



Te Mata Mushroom's charging station is free to the public. Photograph: Tim Whittaker

A Plug for Electric Vehicles

KEITH NEWMAN

Electric cars moved from functional to desirable this year with the eye-catching Tesla range highlighting an emerging paradigm shift from fossil fuel to the electric dream of zero emission transport.

Bloomberg New Energy Finance prophecies the 2020s will be the decade of the electric vehicle (EV), with falling battery prices opening the way for price competitiveness with their petrol and diesel powered nemesis.

If New Zealand is to make the most of this opportunity from an economic and environmental perspective, the massive transitioning task will require a compelling business case, strong leadership and staged timelines for domestic and fleet vehicles, with taxes and other disincentives for gas guzzlers.

The risk of messing it up evokes the failed experiment of the 1980s Muldoon 'think big' era, when New Zealand tried to beat 'big oil' by investing in locally-produced compressed natural gas (CNG). Plummeting oil prices and insufficient refill outlets saw the plan stall at 10% penetration of hybrid vehicle conversions.

New Zealand has been a cautious adopter of EVs. By September 2015 more than half of EVs here were hybrids, including conversions, and by April 2016 there were still only 1,015 registered, including used imports.

Of the billion registered cars globally, only 1.2 million are EVs (under 0.2%); half were sold during 2015, most in the US ahead of

“The Leaf wasn't fun or cool; the Tesla's are awesome vehicles ... they're doing cars that are truly desirable and there's so much innovation.”
Rod Drury

Europe, China and Japan.

There are around 20 full EVs in Hawke's Bay and perhaps as many hybrids. Among them, Hastings District Council, Unison and Te Mata Mushrooms have second-hand four door Nissan Leafs and Napier city has ordered two EV vans.

These second generation vehicles, well capable of breaking the speed limit, have a range of 120-140 kilometres and can be recharged from a standard three-pin plug in 10 hours or 20-30 minutes from a fast charge three phase outlet.

Five-year focus

Transport Minister Simon Bridges' wants to see 64,000 EVs by 2021, with growth stimulated by road user charge exemptions until light and heavy commercial EVs make up 2% of the fleet.

He's encouraging bulk purchases, public charging infrastructure and offering a

contestable \$6 million fund to support 'innovative' low emission vehicle projects.

Tax depreciation and fringe tax measures are being considered; EVs might be able to use bus lanes, and there may eventually be levies on petrol and gas.

New recharge outlet signage developed by Christchurch City Council is about to appear around the country and a leadership group will help drive the message home with a million-dollar marketing campaign over five years.

Fleet EV sales had traction from 2009 and were trending up; mostly imported second-hand Japanese Nissan Leafs (\$20,000 plus), until Nissan dropped new models from the local market in November 2015.

Lobby group Drive Electric says that left the Mitsubishi Outlander, a \$60,000 hybrid, as the next affordable option for fleet managers.

Shifts happen

Meanwhile EVs innovation took a leap forward with Tesla receiving 400,000 cash deposits for its stylish Model 3 prototypes earlier this year before they even got onto the production line.

That qualified the EV as a disruptive technology, alongside the Ford Model T, which supplanted the horse and buggy.

Battery prices plummeted by 35% in 2015, although the battery still makes up a third of the cost. Between Tesla's massive



Unison Group chief executive Ken Sutherland and Mayor Yule at Hastings Power Park

battery factory and huge R&D a further 30% reduction is being targeted to push EVs across a consumer tipping point.

Locally, Johnny Bridgeman from Haumoana took delivery of his Tesla S P90D in May and Havelock North-based Xero CEO Rod Drury, though mildly disappointed at production delays, will take delivery of his Tesla X early in 2017.

Drury's confident he's buying into the leading edge of a rapidly maturing market, with the next generation of more affordable vehicles set to captivate our imagination. "The Leaf wasn't fun or cool; the Tesla's are awesome vehicles ... they're doing cars that are truly desirable and there's so much innovation."

He concedes current EVs are not for long overnight trips but 'normal family things' like commuting, taking the kids to school and sports fixtures, doing the groceries, then charging up in the garage overnight. "You wouldn't do a trip from Hawke's Bay to Wellington in an EV without a tail wind, well I wouldn't," says Drury.

The AA suggests 95% of us travel an average of 39 kilometres a day or less than 100 kilometres.

While waiting for the supply issues to resolve, he says anyone who has a fleet should be looking seriously at EVs, although a stronger Government-led strategy is needed.

Norway leads way

Norway has the highest penetration; one in every 100 passenger cars by December 2015, with 24% of all new sales being EVs.

Now Norway's main political parties are proposing to ban sales of petrol powered cars, requiring zero emissions on all new

Now Norway's main political parties are proposing to ban sales of petrol powered cars, requiring zero emissions on all new sales from 2025.

sales from 2025, according to Electrek. The Netherlands is looking to follow suit and India is considering an all-electric fleet by 2030.

