrastructure and telecommunications for the aviation network.

**Macquarie Capital intends working with Uber Elevate on the development and electrification of skyports providing vertical takeoff and landing.**

During the next year, Telstra will also work with Uber to check network infrastructure, connectivity and other capabilities - such as 5G, supporting the project.

"Today, three in four Melburnians rely solely on their car to get to work, which can cause significant delays along the city's key routes and means Melbourne already has congestion levels on par with the world's busiest cities like New York and Rome," Telstra networks and IT



Flying taxis are coming to Melbourne

group executive **Nikos Katinakis** says.

"As we continue to push boundaries with our long-range loT network capability and our ongoing 5G network roll-out around Australia, our own experiments with drones and mobility through our muru-D startup accelerator, and our partnerships to develop a safe and secure ecosystem for Australia's low-altitude airspace, we are uniquely positioned to work with Uber to begin the development of Uber Air in Melbourne."

Uber regional general manager for Australia, New Zealand, and North Asia **Susan Anderson**, told Uber's global Elevate (Uber Air) Summit in Washington that Australians have embraced Uber since 2012.

**She says more than 3.8 million Australians regularly use Uber to get from A to B, and that ride sharing's role in the future of city transport is widely recognised.**

# Orders open for Tesla Model 3, due August

*Continued from 1*

will be installed at Supercharger sites across Australia.

**There are 27 Supercharger and over 600 Destination charging locations across Australia, with more coming shortly.**

The Model 3 is described as Tesla's "smaller, simpler, more affordable car" and, as with other Teslas, will continue to receive over-the-air software updates which add new features and enhance functionality.

Autopilot is included.

The Model 3 is Tesla's smaller, simpler, more affordable car. Designed and built as the world's first mass-market electric vehicle, it is a critical step in Tesla's mission to accelerate the world's transition to sustainable energy.

It recently achieved the lowest probability of injury in any car tested by the US National Highway Traffic Safety Administration (NTHSA).

Every car comes with active safety features standard, including automatic emergency braking, forward collision warning and side collision warning.

**The Model 3, as with other Teslas, will continue to receive over-the-air software updates.**

The Standard Range Plus includes 12-way power adjustable heated front seats, premium seat material and trim, upgraded audio – immersive sound, standard maps and navigation, LED fog lamps, a centre console with storage, four USB ports and docking for two smartphones.

That and more are included in the Performance range.

All Model 3 vehicles also come standard with auto dimming, power folding, heated side mirrors, music and media over Bluetooth and custom driver profiles.

The Model 3 can be viewed at Tesla stores in Sydney (Martin Place) Melbourne (Chadstone) and Brisbane (Fortitude Valley and those registered will be notified when Model 3 test drives become available.

Visit **https://www.tesla.com/en_AU/model3/design?redirect=no#battery** for all pricing and specifications.

# AusPost trials Melbourne's Stealth Electric Bikes' three-wheeler

In a boost for online shoppers and local manufacturing, Australia Post is trialling a new Australian-built three-wheeled electric delivery vehicle.

**Built in Melbourne's south-eastern suburbs, the new Stealth OzPod, will service residents in the suburb of Lilydale over a five-week period, as Australia Post tests its features over different terrains. The trial is a bid to complement existing electric vehicles in operational use with Australia Post.**

Lilydale is a perfect area to trial the new vehicle, with locals increasingly embracing online shopping, and more small parcels being delivered than ever before, Australia Post network optimisation general manager **Mitch Buxton** says.

"We know that residents in Lilydale love online shopping. Health and beauty, fashion, and media are the most popular purchases among residents within the trial area," Buxton says.

"In fact, the yearly growth rate in Lilydale is higher than the national average at close to 21%. The area saw almost 79% of households purchasing online in 2018, above the national average of 73%."

The Stealth OzPod has been developed over the past two and a half years, and is designed to cater for Australian conditions, with added safety and stability, wet weather, and gradient and surface measures, Buxton says.

"As our business continues to transform, we are equipping our posties to deliver more small parcels.

**"In February, we announced an order of 1000 Swiss-built three-wheeled electric delivery vehicles, so this trial is another example of how we are looking at ways to keep our posties delivering for Australians and supporting local manufacturing businesses."**

The Stealth OzPod has an increased carrying capacity of up to 720 litres and can travel at a maximum 50km/h.



Australia Post will use the trial to review the vehicle's performance and identify where it can be introduced.

Stealth Electric Bikes featured in our November 2018 online magazine.

Visit **www.stealthelectricbikes.com** for more information about their e-bikes.

# Celeb helps NSW councils' power ahead

Electric vehicle advocate and Australia's Bachelor and Bachelorette TV series host **Osher Gunsberg** helped launch a new charger network for New South Wales eastern suburbs councils.

