

Submission on the Future fuels policy

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*“Fossil fuel subsidies are public enemy number one to sustainable energy development”
Fatih Birol, Chief Economist, International Energy Agency*

Doctors for the Environment Australia (DEA) is an independent, self-funded, non-governmental organisation of medical doctors in all Australian States and Territories. Our members work across all specialties in community, hospital and private practice. We work to minimise the public health impacts and address the diseases caused by damage to our natural environment.

Doctors for the Environment welcomes the opportunity to submit comment on the discussion paper informing the final Future Fuels Strategy. DEA respectfully requests that the Department consider as part of this submission previous submissions on transport policy, DEA’s position statement on transport, and DEA’s submission to the proposed variation to the ambient air quality measure standards for ozone, nitrogen dioxide, and sulphur dioxide:

- <https://www.dea.org.au/wp-content/uploads/2021/01/Senate-Select-Committee-on-Electric-Vehicles-submission-07-18.pdf>
- <https://www.dea.org.au/better-fuel-for-cleaner-air-draft-regulation-impact-statement/>
- <https://www.dea.org.au/wp-content/uploads/2021/01/DEA-Position-Statement-Transport-10-17.pdf>
- <https://www.dea.org.au/wp-content/uploads/2021/01/Proposed-variation-to-the-ambient-air-quality-measure-standards-for-ozone-NO2-and-SO2-Submission-06-19.pdf>

Key Points

- There is large potential to reduce Australia’s emissions of greenhouse and noxious gases in the transport sector.
- The Future Fuels Policy paper does not address the full scope of obstacles and opportunities in reducing transport emissions.
- Public transport, and active transport, which have the potential to reduce fuel use and improve public health, are not covered in the policy.
- Australia continues to lag behind other OECD countries in adopting efficiency standards and noxious emissions standards for motor vehicles.
- With an emphasis on hybrid model light vehicles, the policy misses the opportunity to incentivise the uptake of more efficient, less polluting battery electric vehicles.

Recommendations

- Implement an average efficiency standard for new car fleets of 105 gms CO₂/km as soon as feasible.
- Introduce Euro 6/VI vehicle emission standards for all new vehicles from 2023.
- That the Government undertakes a review or Health Impact Assessment of the costs and benefits of traffic related air and noise pollution.
- Abolish the luxury car tax and registration fee on new electric vehicles and increase stamp duty and registration fees on heavily polluting vehicles.
- Provide incentives for EVs in the tax system as in the US.

- Provide support for state-based policy as in the South Australia Electric Vehicle Action Plan and state plans for electrified buses.
- Plan for reduced car use in promoting public transport and active transport infrastructure.
- Set a date for the eventual ban of new ICE vehicles in line with the United Kingdom, France and other nations.
- Provide support for Australian industry and innovation in the electric vehicle sector, in electric car, light truck and bus manufacturing and charging infrastructure.
- Transition the entire government car fleet to electric vehicles.

Introduction.

Transport is an essential part of Australia's economy and vital to human health and wellbeing. Human mobility is a basic right, and the delivery of goods and services would not be possible without modern transport. With a growing population and increased urbanisation, transport, particularly road transport, creates problems, and transport policy needs to be integrated with city planning, housing, health, and environment in mind, and not left to ad-hoc decisions, or worse, vested interests.

The Australian transport system is failing to deliver the best outcomes for the Australian people in terms of the environment and human health and wellbeing. The discussion paper has a narrow focus and does not adequately address the broader issues of transport.

The discussion paper outlines the Government's vision to "create an environment that enables consumer choice, stimulates industry development, and reduces emissions in the road transport sector". It would seem reasonable to ask, does one person's choice to drive whatever the market offers trump an asthmatic child's right to clean air or the urgent need to act on climate change?

The modern motor car is a triumph of engineering and design forged by an internationally competitive market. It is also, as the late Cambridge physicist and advisor to the UK Government David Mackay wrote in 2009, highly inefficient, with more than 70% of the energy from an internal combustion engine wasted as heat, compared with an electric vehicle with an efficiency of around 80%¹.

Globally, electrification of transport is being driven by advanced technology, consumer choice, and government policies on clean air and climate change. However, Australia has come under notice as a dumping ground for polluting vehicles². There are no mandated efficiency standards³, noxious emission standards are near the bottom of the OECD, and Australia lags behind other advanced economies in the uptake of electric vehicles⁴.

In referring to the uptake of electric vehicles in the United States, the International Council on Clean Transportation reported

*"Incentives help to reduce electric vehicles' upfront cost as battery costs continue to decline. The 10 areas with the highest uptake had state incentives typically worth \$2,000 to \$5,000"*⁵.

