Re: Light vehicle CO₂ emissions standards for Australia

To the Department of Infrastructure and Transport,

I am writing to provide public comment on the Key Issues Discussion Paper for Light vehicle CO₂ emissions standards for Australia.

About Verdant Vision

Our company is an Australian-based consultancy providing trusted, independent, expert advice on technology, policy and strategy for renewable electric transportation. Our expert leadership team has a combined 20 years of experience working in this sector in both North America and Australia.

In particular we have a long history in vehicle technology assessment having performed many comparative analyses of vehicle energy use and emissions throughout our careers at The University of Queensland, the US National Renewable Energy Laboratory, Tesla Motors Inc, Curtin University, the State Governments of California, Queensland and South Australia, and most-recently with Verdant Vision. I published the first comprehensive Australian well-to-wheels comparison of light duty vehicle technologies in 2004, and produced an updated study in 2009 based on the NGAs methodology. My fellow Director, Alina Dini, also completed relative emissions studies of EVs in 2010 for the Queensland Government EV Roadmap and EV Policy.

Our leadership team also has extensive experience in regulation and credit trading in the area of vehicle emissions. I have provided invited expert testimony to the California Air Resources Board and the US Senate Committee on Energy and Natural Resources on regulations for EV emissions and equivalent fuel economy. I have also liaised with the US Environmental Protection Agency and the Australian Department of Infrastructure and Transport on labeling of EV energy use and emissions. Finally, my fellow Director, Alina Dini, established a highly-successful zero emissions vehicle (ZEV) trading scheme on behalf of Tesla Motors Inc under the Californian ZEV Program.
Our comments on light vehicle CO2 emissions standards for Australia

We have provided specific responses below to the questions raised in the Discussion Paper. However, our responses are predicated upon some overarching professional opinions that I have stated here.

1. **Australian automotive consumer preferences are not static and our light-duty vehicle market is not unique for any fundamental or inherent reason.** There seems to be a widespread perception in government that Australians are set in their ways and that Australians “want to travel long distances in big inefficient cars” due to our continent being large, remote and sparsely populated. In fact Australia is one of the most highly urbanized populations in the world – at approximately 90% we are on par with the United Kingdom and significantly higher than the United States or Canada (both approximately 80%) or Japan (65%). We are also a relatively wealthy and technologically sophisticated society and are considered a fast-follower in the adoption of new innovations. Evidence of rapid change in our automotive market preferences can be seen in the recent shifts towards smaller vehicles and new technologies such as low-emission diesels or hybrids.

2. **Australian automotive consumer preferences are highly driven by the products that manufacturers are ALLOWED to sell.** In other words, manufacturers promote certain consumer preferences through their advertising campaigns. However, it is the regulator who determines which automotive products can be sold in Australia and indirectly determines which consumer preferences are cultivated by manufacturer advertising. If manufacturers were forced to cultivate alternative consumer preferences based on regulator action, they would readily do so in order to remain competitive.

3. **On the basis of 1 and 2 above and given that Australia already imports 85% of its light-duty vehicles, there is no fundamental reason why in the medium to long term Australia cannot match the absolute emissions targets of other leading nations (Europe or Japan) or become a world leader in proportional emissions reduction.**

4. **There are many reasons why Australia should reduce light vehicle fleet emissions quickly, apart from for the sake of CO2 emissions alone.** It is well known that Australians are the highest per-capita emitters of CO2 in the OECD. However, emissions are proportional to fuel consumption in conventional vehicles and Australia’s oil self-sufficiency is expected to decline to <40% by 2020 and <20% by 2030, with significant implications for the national economy. Australia also suffers from severe petroleum vulnerability and mortgage stress on its urban fringe, which has become a significant political issue. Lastly, urban air pollution from motor vehicle tailpipes is estimated to cost our economy up to 0.5% of GDP annually, and many of the low-CO2 technologies also offer significant reductions of these other regulated pollutants. It is likely that reductions in Australian fleet emissions will contribute to significant progress on these other social issues too.