**Gunsberg, who drives a Nissan Leaf and has an electric scooter, compered the June 5 launch of public on-street EV charging stations installed through the Randwick, Waverley and Woollahra councils in a first for NSW councils.**

EV owners can now charge up at Bondi Beach, Double Bay, Coogee Beach and Randwick, and soon at Bondi Junction and Maroubra.

The pioneering project was officially launched at Bondi Beach with mayors **Kathy Neilson** (Randwick), **John Wakefield** (Waverley) and **Peter Cavanagh** (Woollahra), and industry representatives attending, the Randwick City Council says.

It comes after the tri-councils signed a joint agreement last year with EV charging provider JetCharge to install and manage the stations.

The network will help reduce carbon emissions from transport in Sydney's east, and encourage EV uptake, Neilson says.

"This project is an example of our shared determination and efforts to enact change at a local government level to help the environment for future generations."

Wakefield says they're proud to be EV pioneers in Sydney and NSW.

**Cavanagh adds the charging stations are in convenient locations where residents and visitors do business, run errands and socialise.**



Osher Günsberg

"We want purchasing an EV to be a more viable option for people, and our councils are leading the way by providing handy charging locations," he says.

The charging stations are booked and paid for using the Chargefox app, with charging costs between 10c-25c/kWh, depending on the time of the day, and designed to cost less than home charging.

The project is internally funded by Randwick, Waverley and Woollahra's Tri-Council Environment Program.



# e-tron everything an Audi should be

Audi's big push into electrification is underway, and for Australia that will start with the arrival of the large e-tron SUV later this year.

**But as so often is the case with electric models, our cousins across the Tasman will get it before us – to the point that they have left-hand drive test models on the road before their first shipment arrives in July. And we ducked across to check it out and drive it.**

Briefly. Very briefly. So what is the e-tron like?

First off, don't expect some crazy spaceship-like electric concept. The e-tron fits very nicely between its conventional cousins. Yes, it is modern with its sharp lines and blacked-out glass, but it looks like the crossing of an Audi Q7 and Audi Q8 – which makes much sense.



Door cameras replace wing mirrors

That is unless the option of the camera-based rear-vision mirrors is ticked. It takes a moment to get used to the look of a vehicle with only stubby stalks where mirrors usually would be. From the driver's seat, the system will likely take a little getting used to as well, the mirror image displayed on screens in the door of the car, just below the front corner of the window.

**Removing the mirrors gives a 35km gain in range, thanks to the lower windage of the camera mounts.**

The e-tron counters Tesla's massive screen with the brand's virtual cockpit system. The driver gets a screen in front of them, one atop the centre console where you would typically expect one, and a screen below this. The driver interacts with the variable drive systems and regen systems through the main screen using an "efficiency assist" system. In combination with the adaptive cruise assist, the efficiency assist can also brake and accelerate the Audi e-tron predictively.






The infotainment system included an embedded sim for the Audi Connect system, allowing for live services and 3D Google mapping.

On top of the assist systems is the central driver assistance controller, which continuously computes an exact

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# e-tron everything an Audi should be

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model of the environment. The required data is obtained – depending on the selected options – from up to five radar sensors, six cameras, 12 ultrasound sensors and the laser scanner.

**The interior itself is fabulous. The virtual cockpit screens are all canted towards the driver and in easy reach. The front seats are large and comfortable, while the rear seats are very spacious – more so than the Mercedes-Benz EQC. Even with the optional panoramic sunroof headroom is excellent. Knee space for the centre rear passenger is right due to the position of the climate controls.**

The boot, at 660 litres with the seats up, is of a proper, family size. An optional tow bar gives the ability to pull up to 1.8-tonnes, which is not enough for a substantial boat or caravan, but suitable for most uses. Roof rails, roof boxes and cycle racks can all be fitted as options.

Built in Belgium, it shares a platform with those fossil-fuelled models, though being modular, Audi has done an excellent job of laying out the battery in a way that does not impinge on the spacious interior.

The battery is 95kWh and actively cooled. Charging is CCS Combo type 2, with DC fast charging at up to 150kW, and AC charging at up to 11kW. We hear 22kW may come next year in combination with a vehicle-to-home unit that can be packaged with the car.

The two electric motors - one front, one rear, give a combined 300kW of power and a beastly 660Nm of torque. Performance from 0-100km/h is rated at 5.7-seconds per 100km.

**The length of the drive means we can't give you too much insight into how it handles, but we can see the steering is light and has a nice feel to it, the ride is excellent on imperfect city roads, and that the Audi is quiet - very quiet.**







A blast away from the lights proved performance-wise the Audi is no Tesla, but arguably it does not need to be, and will likely still beat most SUVs off the mark. I would hazard a guess that despite the deficiency in power over a Model S or X, in real-world conditions, particularly on more dynamic roads, the e-tron will not be left behind.

