

Electric vehicle technicians – a looming crisis



The Federal Government has released its *Future Fuels and Vehicles Strategy*, which outlines how it will support the uptake of zero and low emission vehicles (ZLEVs) in Australia, in a bid to reduce emissions in the transport sector.

As part of the strategy, the government aims to place 1.7 million ZLEVs on Australia's roads by 2030 – a figure that has been informed by the government's own modelling – and it is estimated that more than 80 percent of Australians will have direct access to necessary fast charging infrastructure. While it is debatable as to whether a national fleet of 1.7 million electric vehicles (EVs) will exist on-road by 2030, assuming we take these estimates as being mostly correct, this raises some interesting questions.

There is a general assumption that electric vehicles require little to no servicing, which is largely untrue. Most manufacturers of electric vehicles stipulate annual service schedules that are tied to the vehicle warranty, similar to that of conventional petrol or diesel vehicles, where you risk voiding your new electric vehicle warranty by not following the servicing schedule. While there are fewer labour hours involved and fewer parts to replace in the servicing of an electric vehicle, there is a higher skill requirement for electric vehicle technicians compared to that of traditional motor mechanics. These added skill requirements include:

- Coding, reprogramming vehicle software and firmware updates
- Depowering and reinitialising battery electric vehicles
- Diagnosing and repairing high voltage rechargeable energy storage systems
- Diagnosing and repairing high traction motors in battery electric motors
- Diagnosing and repairing DC to DC converters in battery electric vehicles
- Diagnosing and repairing auxiliary motors and associated components in battery electric vehicles
- Diagnosing and repairing system instrumentation and safety interlocks in battery electric vehicles

These higher order skill requirements will give rise to specialist electric vehicle technician job roles, whose function will be to work solely on electric vehicles. It is possible that this job role may become a licensed occupation in future.

Currently, there is only a small cohort of less than 500 qualified electric vehicle technicians in Australia, that are servicing a fleet of around 25,000 pure electric vehicles (excluding hybrids) nationally. The growth in the number of electric vehicle technicians has been very minimal over the past few years, thereby keeping pace with the small number of electric vehicles on-road. If we are going to witness an explosion in the number of electric vehicles from 25,000 to 1.7 million over the next nine years as forecast by the Government, how many specialist EV technicians will we need, and will we have enough?

To answer this question, the Victorian Automotive Chamber of Commerce (VACC) conducted some modelling of its own. VACC looked at the experience of Norway, a country far more advanced down the path of electric mobility and with the highest number of EVs per capita in the world. Data obtained from Norway showed both a reduction in workshop labour hours as well as revenue obtained on labour hours, in a study of over 100,000 battery electric vehicles compared to internal combustion vehicles.

Adjusting for the increase in labour productivity for an electric vehicle technician, VACC extrapolated the growth in the Australia's EV fleet based on the Federal Government's 2030 projections, in conjunction with the trend growth rate in labour force training numbers for electric vehicle technicians. The modelled estimates for the required and actual number of EV technicians are displayed in Chart 1.

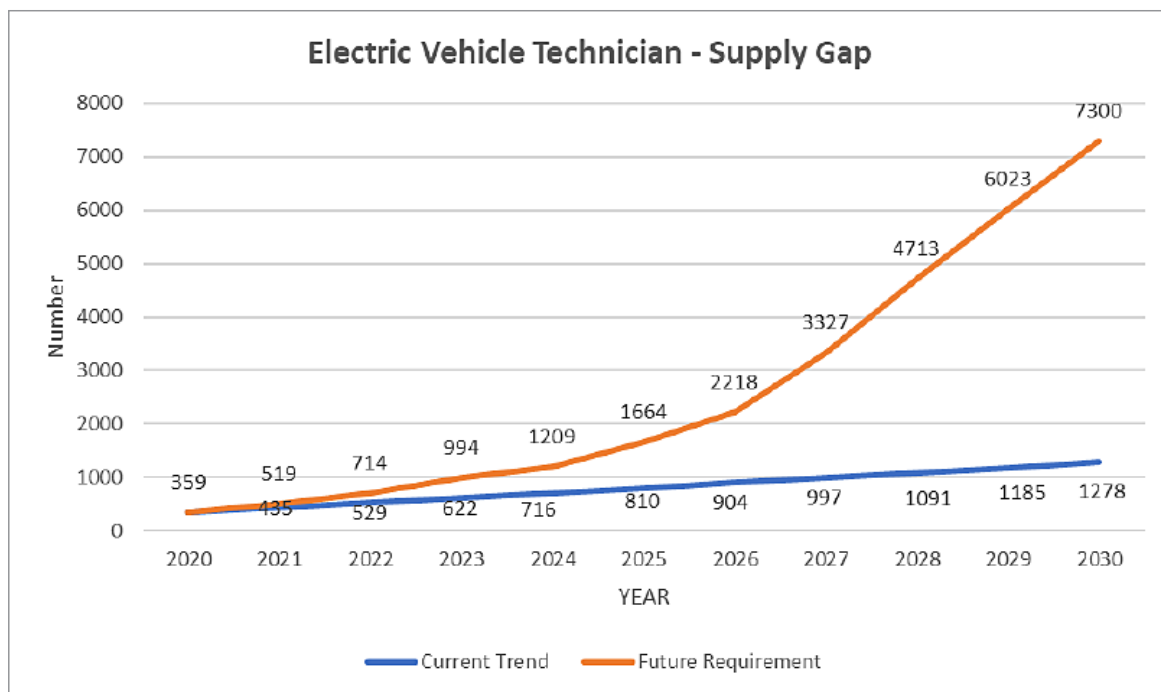


Chart 1: Projected Electric Vehicle Technician Supply Gap, Australia, 2020-2030

Source: VACC

VACC’s industry modelling shows that based on the government’s own projections of 1.7 million electric vehicles on-road by 2030, we will need around 7,300 qualified electric vehicle technicians to service and maintain this fleet of electric vehicles in 2030. However, based on trend growth in the actual number of EV technicians to date, we can anticipate a supply deficit of over 6,000 EV technicians. In other words, we can expect to reach only 17.5 percent of the required number of EV technicians by the end of the decade. This is an extraordinary statistic, and if the Government’s estimates for the number of electric vehicles on-road are to be believed, then we will have nowhere near the skilled trade labour resource with the technical capability to service this rapidly growing EV fleet.

What this demonstrates is that while it’s all well and good that the uptake of electric vehicles should be supported and encouraged, the policy focus also needs to take account of the specialised training that’s required with the service and repair of electric vehicles. Training providers will need to have the appropriate resources and capacity to deliver qualifications and skill sets for the service and repair of electric vehicles, including having the appropriate teaching expertise to deliver such training.

With the skills profile of a future EV technician looking more akin to that of an IT person or software engineer, this may entail a new class of educated individual that is not solely mechanically focused, but more like a hybrid IT, diagnostic and mechanical technician. Where will we find these individuals? Regardless of how quickly we transition to electric vehicles, unless the Government takes measures from now to ensure that we have the requisite skilled workforce in the future, then the planned sales boom in electric vehicles will be met with a lack of people qualified to work on them.



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