Australian Electric Vehicle Association Incorporated

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Vehicle Fuel Efficiency Secretariat
Department of the Environment, Water, Heritage and the Arts
Renewables and Energy Efficiency Division (REED)
Energy Futures Branch
Technology and Transport Section
GPO Box 787
Canberra ACT 2601
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Dear Sir/Madam,

Vehicle Fuel Efficiency Public Discussion Paper

The Australian Electric Vehicle Association (AEVA) welcomes this opportunity to respond to the Vehicle Fuel Efficiency Public Discussion Paper (the Discussion Paper) released by the Australian Transport Council and Environment Protection and Heritage Council Vehicle Fuel Efficiency Working Group.

The AEVA is the national body representing individuals and organisations involved in the design, development, manufacture, conversion, sale and use of electric vehicles and their components. The association was founded in 1973 and operates as a non-profit organisation.

We believe that through this submission, the AEVA can contribute a great deal to the development of the final Vehicle Fuel Efficiency report (the Final Report) by sharing our collective experience and up-to-date knowledge of the electric vehicle industry and technology.

In general we support the direction of the majority of initiative within the Discussion Paper, however we are concerned by the lack of treatment of electric vehicles (EVs) including extended-range electric vehicles (otherwise known as plug-in hybrid vehicles). **This appears to have stemmed from a major error of fact in the Discussion Paper regarding the viability of electric vehicles.**

The Discussion Paper defines the short to medium term as 5-20 years (page 6) and further states on page 26:

> *"…the scope of this review is on measures which have the potential to deliver fuel efficiency improvements from the new vehicle fleet in the short-medium term. Due to the high level of uncertainty regarding longer term technologies, the Working Group does not consider it productive to examine measures predicated on technologies only likely to become viable in the long term (such as mass production of fully electric vehicles or hydrogen powered vehicles)."*

This statement regarding fully electric vehicles is incorrect. Electric vehicles are viable now, both technically and commercially, and fit perfectly within the review's 5-20 year timeframe.

The following facts should be noted:

- There are currently hundreds of electric vehicles on Australian roads (many are AEVA members)
- New (professionally converted) road registered electric vehicles can be purchased in Australia
- Mitsubishi Australia plans for the i-MiEV to be available in Australia in 2010 (MD Rob McEniry in July 2008)
- Holden has announced that the GM Volt will be available in Australia in 2012 (CEO Mark Reuss at the 2008 Sydney Motor Show)
- Toyota has announced that it will start producing a version of the Prius in 2009 with EV capability (www.goauto.com.au)
- Practically every major car manufacturer is developing an EV for production within the 5-20 year time frame

EVs can reduce CO_2 emissions to zero through avoidance of petrol use and recharging via commercially available renewable energy.

The important role of electric vehicles is a major omission from the Discussion Paper that the Working Group must correct with urgency. The opportunities that electric vehicles have in reducing CO_2 emissions in the national vehicle fleet is so great that it is fundamental to the Final Report and will materially affect the conclusions of the report.

Improvements required for the Final Report
In addition to the correction of the fundamental error mentioned above, the Final Report requires a chapter covering the status and opportunities of electric vehicle technology. The AVEA is happy to provide information to assist with the drafting of this chapter.

Fuel consumption and CO_2 emission rating of EVs
Considering that EVs are likely to be offered by many manufacturers within the review's 5-20 year timeframe, it is important to consider as part of the Final Report how fuel consumption and CO_2 emissions rating will be approached under ADR 81/02 for these vehicles. We provide the following commentary for discussion.

Fully electric vehicles obviously have no direct fuel consumption, but may create indirect CO_2 emissions if charged with electricity other than renewable energy. The experience of the AEVA is that the vast majority of EV drivers charge their cars with renewable energy and therefore create zero CO_2 emissions. However, to cover all cases, it is proposed that EVs are labelled with a dual system similar to the Urban / Extra-urban dual system applied to current internal combustion vehicles. One figure would be for renewable energy (such as the Australian Government accredited GreenPower program) and the other figure would be for a 'standard' electricity generation mix for Australia, readily obtainable from electricity industry sources. The fuel consumption sticker for an EV could thus appear:

Fully electric vehicle

Fuel Consumption (L/100km)	**CO_2 emissions (g/km)**
0 Combined	**0** GreenPower
0 Urban **0** Extra-Urban	**90** Standard electricity

Extended-range EVs may have a significant fuel consumption if driven long distances between charges or no fuel consumption if driven short distances between charges. Therefore it is proposed to develop a standard testing regime in line with the Urban / Extra-urban philosophy. In Urban mode, the fuel consumption would be tested over short distances between charges, analogous to city use. In Extra-urban the fuel consumption would be tested over long distances between recharges, analogous to country use. For the CO_2 emissions, the combined fuel consumption results could be used in combination with the GreenPower or standard electricity recharge options.