The Efficiency Assist system has a range of automatic and manual models that maximise range through reducing response or beefing up regenerative braking. Regen can also be boosted using steering-wheel-mounted paddles. Audi claims the car can generate up to 220kW of energy when regening, and claim if you are coming down a steep hill, you can gain one km of range for every km travelled.

**Our drive in the e-tron was impressive but all too short. We will get to drive the car properly – and in right-hand drive rather than left-hand drive – in late July.**

Keep an eye on **EVtalk.com.au** for that report. ■



# No time for caution



Zero to 100 in 2.9 seconds, Tesla's staffer says as we poke the nose out of a tight backstreet in Cremorne, trying to concentrate on some muppet approaching in their nondescript bucket.

**The first thing you wonder in the moment is where the nearest Bugatti Veyron is to embarrass the former fastest production car worth a squillion dollars second-hand, some 13 years after its launch.**

With great power comes great responsibility, as Spiderman taught me as an 11-year-old queasy in the cinema as CGI Spidey swung from New York skyscrapers. The same rules apply with a Tesla Model X, only with the fear of certain death hanging over you should you bin it.

Having said that, in much more sedate circumstances, like trundling up and your own driveway, you still have to be bloody careful with this very expensive, wildly powerful, yet reassuringly tranquil place to sit, helm and generally move about in.

**Before gushing over what is the second most expensive vehicle I've ever driven, let's get some housekeeping out of the way. The Tesla Model X, seen here in P100D galaxy-class variant – thanks to Tesla Australia for its five-day loan - is not perfect.**

There feels like a frailty to door handles, the cockpit's signature 12-inch screen controlling the majority of functions remains immensely distracting because simple tasks like adjusting temperature, fan speed, etc, asks the eyes to search rather than remain scanning the road, and the Model X's bulky dimensions - particularly over the wheel arches - can make it difficult to judge where the wheels are in low-speed maneuvers. Plus, the girders used to engineer the impressive centrepiece falcon wing doors make for trunk-like A-pillars.

Of course, these gripes are merely that. Idiosyncrasies that probably take longer than *AutoTalk's* five-day loan to grow into, work around or adapt your brain to. The spring-loaded centre console lid, however, feels flimsy and ready to break on a $170,000 hyper-SUV at the first sign of a child.

But when you look beyond the flaws, of which every vehicle has many, including the biggest brands in the business, you start to appreciate what a truly epic device the Model X really is.

You can spend far too much time playing with all the tricks and toys like the crackling fireplace replacing the LCD display, which then offers Atari gaming flashbacks and can turn the screen into a Kesel run homage.

**The immortal Whoopi Cushion reminds you of school-day pranks on the teacher and the push of a button can crank the booming base of Wizards of Winter by Russian glam rock group Trans-Siberian Orchestra to make the neighbours peer from their curtains wondering if the electric car next door is possessed.**

Watching the Model X flap its falcon wing doors in time with a thumping, catchy Christmas rock ballad, the mind boggles at the level of engineering. Making those big doors animate quickly enough with motors powerful enough to cope, while ensuring structural integrity for one of the highest crash ratings in North American testing, without becoming an ungainly, monstrous hulk with protruding bulkheads and stress-cracked welds, is incredibly impressive.

In the name of objectivity and honest reporting, the Model X wasn't in high or very high suspension mode when exiting the palatial driveway and a light bluestone inscription was etched into the scuff panel forward of the left-rear. It's proof that no matter how much automation and intelligence gets built into one of the cleverest cars on the road, nothing is infallible.

**It needs to be said about the Model X that without this step forward it's fair to say the world would likely never have reached this point of consumers even considering an electric car. This whisper quiet tech giant screams about the possibilities offered by simplicity of design and Tesla itself has moved the automotive conversation to a place laughed about in carmaker board rooms for a century.**

The first taste of Tesla was in a Model S back in 2015 when Ludicrous mode pulled my brain against the back of my skull and make me feel ill, and four years later having driven several with healthy skepticism always lingering in the back of the mind; I genuinely want an electric car, even to install a charger in the garage. What got me over the line was that 2.9 second start.

Plenty of innovative car brands have come and gone in 150 years, few have rocked the foundations like the big T. We're at the point of no return, this is the automotive industry's *Interstellar* moment; we can't look back and mustn't stop pushing for progress, or the momentum of going electric will wane.