¹ https://www.withouthotair.com/c20/page_118.shtml pages 118-132

² <https://reneweconomy.com.au/australia-risks-becoming-dumping-ground-for-worlds-most-polluting-cars-44012/>

³ <https://theconversation.com/we-thought-australian-cars-were-using-less-fuel-new-research-shows-we-were-wrong-122378>

⁴ <https://www.theguardian.com/environment/2020/sep/21/uk-plans-to-bring-forward-ban-on-fossil-fuel-vehicles-to-2030>

⁵ <https://theicct.org/publications/ev-update-us-cities-aug2020>

The Choice between business as usual and clean air

In 2015 the Ministerial Forum on Vehicle Emissions was established. In 2016 the Department of Environment and Energy released a discussion paper, Better Fuel for Cleaner Air which clearly outlined the problem:

“There are proven links between pollutants found in vehicle emissions and a range of human health problems (both short and long term). Air pollutants can have a significant impact on the cardio—respiratory system. Individuals with pre-existing respiratory conditions, such as asthma and allergies, are especially vulnerable to air pollutants. The effects on human health can include reduced lung function, ischemic heart disease, stroke, respiratory illnesses, and lung cancer⁶. The cost of premature deaths due to outdoor air pollution in Australia in 2010 has been estimated to be up to \$7.8 billion and in OECD countries, it is suggested that road transport accounts for approximately half of the cost of these preventable deaths”⁷.

The health costs of PM10 emissions from road transport alone in Australia have been estimated to be \$2.7 billion per year (BTRE 2005)⁸.

The evidence for harm caused by air pollution has increased since the forum was established⁹. Increased rates of diabetes¹⁰, dementia and in one study, low birth rates were associated with high levels of air pollution. The World Health Organisation has recognised that adverse effects can occur at concentrations of PM, ozone, and nitrogen dioxide lower than those based on existing guidelines. The idea that there is a safe level for these pollutants is now discredited¹¹. The 2016 discussion paper also acknowledged *“Noxious emissions from motor vehicles are particularly harmful for human health, as the general population is exposed to more motor vehicle exhaust emissions”*.

Ewald, Knibbs et al wrote in the Australian and New Zealand Journal of Public Health in 2020 that existing data collection for air quality under the National Environmental Protection Measure only applied to background ambient air, generally measured away from major roads or pollution “hotspots”. They concluded that a proposed standard of 19ppb for nitrogen dioxide, a recognised cause of asthma, would not protect those in close proximity to traffic where levels are likely to be much higher.

Transport pollution causes avoidable mortality. A study in the International Journal of Environment and Public Health examined avoidable mortality attributable to anthropogenic fine particulate matter PM2.5 in Australia¹². Tailpipe emissions, particularly from diesel engines are an important source of particulate pollution because of the likelihood of exposure. The study concluded that anthropogenic particulate pollution is responsible for 2616 premature deaths annually in Australia, with an economic burden of \$6.2 billion dollars. (Other sources include coal fired power, industrial processes and wood heaters). The authors in their conclusion stated that the benefits of reduction of exposure have been demonstrated, the response to exposure is linear, and PM2.5 reporting standards which prioritise continual reductions of PM2.5 are urgently required.

It is remarkable that the Ministerial Forum on Vehicles Emissions in five years has done almost nothing to reduce the health burden of vehicle pollution in Australia. A slight tweaking of fuel quality standards to reduce aromatics in petrol by 2022 and sulphur in petrol by 2027 is the disappointing result.

⁶ International Agency for Research on Cancer 2013. *Air pollution and cancer*, IARC, 161.

⁷ OECD 2014. *The Cost of Air Pollution: Health Impacts of Road Transport*, Brussels, 21 May 2014.

⁸ <http://www.environment.gov.au/system/files/pages/dfe7ed5d-1eaf-4ff2-bfe7-dbb7ebaf21a9/files/aaq-nepm-draft-variation-impact-statement.pdf>