"There's some real leadership going on there. It would be good to see something ambitious from New Zealand. I don't think anyone would be opposed to us having a far more active electric vehicle strategy," says Drury.

All of this 'cool technology' he enthuses, is "incredibly on-brand ... we could be a global hot spot in electric vehicle infrastructure.

We could put in place a 10-15-year 'flip the fleet' strategy which would be super-exciting."

Locally we remain cautiously experimental. At the end of 2012 Unison Group purchased a Nissan Leaf to test the long-term impact on its Hawke's Bay, Rotorua and Taupo distribution networks.

It wants to understand how demand might interact with other technologies including solar panels and large capacity battery storage, confident for now that its network is well placed to support growth in EV charging, which typically occurs overnight on off-peak rates.

Power parking

In conjunction with Hastings City, a former motorcycle parking space behind Westpac Bank on Queen Street has been repurposed as a fast charging Power Park.

Peter Free, a Hastings businessman and regular user, claims he can save \$3,500 in fuel charging up his BMW i3 EV at home and at the Power Park, which delivers an 80% charge in 30 minutes.

By the end of the year, Unison Group CEO Ken Sutherland says it'll have similar Power Parks in Napier, Rotorua and Taupo to address 'range-anxiety', believing other suppliers will follow suit.

Unison will monitor use to help build support for fleet usage and to determine

how it will eventually charge for electrified transport. Its Hastings Power Park is free until September, when a 40 cents per minute charge will apply – 30 minutes for \$8-\$12.

Hastings City Council purchased a second-hand Nissan Leaf for its parking department last year to determine viability for everyday use. Marcoms manager Jane MacKay says no other purchases are planned unless "it's fit for the role required ... and provides the best overall cost of ownership".

She says maintenance costs are negligible; no oil changes, spark plugs, cam belts, "all it really requires is a WOF, tyre checks and charging." Range issues mean careful planning is required for round town use.

A Hastings long-term plan (LTP) goal is for electric vehicles as an option for the future transportation network and supporting infrastructure to help make EVs viable.

Napier City Council's EV strategy is more explicit; it's installing two free-to-use charge stations (apart from the Unison one) at the council buildings in Hastings Street and the council yard off Austin Street.

Two Renault Kangoo electric vans will arrive in late July; one as a courier vehicle, the other for the parking department giving it high visibility on the "120 kilometres per day" rounds, says Hayleigh Brereton, Napier City's business support manager.

This will help council assess where else EVs might fit in the fleet. "We're looking

to Norway for ideas on how to create the right framework for encouraging uptake," says Brereton, this might include free CBD parking and a charging network including Ahuriri and Taradale.

By the end of the year, Unison Group CEO Ken Sutherland says it'll have similar Power Parks in Napier, Rotorua and Taupo to address 'range-anxiety', believing other suppliers will follow suit.

Visibility raises profile

Te Mata Mushrooms' Nissan Leaf is in regular use for sales trips and charged weekly. It also has electric pick-up buggies, is moving to fully electric forklifts and has committed to ten kilowatts of solar generation.

A dedicated charge station at the factory is free for public use. CEO Michael Whittaker believes higher visibility of electric cars and charge stations helps raise awareness.

When *BayBuzz* called, he'd just returned from the US where he saw EV charge stations

in every public parking building, on the street and at supermarkets. "A whole level of a parking building in Santa Monica is filled with electric charge stations."

Entrepreneur Rod Drury believes this is the perfect time for New Zealand to step up as "billions of dollars of EV investment is being bought forward" largely because of the VW and Audi emissions scams.

All major automobile manufacturers are investing, electricity suppliers are supporting the shift and Drury, in his inimitable style, envisions a future where New Zealand is a global EV proving and testing ground for the technology, the business case and infrastructure by creating an electric highway across both islands.

He's like a cheerleader encouraging thought leaders including those in central and local government to catch his drift. "We could be hosting Google's right hand drive, driverless cars trials...as part of our technology strategy and inviting private investors."

Heavy vehicle traction

The underlying promise of significant reduction in greenhouse gases is unlikely to come from rechargeable family transport, but through converting public transport, heavy machinery and dirty trucks.

Palmerston North-based Zero Emission Vehicles (ZEV) expects to be back in Hawke's Bay toward the end of this year pitching the

INCREASE YOUR PROFITS GUARANTEED!

A Bizoptimise® Expense Review is guaranteed to increase your profits*

WHAT'S INVOLVED?

- In-depth analysis of current expenses
- Report of findings and recommended initiatives
- Implementation of agreed savings

I have a proven record of achieving significant savings with minimum impact.