**Tesla's future may be questioned on a daily basis, but few cars have wound the clock forward like the Model X and no brand has changed the course of the automotive continuum quite like Tesla.** ■



# Top safety rating for Nissan Leaf

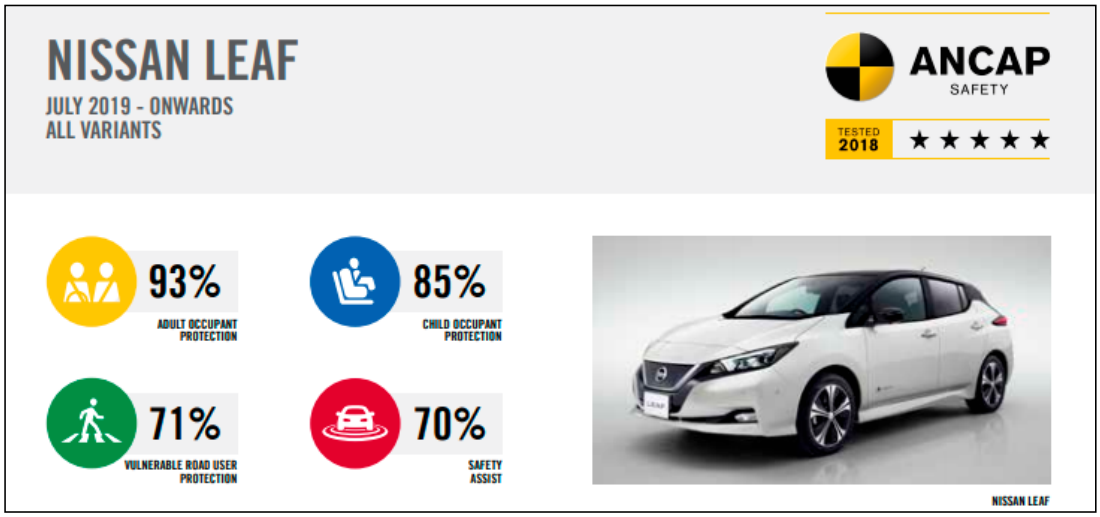
A five-star safety rating has been given the Nissan Leaf EV by the Australasian New Car Assessment Program (ANCAP).

**The soon-to-be-released new Nissan Leaf performed well in testing.**

"The rating for the Nissan Leaf provides consumers and fleet buyers with another safe electric vehicle option," ANCAP chief executive **James Goodwin** says.

"Good levels of protection were observed for adult and child occupants, and performance of its lane-keep assist and autonomous emergency braking systems was rated 'Good'," he says.

This ANCAP safety rating applies to Nissan Leaf variants introduced to Australia from July 2019 and New Zealand from August 2019.




Dual frontal, side chest-protecting and side head-protecting (curtain) airbags are standard. Autonomous emergency braking (City, Interurban and Vulnerable Road User) and a lane support system with lane-keep assist (LKA), lane departure warning (LDW) and blind spot monitoring (BSM) are standard.


James Goodwin

**The autonomous emergency braking system (AEB) showed "Good" performance in low-speed test scenarios typical of city driving with maximum points scored.**

# Tesla Model X for Victoria Police

A Tesla Model X has been introduced to highway patrol duties by Victoria Police's Road Policing Command.

**Hailing it as a first for an Australian police organisation, Victoria Police say the Tesla SUV, bought for an undisclosed price, will be trialled across various regions as part of a study to introduce IT-based electric vehicles for police fleet use.**

Police will work with Tesla engineers, emergency equipment manufacturers, the department's vehicle installation contractor and Victoria Police's IT and communications technicians in fitting equipment and integrating police software into the vehicle's on-board system.

"This vehicle is unlike any other Victoria Police has ever had in its fleet and could well be the future of road policing in this state, country and the world," Road Policing Command assistant commissioner **Stephen Leane** says.

"Our highway patrol cars are equipped with cutting edge technology and this car gives us the opportunity to investigate having these technologies in a fully integrated in-car system which has the potential of streamlining the road policing effort.

"There is also a great environmental benefit to electric vehicles and considering our state highway patrol vehicles travel thousands of kilometres on the road per year, we should always be looking at ways we can lessen our impact on the environment."

Leane says the Model X will undergo constant assessment.



Tesla Model X for Victoria Police

**"Vehicles are obviously critical to the work we do as they represent the mobile office for many of our frontline police, and projects such as these mean that when the switch does inevitably happen, our job of keeping Victorians safe will not be compromised."**

# Toyota moves to EVs - at last

After years of dragging the chain on electric vehicle development, Japanese giant Toyota has finally woken and announced a goal of getting half its global sales from electric vehicles by 2025 - five years ahead of its previous schedule.

This is great news for Australia where Toyota has absolutely dominated car sales.

**Not only will Toyota's belated acceptance of pure electric vehicles boost EV sales here, but it will also put more pure EVs on to the right-hand-drive domestic Japanese market which will then, eventually, be available to Kiwi used import dealers.**

The tragedy is that it has taken so long for the brand which gave us the Prius hybrid more than 20 years ago - thus ushering in an era of partially electric vehicles - to move on to all-electric vehicles.

