

From: [REDACTED]
To: [vemissions](#)
Subject: It's time we stopped smoking
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To the Honourable Paul Fletcher, Minister for Major Projects

I congratulate the Government on its initiative to host a Forum on Vehicle Emissions and for producing the discussion paper, and I welcome the opportunity to comment. Reducing emissions from the cars on Australian roads is critical to reducing the health and environmental impact of vehicle emissions. But I argue that Australia needs to look towards a higher goal - near-elimination of vehicle emissions.

My name is Timothy Ryan, and I'm an Aeronautical Engineer. Last year I won my company's award for Innovation, a subject which I am most passionate about. In this submission I have tried to take a step back and apply innovative and reasoned thinking to the problem rather than diving into research, as I'm sure volumes of research are available to you on the subject.

The crux of my submission is this: trying to reduce emissions of the internal combustion engine (ICE) is like smoking filtered cigarettes - you might feel better about it, but it's still going to kill you even if it takes a bit longer. Zero emission vehicles (currently mostly electric vehicles) are available now and are entering high volume production soon.

I acknowledge that presently a zero emission vehicle isn't emission free when powered off the Australian grid as pointed out by section 5.5 of the paper. However Australia has abundant supplies of renewable energy (especially solar) and the ability to source increasingly more of our power from clean energy sources. Even today, Australian electricity providers in some states give the option of buying 100% renewable power. Thus zero emission vehicles will produce less emissions over time, but this is impossible for ICE vehicles. In fact, the paper acknowledges that ICE vehicles can produce more emissions as they wear over time, especially if they are not properly maintained.

The combustion engine has been refined and re-engineered for over 100 years now. The emissions made by such engines have been reduced, but are now at a point of diminishing returns. Fundamentally, burning fossil fuels produces noxious chemicals and carbon dioxide, and there's no way around it. It's so difficult to reduce the emissions of modern vehicles that VW resorted to cheating the tests!

It is now possible to replace internal combustion engine cars with electric cars. The barriers to entry are upfront cost and availability, but this will no longer be the case within the next term of Government - especially if Australia follows the USA, Japan, most of Europe and many other forward looking countries and introduces strong incentives for Zero Emission vehicles.

In general, I was concerned that the paper focused largely on cars as they are today and have been historically - dominated by ICE vehicles. Some of the research quoted was outdated (such as Figure 2 referencing 2011 data), and it is unlikely that they account for the disruption in the automotive industry brought on by recent advances in zero emission and driverless vehicle technology. I doubt very much that it will be "business as usual" as stated in section 3.2. Rather, it is possible that ICE vehicles will have their own "Kodak moment", by which I refer to the at large disappearance of Kodak camera film thanks to disruption from digital cameras.

Please find my response to the paper's questions below:

1. Likely minimal, given we import most vehicles.
2. Tomorrow, why not? Dealers could be given 6 months to clear out current stock.
3. No comment.
4. Incentivise no emission vehicles like electric vehicles, following the policies of the USA, Japan and other countries. Disincentivise fuel vehicles by increasing the fuel excise (recent history proves Australians can pay \$0.30/L more than we currently do after the peak in oil prices).
 - a. Additionally, the Clean Energy Finance Corporation could set up a subsidy for providing low cost finance to individuals for the purpose of purchasing zero emission vehicles.
5. Incorporating emissions testing into annual roadworthy tests, such as those carried out in NSW.
6. No, the Australian Government should just adopt international best practise standards. A review is not needed to prove that emissions are bad, no matter how small the quantity.
7. The problem with such a standard is that manufacturers of ICE cars will find creative ways to meet it (as described in section 4.2 on footprint standardised cars in the USA). Rather, targets should be set for a proportion of zero emission vehicles in the fleet.
8. Countries such as France are setting targets of about 5% (2 million cars) of the vehicle fleet to be zero emission vehicles by 2020. Australia is lagging but a target of 2% could be achievable (about 360,000 vehicles), if strong incentives are offered. By 2025 a much wider range of zero emission vehicles will be available - particularly if we manufacture locally - so Australia could have a zero emission fleet of 6% or more (1 million vehicles or more). Australia should also set targets for at least 50% of all new vehicles sold to be zero emission vehicles by 2025 (and 99% by 2035). Also, the reduction in fleet size due falling car ownership should be considered (thanks to Uber-like services from driverless cars).
9. Electric car manufacturers have already proven they can make a range of zero emission vehicles to meet the variety of demands on vehicle type (sports car, SUV, commuter). Innovation will continue in this area and the range of vehicles offered will be improved over time.
10. See question 4.
11. Take advantage of autonomous vehicles and the opportunities it affords heavy vehicles through platooning (linked heavy vehicles following each other a close distance reducing wind resistance).
12. See question 6.
13. Australia should bring its fuel quality standards up to international best practise. Even so, burning fuel will always produce emissions so it's a bit like polishing feces.
14. No.
15. I am aware that our lower quality fuel affects the performance and fuel efficiency of cars imported from higher quality fuel countries such as Japan, which can limit consumer choices.
16. Send 91 RON fuel the way of old leaded fuel and mandate a 95 RON minimum instead. Gradually step this up to 98 RON.
17. Have not purchased a new vehicle.
18. Take a leaf out of cigarette packaging playbook and show pictures of animals suffocating on oil on the more polluting cars.
19. No comment.
20. Earlier the better. Mandatory inclusion in vehicle advertising could be effective, once a customer is at a dealership they may have already decided to buy the car.

21. GreenCehicleGuide.gov.au is good resource, good work.
22. Human behaviour is extremely difficult to control. However, autonomous vehicle behaviour is completely manageable through software therefore the government should facilitate the uptake of autonomous vehicles.
23. The Australian Government should show strong leadership and decisive action in this area by requiring government fleet acquisitions be of zero emission vehicles. It may involve a higher upfront cost to government **but the investment would pay itself off in vastly lower maintenance and fueling costs**. It would be seen as a truly innovative decision. Also, it may be possible for the Australian Government to attract manufacturing of zero emission vehicles to Australia. (I asked the Tesla rep at IDCC if it was possible for us to manufacture Teslas for them and he said it was unlikely they'd max out capacity of their gigafactory. However given the pre-orders on the Model 3 exceed 250,000 vehicles this may be changing and Tesla may be looking for new high quality manufacturing partners. Even if we don't manufacture Teslas we could use their patents and technology in our own Australian designed cars - they've given them away for free!)
24. Scrap taxes on zero emission vehicles, fund from increased fuel excises.
25. Incentives should be focused on zero emission vehicles rather than IEC vehicles.
26. Publish material on the misconceptions of electric cars and why modern electric cars are superior to IEC cars, or just leave it to Tesla.
27. Provide tax incentives for renewable energy supplied charging stations for electric vehicles.
28. No comment.
29. Yes, the Australian Government should conduct some limited testing to assess the effectiveness of regulation in reducing real world testing.
30. Fines on VW and a fuel excise.
31. It's difficult to see how Australia could influence this.

In the near future mankind will look back on the combustion engine in the same way we look back at the steam engine today. In fact, it's only a small shift in perspective to do so now:

<http://teslaclubsweden.se/test-drive-of-a-petrol-car/>

Yours sincerely,

Timothy Ryan