"Savings of \$120k+ p.a"

- Gerard Hickey, Firstlight Foods Ltd

"A pain free \$15k+ p.a. savings"

- Frederick Swain, Optometrist

Maximise your rewards and contact Ian today!



- » Remove unnecessary cost
- » Focus on sustainable reductions
- » Achieve \$100k+ p.a. of savings
- » Create a profitable businesses that is more attractive to potential buyers

Whether you have a team of 5 or as many as 100+ employees, Bizoptimise® can optimise all aspects of your business.

Bizoptimise®

06 211 3737 021 243 2911
ian@bizoptimise.co.nz bizoptimise.co.nz

*Guarantee that annualised savings > review cost, terms and conditions apply



The prototype ZEV 9000 has been in full commercial use by the Kapiti Coast District Council since 2013, achieving operating costs one-third of the equivalent diesel vehicle.

latest model of its world-leading electric rubbish truck and compactor.

The prototype ZEV 9000, a nine tonne truck with power steering and hydraulic compactor, has been in full commercial use by the Kapiti Coast District Council since 2013, achieving operating costs one-third of the equivalent diesel vehicle.

Improvements through its specialised EVNet battery management and electric drive system have seen the 104 kilowatt battery double the travelling distance from 100 kilometres to 200 kilometres at around 8.55 cents per kilometre.

The new improved, heavier 15 tonne model will deliver 300 kilometres per charge. "We're continually working on how to waste less power and get more power when it's needed," says CEO Andrew Rushworth.

So why rubbish trucks? Well, they're expensive to build and it appears this is a relatively untapped niche market. "Councils are now encouraged to change their fleets, and the worst performing are most likely the rubbish compactors."

The Paris accord on climate change requires us to reduce carbon emissions by 19 million tonnes a year. Rushworth continues, "the only way to do that at the moment is from the heavy vehicle fleet – the low hanging fruit are buses and rubbish trucks."

The new ZEV 15000 could cost \$350,000-

\$400,000; marginally more expensive than a diesel equivalent, with payback through low maintenance and energy costs around the seven-year mark.

The innovative engineering firm has capacity at its facilities to build 50-100 vehicles a year, but needs orders for ten to bring the price down.

It's waiting for the dust to settle on the government strategy before pitching its

"...you can't ignore the fact that Tesla, Chevy, Nissan and others, including tech companies, are investing billions in dozens of new models of affordable long-range electric cars."

new model, believing the saving of at least a quarter of one cent per kilometre on road user taxes is a big incentive.

Councils including those in Hawke's Bay have been reluctant to commit until costs come down, something that's not going to happen until orders are placed, says Rushworth.

"While most councils have contracted out their rubbish collection, they will still need to take the lead by stipulating that they require the use of non-emitting vehicles."

Wellington City Council wants all-electric trolley and diesel buses, aware public transport accounts for 56% of emissions in the CBD. The Greater Wellington Regional Council that manages the regional fleet will award contracts for the country's first electric bus fleet by the end of this year.

Meanwhile Infratil and NZ Bus have joined forces to upgrade their fleet vehicles and buses with California-based Wrightspeed's electric powertrain technology, developed by New Zealander Ian Wright.

Better data needed

Unison's Ken Sutherland says better information is needed about the true cost of owning an EV to encourage fleet and domestic use, particularly as technology advances and the travel range extends.

As more businesses start to replace petrol and diesel fleets, it'll bring down the price of new vehicles and feed the second-hand EV market. And while the government is talking of coordinated bulk buying, that should be seen as part of a long-term trend, he says.

According to NZTA, it takes about fifteen years for New Zealanders to turn over a vehicle fleet. Sutherland says we need to

look at Norway where even after five years of Government support EVs still only make up around 2% of the total fleet.

"As with any new technology, it can take some time to see the true benefits, but we are in it for the long-haul and are positive about the potential."

Napier MP and Labour energy spokesman Stuart Nash says central government needs to encourage the private sector and infrastructure providers by mandating EVs for its own use.

"With 17,000 cars the government has by far the largest fleet in the country. What if the default position was that every public service car was an EV on a three-year corporate lease?" Over eight years he suggests that might seed about 40,000 high-end cars back into the second-hand market.

Norway's swap out deadline may not be for us, but a 50% target on EV imports by the 2025 goal of meeting our 90% renewable electricity threshold "would be fantastic".

He's fond of saying a friend of Tesla Motors founder Elon Musk suggested to him that the EV entrepreneur would be open to doing a great deal for the New Zealand Government.

"Imagine the prime minister owning one or picking up global dignitaries at the airport in a Tesla? That would send an important message to the world," says Nash.

"I just think it's a bit hypocritical when Simon Bridges turns up in a diesel BMW for a

photo op to celebrate the thousandth electric car being registered."

Nash wouldn't be averse to Musk offering him a red Tesla ... but what about the gas guzzling ancient red fire engine he uses as a promotional vehicle in Napier? "Oh, yes ... I'd love to covert that to electricity."