Toyota is arguably the last major vehicle manufacturer in the world - Toyota along with EV committed Volkswagen lead the world in passenger vehicle production - to see the light and with Mazda, commit to pure EVs. This is sad for a pioneer with its hybrid technology. It also means that Toyota is now in a scramble playing catch up when it should have led the EV field.



Toyota's planned BEV range

*Reuters* says Toyota will now have to tap into Chinese battery makers to meet the accelerated global shift to electric-powered cars.

**The change illustrates the breakneck growth in the EV market, which is transforming the auto industry, and is also an acknowledgment by Japan's top car maker that it will not be able to meet demand for batteries on its own, adds Reuters.**

Toyota is now faced with a higher-than-expected demand for cars that use batteries, rather than petrol, executive vice-president **Shigeki Terashi** says.

Also, increasingly stringent emissions regulations require more lithium-ion batteries in the next five years than the automaker had plans to produce, he adds.



Toyota Prius hybrid

"We consider ourselves as a maker of electric vehicle batteries, going back to when we developed the battery for the Prius," he says, referring to the pioneering petrol hybrid.

"But there may be a gap between the amount of batteries we can produce, and the amount of batteries we may need."

*Reuters* reports Toyota, which already makes batteries for hybrids and hybrid plug-ins, will partner with China's Contemporary Amperex Technology Co Ltd (CATL) and EV-maker BYD Co Ltd for battery procurement.

**The key to creating a profitable battery EV operation could be in combining new mobility technologies, including on-demand ride services, with battery-powered electric cars, Terashi says.**

Tapping CATL signals a widening of Toyota's procurement pool. The Chinese firm already has relationships with other automakers such as Honda, Nissan and a multi-billion dollar battery supply deal Volvo Car Group, reports *Reuters*.

Toyota has for decades been developing its own lithium-ion EV battery technology and has partnered with Panasonic to develop and make rectangular-shaped prismatic batteries.

The automaker, which launched the Prius, the world's first mass-market "green car" over two decades ago, has led in technologies for hybrid and fuel cell vehicles (FCVs). Its cars account for more than 80% of the now diminishing global hybrid vehicle market.

But it has been left behind by rivals such as Nissan, Volkswagen and Tesla in bringing all-battery EVs to showrooms.

Toyota is now looking to partnerships with rival automakers and tech firms as it seeks to reduce its capital outlay for developing new-vehicle technologies.

**Reuters reports Toyota announced it was teaming with Subaru Corp to develop a battery-electric SUV on a platform produced together as they seek to split costs.**



One of Toyota's ultra-compact BEV models

Toyota also announced an ultra-compact two-seater designed for short trips - ideal for places such as Waiheke Island - with a maximum speed of 60km/h and 100km range on a single charge. ■

## Hybrids wane

Hybrids and plug-in hybrids are on the wane globally, writes *EVTalk* publisher **Vern Whitehead**, who attended recent EV conferences in Oslo and Berlin.

"The attitude at both events was that there is little place for hybrids in the modern EV world, with prices of pure EVs likely to reach parity with petrol and diesel engine cars in the next two to three years.

**"And with EV models now doing 200, 300, 400 or even 500km - Tesla Roadster does 1000km - on a single charge, there is even less reason today for the complexities of hybrids."**

Toyota is, however, not changing its policy towards full battery EVs, vice-president **Shigeki Terashi** says. "We are not shifting our focus to prioritise battery EVs, nor are we abandoning our fuel cell strategy."

Whether Toyota can afford to continue to invest in R&D for three separate technologies remains to be seen," Whitehead says. ■

# Plug in hybrids – more models but no future: IDTechEx

Car manufacturers are issuing a flood of plug-in hybrid cars but are behind in pure electric vehicles.

**Brands such as Mini, BMW, Skoda, Volvo, Porsche, Mercedes-Benz and others are jumping on hybrid cars, but there is a longer waiting list for pure electric cars, IDTechEx says in a new report.**



Hybrids are flooding in, but the smart money is on pure electrics

"The fundamentals are all against them. Those offering the most desirable pure electric cars - those with longest range and three times the resale value - have long waiting lists but they will catch up," IDTechEx chairman **Dr Peter Harrop** says, leading a team in producing the new report, Electric Vehicles 2020-2030, which forecasts EVs in 100 categories.

"There's no long wait for a plug-in hybrid (PHEV)."

Harrop says GM abandoned its Volt plug-in hybrid. Many users report two types of range anxiety - small battery and small gas tank.

"The UK withdrew PHEV support because people never plugged them in, benefitting the environment not at all. Consequently, although plug-in hybrid sales have been rising, their market share has been dropping since 2013."