⁹ http://acmg.seas.harvard.edu/publications/2021/vohra_2021_ff_mortality.pdf

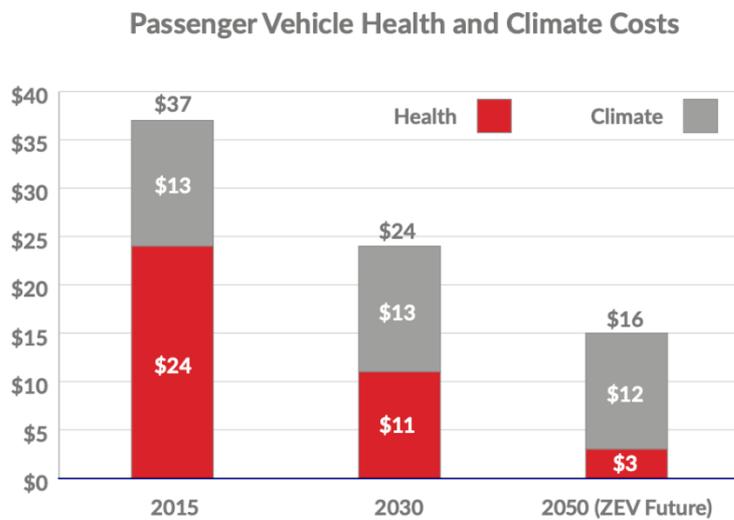
¹⁰ [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30140-2/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30140-2/fulltext)

¹¹ <https://soe.environment.gov.au/key-findings-all>

¹² <https://www.mdpi.com/search?q=avoidable+mortality&authors=hanagan&journal=ijerph>

Australia continues to have no mandatory vehicle efficiency standard and the standard for noxious emissions remains at Euro 5/VI. The Department has released a draft regulation impact statement, Light Vehicle Emissions Standards for Cleaner Air, seeking further feedback from stakeholders¹³. Introduction of Euro 6 standards would produce avoided health costs of \$6.4 billion. Euro 6 or equivalent noxious emissions standards have been adopted in the US, Canada, the EU, United Kingdom, Japan, China, Korea and India. There is no plan by the Australian Government to implement these standards at this time.

A report by the American Lung Association found that in 2015 \$US 37 billion in public health and climate change costs could be attributed to vehicle emissions across 10 states in the study and they quantified the savings from transitioning to zero emission vehicles out to 2050, finding a \$US 21 billion drop in annual health and climate change costs by that time¹⁴.



Clean Air Future: Report by American Lung Association 2016 Amounts are in billions USD

Child health and air quality

One in nine Australians suffers from asthma¹⁵. Children are especially vulnerable to asthma by virtue of their small airways and higher respiratory rate relative to size. Air pollution is a recognised trigger for asthma, an effect which is exacerbated by climate change¹⁶. Living or attending school near traffic pollution hotspots increases the incidence and severity of childhood asthma¹⁷. An ongoing California study has revealed that children exposed to vehicular pollution while growing suffer poor lung development which lasts into adulthood¹⁸.

The Australian Child Health and Air Pollution Study ACHAPS found that levels of nitrogen dioxide below the current air quality standards were associated with adverse paediatric respiratory health¹⁹.

¹³ <https://www.infrastructure.gov.au/vehicles/environment/forum/files/light-vehicle-emission-standards-for-cleaner-air.pdf>

¹⁴ <https://www.lung.org/getmedia/b4231b57-878c-4263-8c2b-8c4cb80d86ca/2016zeroemissions.pdf>

¹⁵ <https://asthma.org.au/about-asthma/understanding-asthma/statistics/>

¹⁶ <https://www.mja.com.au/journal/2018/208/7/pollution-climate-change-and-childhood-asthma-australia>

¹⁷ <https://www.sciencedirect.com/science/article/abs/pii/S0013935112001442>

¹⁸ <https://ww2.arb.ca.gov/resources/documents/childrens-health-study>

¹⁹ <https://swscs.med.unsw.edu.au/publication/australian-child-health-and-air-pollution-study-achaps-national-population-based-cross>

The impacts of air pollution are experienced inequitably. For example, the WestConnex project resulted in traffic pollution hotspots near schools and residences²⁰.

The Institute of Health and Welfare estimated in 2011 that 3,000 premature deaths in Australia are attributable to urban air pollution at a cost of \$11-24 billion per year²¹. Transport is the major source of urban pollution, compounded by bushfire smoke, coal fired power stations, wood heaters, and industrial sources, depending on location. In OECD countries, 50% of the cost of air pollution is attributable to road transport. In Australia this amounted to 2.9 billion US dollars in 2010²².

Greenhouse gas Emissions Reduction

Global efforts to bring the climate crisis under control are accelerating, but current pledges to the Paris Agreement are insufficient to prevent global warming of more than 2-3 degrees. Australia is a major exporter of fossil fuels and the government target of 26-28% by 2030 to reduce domestic emissions is not consistent with a sub 2 degrees trajectory.