Big oil resistance

From a domestic point of view, EVs will remain a short distance option until car yard offerings become competitive with their fossil fuel-based cousins in terms of price, design, colour, performance and added extras.

As Bloomberg says, you can't ignore the fact that Tesla, Chevy, Nissan and others, including tech companies, are investing billions in dozens of new models of affordable long-range electric cars.

That could deliver big savings on our \$6 billion annual oil import bill; Hawke's Bay imports well over 250,000 tonnes of petrol and diesel for its estimated 200,000 cars and trucks and another 3,000 or so tractors and farm vehicles.

Big oil is downplaying the EV trend, buoyed by rising demand from developing countries and crude oil prices around \$US20 a barrel. And they're unlikely to sit back and allow margins to be eroded without rigorous competition. So what do you do if prices at the pump counter the EV trend?

And electricity providers will need to rethink their strategies with EVs predicted to draw 1,900 terawatt-hours of electricity – 10% of the world's annual electricity consumption, by 2040.

And what if electricity providers increase charges to capitalise on demand or offset costs?

That's where entrepreneur Rod Drury suggests an important public policy discussion is necessary to set a world-leading "co-ordinated...strategy" framework, to bolster our competitive EV advantage. "It feels like pieces are missing and there is an opportunity for public debate."

Entrepreneurial leadership is needed to mobilise the government to "jump into this", he says.

With trickle-down economics now largely discredited, fresh thinking is certainly required on how New Zealand backs its clean-green image, allegedly worth more than \$20 billion annually.

Leaving it to the market to decide is a proven recipe for piecemeal uptake. Instead of waiting to see what everyone else does, a more inspiring road map and stronger leadership at industry and government level is needed so our adoption of emission free vehicles not only bolsters the brand but makes a core contribution to our new climate change commitments. 🇳🇿

HOLDEN COLORADO REBEL

EXCLUSIVE TO KARAMU HOLDEN



BASED ON THE COLORADO LTZ 4X4 AUTO WITH ADDED EXTRAS

- Rebel badging and decals
- Leather sport seat upgrade
- 20 inch alloys with all terrain tyres
- Daytime running lamps
- Tinted Windows
- Colour-coded body trim, Sports bar and rear bumper
- Rubberised plastic deck liner
- Moulded floor overmats

➤ RSP
\$61,990 + ORC




Other colour options available, let us build you one. Enquire today!

KARAMU ROAD Hastings | Antony 0274 240 662 | Jono 021 993 600 www.karamu.co.nz





Photograph: Tim Whittaker

Tesla power surge

Being propelled along inside the sleek black Tesla S P90D with its spacious white interior was like a smooth, silent ride into the future with pilot Johnny Bridgeman dabbling instructions for take-off into the touchscreen – standard, sport and even ‘ludicrous’ [truly].

With pedal to the metal, gravity delivered an adrenaline rush like an aircraft take-off. Zero to 100km in three seconds – point taken – then rounded the next corner with ease under computer assisted braking.

The Tesla has sensors for everything; rear vision, front and side for exact parking and

reversing, GPS and even pre-empting corners.

Bridgeman, owner of Bridgeman Concrete, took delivery of his luxury 4-wheel drive EV – one of possibly 30 in the country – in May after being convinced by two Tesla converts in the aggregates business.

The \$A200,000 machine was acquired when there were over 300,000 on back order, and brought to the Bay by transporter. It handles as well as Bridgeman’s 2013 Mercedes 63AMG retained as a backup vehicle.

“It was a good thing to do...it’s a bit of a wag really. The guy behind Tesla seems to be in it for the long haul.”

Bridgeman reckons the government should

be doing more to encourage EVs. As he eases his pride and joy into his garage, I note an added extra beyond the hi-tech sensors, as we nudge into a ‘Stop’ sign on a spring base.

The 15 centimetre thick battery running the length of the vehicle is capable of 460 kilometres. After five days of trips from Haumoana to Omahu Rd and one to Otane, the home recharger unit (an extra \$1,000) reads 31% full and 18 hours to charge.

He might want to add a stop in the future ... the new Hastings recharge bay, with its fast-charge capability, could top his Tesla up within an hour, happily within the car park’s 60-minute parking limit! 🚗⚡

unison

POWER PARK

BRINGING PUBLIC
ELECTRIC VEHICLE CHARGING TO HASTINGS

IN PARTNERSHIP WITH  **HASTINGS**
DISTRICT COUNCIL

CHARGE UP AT UNISON'S POWER PARK
CORNER OF QUEEN STREET WEST AND MARKET STREET, HASTINGS.

TO FIND OUT MORE ABOUT ELECTRIC VEHICLES AND CHARGING, VISIT

WWW.UNISON.CO.NZ/EV-CHARGING