**Harrop says traditional automotive companies wish to keep the internal combustion engine going a bit longer.**

"Many have revealed how far they are behind Tesla in pure electric by bringing out what are essentially copies of Tesla powertrains from six years ago - but not all," he says.

"Hyundai Kia, for example, has one year waiting lists for its excellent pure-electric cars. They will clear that delay, releasing pent-up demand. Others will rapidly copy that success."

Harrop says well-funded start-ups will go straight to pure electric. "The Tesla Roadster will have 1000km range, matching gasoline - it will then become commonplace."



Dr Peter Harrop

**"Those buying internal combustion vehicles hope the city and country bans will not apply to hybrids. They face increasing range anxiety from the number of gas stations plummeting – down 90% in the UK in recent years, for example, as charging stations increase.**

**"**They have financial anxiety from dropping resale values," Harrop adds.

He concludes: "There is absolutely nothing to reverse dropping market share for plug-in hybrids leading to decline in sales numbers. Indeed, with new inputs, we have just revised our forecasts down to show plug-in car sales at zero in 2030. Technologically they are becalmed while pure-electric is evolving fast - from camper mode to solar versions that never plug in."

Contact **research@IDTechEx.com** or visit **www.IDTechEx.com/EV** for more information. ■

# One-stop licence for EV charging

A global EV charging licence named the EV Charging Patent Portfolio License has been introduced by MPEG LA in the United States.

It provides one-stop access to technologies underlying worldwide standards for conductive AC and DC charging, connection, communication and safety used in equipment that provides electric charging in and to electric vehicles.

**Standards used in China, Europe, India, Japan and the US are included.**

"We are pleased to offer efficient and affordable access to innovative technologies in the emerging EV industry that will allow for the wide adoption of interoperable EV charging infrastructure so critical to its deployment," MPEG LA president and chief executive officer **Larry Horn** says.

The initial patent owners to MPEG LA's EV charging licence are GE Hybrid Technologies, Mitsubishi Heavy Industries, Robert Bosch GmbH, and Siemens AG.

"We commend these companies for their foresight, initiative and cooperation in making possible a joint licence for the benefit of the worldwide EV charging marketplace," MPEG LA science and business strategy vice-president **Dan Abraham** says.

"We welcome other owners of EV charging technology to join them in offering one-stop access to their technologies covered by these standards through MPEG LA's EV Charging License."

**MPEG LA's objective is to offer worldwide access to as much EV charging essential intellectual property as possible to everyone on the same terms under a single licence.**

The Denver-based company is the world's leading provider of one-stop licences for standards and other technology platforms, pioneering the modern-day patent pool since the early 1990s helping to produce the most widely used standards in consumer electronics history. It's involved with more than 20,000 patents in 90 countries with some 250 patent holders and more than 6000 licensees.

By assisting users with implementation of their technology choices, MPEG LA says it offers licensing solutions that provide access to fundamental intellectual property, freedom to operate, reduced litigation risk and predictability in the business planning process.

Visit **www.mpegla.com** for more information. ■



Hybrids have it in the latest stats.

# Hybrids head skywards

Hybrids are doing all the moving in the latest VFACTS national new vehicles sales figures.

**The charge from electric vehicles, including plug-in hybrids (PHEVs), appears to have slowed or even stalled by comparison in many of the categories.**

Take the private passenger sales sector as an example. Hybrids in this category have soared 91.9% month-on-month to reach 683 in May – almost double that for May last year (356). And year-to-date (YTD) hybrids have rocketed 88.9% from 1519 in May 2018 to 2370 in May 2019 – up 1351.

By comparison, electric/PHEVs in the private passenger sales segment have slumped from 30 in May last year to 21 in May 2019. For YTD they have staggered to 144 – only 41 up on the same time last year (103).

It's much of the same in the non-private passenger sales category where hybrids record a huge hike while electric/PHEVs hit the wall.

**For example, electric/PHEVs stay at 29 for May 2019 – the same as they were in May last year. YTD figures are even worse. Electric/PHEVs drop 46.4% from 2011 last year to 113 this year.**

Yet hybrids in the non-private sales sector jump more than 50% this May compared with May 2018 (1310 from 869) and in YTD go from 3155 to 5122 – up 1967 or 62.3%.

Following on, hybrids in the SUV private and non-private segments also record massive increases, with electric/PHEVs barely making any inroads.

Hybrids in the private SUV category leap 999% in monthly comparisons, from 69 in May 2018 to 821 in May just gone. And YTD totals put private hybrid SUVs 284.3% up, going from 286 in 2018 to 1099 so far this year.