The Wentworth Group of Concerned Scientists in a submission to the Climate Change (National framework for adaptation and mitigation) Bill pointed to the “profound implications for Australia-our cities, coastal regions, agriculture, biodiversity and human health”. They cite emerging evidence that the world now needs to reach net zero emissions by 2040.²³

The urgency to reduce greenhouse gas emissions has not figured sufficiently in the discussion paper.

“The Government aims to create an environment that enables consumer choice, stimulates industry development and reduces emissions in the road transport sector”.

The bushfires²⁴ of 2019/2020 and the floods now impacting over one third of the population are a manifestation of the way climate change amplifies natural disasters²⁵ ²⁶A fall in greenhouse emissions from transport during COVID has been followed by a return towards levels seen in 2018 and is expected to keep rising²⁷ ²⁸. Transport is the third largest sector contributing to emissions, behind electricity and stationary energy. Emissions in the electricity sector have declined as more renewable energy enters the market²⁹ while transport emissions remained stubbornly high until the COVID 19 slowed economic activity but are expected to increase out to 2030³⁰.

Road transport is the dominant source of transport emissions (85% in 2012) and light vehicles (less than 3.5 tonnes) produce the greatest proportion of these, around 10% of total GHG emissions³¹.

²⁰ https://www.westconnexactiongroup.org.au/rms_fails_to_answer_westconnex_air_pollution_concerns

²¹ <https://soe.environment.gov.au/theme/ambient-air-quality/topic/2016/health-impacts-air-pollution>

²² <http://www.oecd.org/env/the-cost-of-air-pollution-9789264210448-en.htm>.

²³ <https://wentworthgroup.org/wp-content/uploads/2020/12/Submission-to-Climate-Change-Bill-2020.pdf>

²⁴ <https://www.scientificamerican.com/article/yes-climate-change-did-influence-australias-unprecedented-bushfires/>

²⁵ <https://www.smh.com.au/national/gladys-berejiklian-was-wrong-to-say-the-nsw-floods-were-beyond-anyone-s-expectations-20210322-p57cvr.html>

²⁶ <https://www.climatecouncil.org.au/wp-content/uploads/2021/01/hitting-home-report-v7-210122.pdf>

²⁷ <https://australiainstitute.org.au/post/rebounding-transport-agriculture-sectors-will-cause-emissions-to-soar/>

²⁸ <https://www.industry.gov.au/sites/default/files/2020-12/australias-emissions-projections-2020.pdf>

²⁹ <https://australiainstitute.org.au/wp-content/uploads/2021/02/NEEA-Report-WEB-1.pdf>

³⁰ <https://www.industry.gov.au/sites/default/files/2020-12/australias-emissions-projections-2020.pdf>

³¹ <https://www.energy.gov.au/households/transport>

Table 2: Sectoral breakdown of 2020 projections results to 2030, Mt CO₂-e

Emissions by sector (Mt CO ₂ -e)	National Greenhouse Gas Inventory		Projection
	2005	2020	2030
Electricity	197	172	111
Stationary energy	82	103	103
Transport	82	94	100
Fugitives	37	50	54
Industrial processes and product use	32	34	30
Agriculture	80	67	75
Waste	14	12	11
Land use, land use change and forestry	91	-18	-5
Total	615	513	478

Note: totals do not sum due to rounding.

The IPCC Fifth Assessment Report AR5 made the following points

- Reducing global greenhouse gas emissions will be challenging, unless transport emissions can be strongly decoupled from GDP growth.
- Short and long term mitigation strategies are essential if deep GHG reduction ambitions are to be achieved.
- Avoided journeys and modal shifts (public transport, walking and cycling), uptake of improved vehicle technologies, and changes in the built environment offer high mitigation potential.

The Department of Industry, Science, Energy, and Resources' web page

<https://www.energy.gov.au/households/transport> is cited verbatim here....

"The [National Transport Commission](#) estimates that if Australian consumers purchased vehicles with best-in-class emissions, average carbon dioxide (CO₂) emissions for new light vehicles would be 60% lower.

The average emissions intensity for new passenger vehicles sold in Australia is 45% higher than it is in Europe. This is largely due to:

- *the Australian preference for heavier vehicles with more powerful engines.*
- *Australia having a lower proportion of diesel-powered engines.*
- *Australia has fewer government incentives for lower emissions vehicles.*
- *relatively lower fuel prices in Australia compared with Europe."*

Reading the Department's website would suggest that the large potential for emissions reduction in the transport sector is unrealised due to a business-as-usual attitude from both consumers and government.