5. **Global best practice is to match the regulatory “stick” (in the form of emissions regulation) with “carrots” (in the form of market incentives for LEVs/ZEVs) to achieve a combined push-pull effect in the lowering of fleet emissions.** This is the strategy employed in the United States, Europe, China and Japan as well as leading states such as California for example.

6. **There is an urgent need to jump-start the ZEV market in Australia, in order to achieve our national emissions goals for the long term, and this cannot be achieved by light vehicle emissions standards alone.** Australia has set a national emissions goal of 80% reduction by
2050, but it is well known as cited in the Discussion Paper that the ceiling for efficiency improvements from conventional vehicles is approximately 30% “using proven, cost-effective and available technology without any significant change in the model or fuel mix”. In other words, to go beyond 30% reduction we will need new and better vehicle technologies and fuels, as well as different consumer preferences. Furthermore, to achieve >30% reductions beyond 2020 we will need to initiate the market for these technologies NOW, because it will take approximately two decades for these new vehicles to achieve mainstream market penetration given the usual rate of turnover in the Australian fleet. For these reasons, leading global authorities such as Prof. Julia King and many others are arguing that ZEV technologies such as electric vehicles will be crucial for 2030 and beyond, and that we must seed these new technology vehicle markets NOW. If Australia wishes to achieve an 80% reduction by 2050, it must cultivate these new technologies urgently.

Responses to questions in the Key Issues Discussion Paper

**Q1 – Do you support the setting of staged short and medium term targets?**

Yes.

**Q2 – If yes, do you consider 2020 is the logical date for a firm second stage target?**

Yes.

**Q3 – Do you consider it is appropriate to set a target beyond 2020 at this stage?**

Yes, in order to enable the achievement of national emissions targets of 80% reduction by 2050. Targets beyond 2020 also provide manufacturers with guidance for today’s R&D expenditure which will “fuel” the products sold beyond 2020.

**Q4 – Do you consider 2010 is the appropriate base year for determining the targets?**

We note that a base year is only required if the targets are expressed on a proportional basis, and we do not necessarily advocate this approach. An absolute approach can also be taken. But if a proportional approach is ultimately taken by the Department, we feel that 2010 is an appropriate base year.

**Q5 – What rate of CO2 emissions reduction do you consider is achievable by 2015 and 2020 in Australia?**

**Q6 – What do you think is a reasonable CO2 target for the Australian new light vehicle fleet in 2015 and 2020?**

We agree with the ICCT assessment that annual reduction rates of 2–3% are achievable in the short term (to 2015). We agree with the Department that the capacity for major change by 2015 is limited, due to vehicle manufacturing planning timelines which are typically around 3–5 years and because achieving an ambitious target at lowest possible cost requires a longer lead time to enable emissions improvements mandated by standards to be factored into the planning process.

We do NOT however believe there is any fundamental reason why the Australian light-duty fleet cannot reflect world’s best practice (in terms of absolute emissions) by 2020. To us, world’s best practice is conveniently exemplified by absolute European standards (as shown in Figure 4), but we
also note that absolute Japanese standards are similarly aggressive, and that US and Chinese standards are accelerating towards the EU standards through ongoing regulatory reform.

**Q7 – Are there any impediments to Australia achieving the more ambitious rates of reduction embodied in Scenarios 5 and 6 above?**

No, in fact we believe there are no fundamental impediments to Australia achieving the same absolute fleet emissions as Europe for 2020 and beyond.

**Q8 – Do stakeholders have any information on costs and benefits of standards which would assist the Department of Infrastructure and Transport in the preparation of the cost benefit analysis for the implementation RIS?**

We do not have any specific information on costs and benefits of emissions standards, but we direct the Department to studies conducted by AECOM (with our input) for New South Wales and Victoria assessing the long-term economic impacts of ZEVs (in this case electric vehicles). In all scenarios considered there was an overall net economic benefit to society. We infer that if this conclusion applies to the most aggressive technology (ZEVs), it most likely also holds true for technologies that offer incremental reductions at a fraction of the incremental cost compared to ZEVs.