**It's a similar story for hybrids in the non-private SUV market. Here the jump from May 2018 to May this year is 755% - 80 to 684. YTD also has them up 122.3% - from 417 to 927.**

Electric/PHEVs might show a whopping 637.5% increase from May 2018 to May 2019 in the private SUV segment, but that's from small totals of just eight in May last year to 59 in the month gone by.

The YTD percentage increase in the same sector of 381.5% also masks the fact that the increase in numbers is from just 54 to 260.

In the non-private SUV sales market, electric/PHEVs this May are almost double that for May last year – 61 from 36 (69.4% up), and YTD go from 174 last year to 553 this year – a 217.8% rise.

**May figures for the electric/PHEV non-private light commercial remain at zero, with just five recorded YTD – four more than for this period in 2018.**

The fuel of choice remains petrol by a long shot in most categories, with diesel topping the light commercial segment and well behind hybrids in the passenger markets.

The overall May 2019 vehicle statistics continue the downward sales slide, the Federal Chamber of Automotive Industries (FCAI) says.

FCAI chief executive **Tony Weber** says it follows the trend in the first quarter of the year in the automotive market.

**"The Australian market has seen the same trend throughout 2019, resulting in an overall decrease of around 8% for the first five months of the year."**

The FCAI blames this on market factors such as an economic downturn, drought, political events, the tightening of financial lending and a lack of confidence in the market.

"Now that the Federal election has been finalised, we are optimistic that the market will improve over the next few months."


Are electrics becoming unplugged in Australia?

| NEW VEHICLE SALES BY BUYER TYPE AND FUEL TYPE | | | | | MAY 2019 | | | |
|---|---|---|---|---|---|---|---|---|
| | Month | | YTD | | Variance +/- Vol. & % | | | |
| Total Market | 2019 | 2018 | 2019 | 2018 | MTH | YTD | MTH | YTD |
| **ELECTRIC** | | | | | | | | |
| Passenger Private | 21 | 30 | 144 | 103 | -9 | 41 | -30.0% | 39.8% |
| Passenger Non-Private | 29 | 29 | 113 | 211 | 0 | -98 | 0.0% | -46.4% |
| SUV Private | 59 | 8 | 260 | 54 | 51 | 206 | 637.5% | 381.5% |
| SUV Non-Private | 61 | 36 | 553 | 174 | 25 | 379 | 69.4% | 217.8% |
| Light Commercial Non-Private | 0 | 0 | 5 | 1 | 0 | 4 | - | 400.0% |
| Sub Total | 170 | 103 | 1,075 | 543 | 67 | 532 | 65.0% | 98.0% |
| **HYBRID** | | | | | | | | |
| Passenger Private | 683 | 356 | 2,870 | 1,519 | 327 | 1,351 | 91.9% | 88.9% |
| Passenger Non-Private | 1,310 | 869 | 5,122 | 3,155 | 441 | 1,967 | 50.7% | 62.3% |
| SUV Private | 821 | 69 | 1,099 | 286 | 752 | 813 | >999% | 284.3% |
| SUV Non-Private | 684 | 80 | 927 | 417 | 604 | 510 | 755.0% | 122.3% |
| Sub Total | 3,498 | 1,374 | 10,018 | 5,377 | 2,124 | 4,641 | 154.6% | 86.3% |
| **TOTAL** | **3,668** | **1,477** | **11,093** | **5,920** | **2,191** | **5,173** | **148.3%** | **87.4%** |

# Faster charging – is the network up to it?

As the drive towards more electric vehicles speeds up, questions are being asked whether the infrastructure for them can cope.

**That particularly applies to EV charging, with the ABB Technology Summit in Auckland on June 6 highlighting that smart charging and renewable energy will help.**

Increasing digitalisation and connectivity, partnerships between the various businesses involved, and newer and faster developing technology will all contribute.

EV chargers are already capable of delivering 200km of range in eight minutes – similar to the time taken to fill a conventional fuel tank, ABB's **Chris Thomas** explained to more than 80 people at a session on the next evolution of EV charging.

Thomas says ABB has a charging station for all occasions, ranging from an AC wallbox delivering 3-22KW in four to 26 hours, a DC wallbox providing 20-25kW in one to three hours, and a ABB Terra 50kW fast charger to a DC high-power station providing 150-350kW in 10-20 minutes. Many of the latter are being introduced to the US and through the Ionity network to Europe, and the stations are easily transportable.


Ewan Morris

The first ABB high-powered charger is on order and due to be commissioned in New Zealand "in the next few months", Thomas says.

As an example, the summit hosted a first glimpse of the new Audi e-tron SUV hooked up to a demo of a new high power ABB charger - which supports CCS (500A liquid-cooled cables) and Chademo (200A) as well as being a modular system, with charging power available from 175kW up to 350kW.