The paper expresses a preference in the short term for hybrid vehicles over battery electric vehicles on the basis that they are cleaner when charged from the NEM grid as it is now. Taking the popular Toyota Corolla as an example, the petrol model consumes 6-6.5 litres per 100km and the hybrid model 4.2 litres, a modest improvement at best, and still producing noxious emissions. Battery electric vehicles by contrast produce zero tailpipe emissions. Further, work done by the Union of Concerned Scientists US has shown in a "well to wheels" comparison that fully electric vehicles

produce fewer emissions, even when charged from a coal dominated grid^{32 33}. This stems from the much higher efficiency of electric motors at 80-90% compared with ICE motors at less than 30% where most of the energy is lost as heat.³⁴ EVs produce fewer emissions through their lifetime regardless of the energy source, according to the Australian Energy Council.

The underlying assumptions in the paper that the cost of abatement is at present too high are questionable. Firstly, the assumption is that the electricity grid will remain much as it is now, yet the rapid deployment of renewable energy suggests otherwise. Secondly, many motorists will choose to recharge their EVs from roof top solar directly or via home batteries, or from retailers offering green power. Thirdly, the health cost saving from reduced traffic pollution is disregarded, and fourthly, emissions from the extraction and transport of petrol and diesel have not been included.

Opportunities to reduce emissions in the transport sector

The discussion paper does not address the broader issues of transport and is notable for its lack of ambition to reduce emissions. It has been described as a policy steering us to a future based on fossil fuels³⁵.

While there is much to commend in the “Priorities” list of 5, with its focus on charging infrastructure, commercial fleets, information for motorists, grid integration with EVs, and innovation and manufacturing, there are policy incentives and levers already established in other countries with demonstrably positive results which have been largely disregarded in the paper. These include:

- Direct subsidies for BEVs
- Government support for efficient, inexpensive, or free public transport which results in reduced car use and less polluted cities.
- Electrification of public transport in buses and rail networks.
- Increasing the opportunity for active transport in walking and cycling by providing infrastructure and integrating active transport with public transport.
- Subsidising long haul rail freight to reduce road freight.

Electric buses

State governments are adopting electric buses as part of their emission reduction plans^{36 37}. The benefits in cleaner air, reduced noise, and running costs are considerable. The city of Shenzhen in China since 2016 has over 16,000 electric buses³⁸. However, the benefit of electrified public transport will only be realised if there are incentives for the public to use them or disincentives to use cars for commuting.

The Biden Government in the US has a policy to provide every city of 100,000 people or more with zero emissions public transport and infrastructure to support pedestrians and cyclists³⁹

The Freight Energy Productivity Program

The discussion paper proposes improvements in heavy duty road transport through the \$24.5 million Technology Co-investment Fund. Low emissions long range heavy vehicle technology is under

³² <https://www.ucsusa.org/resources/top-five-reasons-choose-electric-car>

³³ <https://insideevs.com/news/338255/union-of-concerned-scientists-driving-electric-is-cleaner-than-ever/>

³⁴ <https://www.energycouncil.com.au/analysis/evs-are-they-really-more-efficient/>

³⁵ <https://www.theguardian.com/commentisfree/2021/feb/08/australias-electric-vehicle-policy-steers-us-to-a-future-based-on-fossil-fuels-it-needs-to-be-dumped>

³⁶ <https://www.busnews.com.au/industry-news/2012/australias-largest-order-of-e-buses-placed-to-date>

³⁷ <https://thedriven.io/2020/09/14/australia-should-be-charging-out-of-the-blocks-with-electric-buses/>

³⁸ <https://www.theguardian.com/cities/2018/dec/12/silence-shenzhen-world-first-electric-bus-fleet>

³⁹ <https://joebiden.com/clean-energy/>

development but, unlike light vehicle technology, will take a few years to reach maturity and may depend on an advanced hydrogen economy.

Long range freight transport by rail is more efficient in lowering emissions than road transport⁴⁰. The potential of rail, particularly electrified rail transport has not been covered in the discussion paper.

Conclusions

Doctors for the Environment Australia submits that the strategy outlined in the discussion paper fails to adequately address both the health of Australians and the climate crisis. There is a lack of ambition in targeting emissions reduction and while the proposed strategy may be sufficient to meet Australia's weak 26% ERT, it is insufficient in meeting a reduction of emissions consistent with remaining below 2 degrees of warming, which should be well within Australia's capability. The health co-benefits of addressing health and climate have been discounted. Consumer choice has been prioritised above the health of children and the common good.

⁴⁰ https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter8.pdf