**Q9 – Should Australia set a single set of CO2 targets for all light vehicles, or is there merit in establishing separate targets for passenger vehicles (cars and SUVs) and for LCVs (utes and vans)?**

We do not see a compelling need for split targets.

**Q10 – Do you support the idea of bonus credits for new technology vehicles (such as EVs), flex fuel vehicles and other technologies, or should the CO2 standard be purely performance based, treating all vehicles on the same basis (using the CO2 emissions result on the standard ADR test)?**

Yes, in the absence of any other policy or regulation to encourage the uptake of ZEVs, we feel that bonus credits will be essential (in the near term). These credits can be awarded on a performance basis. These bonus credits should be limited via a sunset clause that caps the number of eligible vehicles at e.g. 0.1% of the LDV fleet or approximately 15,000 vehicles.

**Q11 – If you support credits, what vehicle types do you consider qualify for a credit and why?**

Zero tailpipe emission vehicles, which currently include electric vehicles (EVs) in the Australian market, but may also include fuel cell vehicles in the future. Alternatively, the Department could consider the European approach that awards bonus credits to vehicles emitting less than 50 grams of CO2 per kilometer.

**Q12 – Do you support an attribute based standard?**
**Q13 – If so, do you have a preference for mass or footprint?**
**Q14 – If you do not favour an attribute based standard, what is your preferred approach and why?**

Yes, we prefer the footprint approach. We agree with the US logic that footprint better relates to consumer utility (whether for carrying goods or people), is more technology neutral, is better from a safety perspective and does not discourage smart design or the use of lightweight materials.
Q15 – Do you consider there are any other data elements which might also be required for the standards to be effective and enforceable?

The list provided by the Department appears sufficient.

Q16 – Do you agree that the current VFACTS database (supplemented and audited as necessary) is suitable as the primary data source for assessing and reporting compliance with the standards?

Yes.

Q17 Do you also agree that data collected for the purposes of the standard should be made publicly available on an annual basis?

Yes.

Q18 – Do you agree that the Motor Vehicle Standards Act is the most appropriate primary legislation under which to write appropriate CO2 regulations?

Yes.

Q19 – If not, what alternative legal framework would you propose?

Yes.

Q20 – Do manufacturers, particularly importers, have any views regarding the identification of responsible entities under the standards?

As we are not a manufacturer we do not have a particular view on this question.

Q21 – Do you consider there is merit in allowing manufacturers to pool, or is it an approach that manufacturers are unlikely to pursue?

Yes, possibly, assuming the benefit of flexibility for manufacturers outweighs the additional complexity of administering pooling schemes.

Q22 – Do you think there is sufficient merit to warrant the inclusion of banking and trading systems as a feature of Australia’s CO2 standards?

Yes. This feature can be particularly valuable as an incentive for new LEV/ZEV products or new vehicle manufacturers who wish to produces LEVs/ZEVs. This was our experience with Tesla Motors, who were able to monetize their ZEV credits under the California ZEV Program, adding significantly to their bottom line and overall profitability during the (vulnerable) startup phase of their business.

Q23 – Do you agree such systems are only possible where annual targets are set?

No, compliance and credit banking and trading schemes can be administered over “phases” of several years. For example, the California ZEV Program tracks ZEV compliance and credit balances over 3-year “phases”.


Q24 – Do you agree that financial penalties are the most effective way to address non-compliance?
Q25 – If not, what alternative would you suggest?

Yes, we support financial penalties for non-compliance. In considering the magnitude of financial penalties, consideration must be given to the potential market value of credits, as the value of these is effectively set by the cost of non-compliance.

Thank you for your consideration of our submission. Please do not hesitate to contact me by phone at 0424 016 248 or by email at andrew@verdantvisiongroup.com if you require further information.

Sincerely,

Dr Andrew Simpson
Managing Director, Verdant Vision