"EVs must be more affordable and grids must be restructured," he says, illustrating how new power grids can incorporate renewable energy such as solar and use smart technology to deliver power at suitable times to avoid overloading.

**He expects EVs to achieve price parity with internal combustion engine (ICE) vehicles by 2025 and take off.**

"We're almost there – time is seriously running out."

Outlining ABB's charging solutions, Thomas says converters and chargers are integrated so all charging requirements are on the portable stations which can be delivered by truck to the required site.

"These are standardised units able to be delivered anywhere in the world today.

"They have everything you need for charging."

ABB NZ managing director **Ewan Morris** says the summit covered digitalisation including ABB Ability digital solutions for smart charging to deliver power to EVs through intelligent chargers to avoid power overloading.

**That's possible when EVs dominate globally, putting huge demand on power resources - likened by some at the event to a "boiling ocean" effect.**


The Audi e-tron at the ABB summit


ABB's Brent Rees, Debbie Van der Schyft and Simon Reed

The main message was around digitalisation, Morris says, the summit covering digital solutions for industry including cloud solutions, security, 5G and more.

Partnerships between business are essential too, much like those being established between various automotive manufacturers for EV production.

"There needs to be partnerships to be successful, particularly around digital solutions as the technologies are many and varied," Morris says.

Energy optimisation and many other aspects around EVs are giving rise to huge value creation opportunities in the business-to-business space, he believes.

**New business models will come, and Morris sees the increasing popularity of car sharing incorporating EVs and wider use of autonomy and robotics as having an impact on society too.**

# NZ's EV progress discussed

A need to increase electric vehicle uptake and reduce emissions from the light vehicle fleet in particular, has been expressed by associate transport minister **Julie Anne Genter.**

**This came during discussions with the Electric Vehicles Leadership Group meeting in Wellington on June 12 in which EV initiatives are seriously being considered.**

"Minister Genter sought the group's thinking on the EV market and had a lively discussion with us on initiatives she is thinking about," group members **David Vinsen** and **Mark Gilbert** say.

The minister noted work she is doing to progress a potential discussion paper on low-emissions vehicle initiatives, they add.

"We hope to hear more from the minister in the near future."

The EV Leadership Group was formed by the previous government in 2016 to champion its EV programme aiming to double the number of EVs on New Zealand roads annually to reach 64,000 by 2021, and promote other wide-ranging initiatives.


Julie Anne Genter

**The 10-member group shares information between central and local government and industry, providing feedback to test ideas and decisions before they are put into practice.** ■

# Wellington welcomes its first e-rubbish truck

Wellington's first fully electric rubbish truck will join two electric vans in servicing about 40 Wellington City Council social housing sites.

**The Manco SEA EV10 Electricat was revealed at a ceremony at the council's Berkley Dallard apartments on June 12.**

Bought with the aid of a government low emission vehicles contestable fund administered by the Energy Efficiency and Conservation Authority (EECA), the e-truck goes to contractor Professional Property & Cleaning Services (PPCS).

The same company introduced two electric vans last year and has ordered six more EVs.

**PPCS committed to introducing EVs where possible in taking up a contract for cleaning and rubbish removal at WCC's Parks, Sports and Recreation and City Housing sites.**

"We see this new truck as a major step towards our target of converting 70% of our fleet to electric or hybrid by 2025," PPCS general manager **Sarel Bloem** says.

"We're a family owned New Zealand company and we're passionate about protecting the environment. That's why we bought this truck and why we've just ordered an additional six electric vehicles. This means in the next few months 100% of the vehicles we use to service Wellington will be electric."



Justin Lester, left, and James Shaw join the welcome for the city's first all-electric rubbish truck

Wellington mayor **Justin Lester** says the city has been installing EV chargers for residents' use but needs to lead by example.

"That's why we're converting our own fleet to electric and I'm delighted that PPCS are joining us in this. This is about making our city cleaner for us and future generations."

Climate change portfolio holder councillor **David Lee** says Wellington is continuing the journey to becoming a zero-carbon capital by 2050.

**"We will only get there with help from companies like PPCS getting on board. I'd encourage other companies with large fleets to do the same."**

Climate Change minister **James Shaw** says it is important for New Zealand's service fleet to convert to EVs.

"Unlike private vehicles, rubbish trucks, taxis and delivery vehicles are on the road most of the working day," he says.

**"The more of them that are electric, the quicker we will be able to reach our emission reducing goals."**

The Manco SEA EV10 Electricat is based on a SEA Electric (NZ) SEA Drive system with the rest built by Auckland-based Manco Environmental.

Similar electric trucks are run by Civic Contractors in Auckland which has 200 vehicles it aims to switch to electric by 2025, and the Palmerston North City Council.

The trucks have a 120kW battery pack and 180km range and are recharged at their depots. ■

# EV Charging Infrastructure