The fuel consumption sticker for an extended range electric vehicle could thus appear:

Extended range electric vehicle

Fuel Consumption (L/100km)	**CO_2 emissions (g/km)**
2 Combined	**50** GreenPower
0 Urban **4** Extra-Urban	**100** Standard electricity

Conversion of existing vehicles

The CO_2 reduction potential of converting existing internal combustion engine vehicle to electric drive is significant and should be included in the scope of the Final Report. AEVA members and others are undertaking such conversions at the present time. A direct rebate scheme to offset the cost of conversion would create a significant boost to the numbers of existing cars that are converted to electricity. The cost of a typical conversion is around A$12,000 and currently poses as a barrier to implementation. The EV conversion rebate scheme could work in a similar fashion to the LPG conversion rebate scheme or the solar photovoltaic rebate scheme. In order to ensure that the conversion to electricity resulted in CO_2 abatement, the rebate paperwork could require a copy of the applicant's electricity bill to prove 100% GreenPower purchase or proof of installation of on-site renewable energy such as solar cells or wind power.

Detailed comments on the Discussion Paper

Please find attached the submission template containing the AEVA's detailed comments on the Discussion Paper.

The AEVA welcomes the chance to discuss these issues further with the Australian Transport Council and Environment Protection and Heritage Council Vehicle Fuel Efficiency Working Group.

Yours Sincerely,

Justin Harding

Public Liaison Officer

Australian Transport Council / Environment Protection and Heritage Council – Vehicle Fuel Efficiency Working Group

Vehicle Fuel Efficiency –
Potential measures to encourage the uptake of more fuel efficient, low carbon emission vehicles.

Submission Template

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Comment on the discussion paper is invited from interested stakeholders and members of the public. While comments are welcome on any aspect of the paper, readers are particularly asked to respond to the questions raised in Section 4 regarding the potential measures and in Section 7.

All submissions will be treated as public unless confidentiality is requested for all or part of the submissions. The Working Group requests, however, that the scope of any material requested to be kept confidential be limited to the minimum necessary.

Readers are encouraged to use this submission template as a basis for submissions. The Working Group has posed a series of targeted questions in order to provide a degree of consistency across submissions and to simplify the consideration of submissions. Readers are not required to complete the entire submission template. Comments on individual measures are welcome. Submissions in alternative formats will be accepted.

Electronic and handwritten submissions are welcome. A separate template for handwritten submissions is available from the Vehicle Fuel Efficiency Secretariat.

Contact details have been requested in case the Working Group needs to contact you to discuss aspects of your submission at a later date.

Please attach this coversheet to your submission and submit it to the Working Group via:

Email: vfedpaper@environment.gov.au

Fax: (02) 6274 1478

Phone: (02) 6274 1774

Post: Vehicle Fuel Efficiency Secretariat
Department of the Environment, Water, Heritage and the Arts
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General comments on a package of measures

1. Do you consider the actions of the type outlined in this paper are required, or are current arrangements sufficient?

Current arrangements are insufficient to drive the uptake of low emission vehicles and actions such as listed in the discussion paper are required.

2. If you consider further actions may be required, which measures, or package of measures, offer the greatest potential to cost-effectively reduce greenhouse emissions from the road transport sector?

1. National standards for reducing new fleet CO_2 emissions 2. Direct rebates and fees to encourage low emission vehicles & discourage high emission vehicles 3. Reduction in registration charges for low emission vehicles 4. Fleet purchasing criteria for government bodies based on CO_2 emissions

3. In your view, are there particular combinations of measures that would enhance the potential benefits of the measures?

4. Are there barriers or challenges to the uptake of low emission transport technologies in Australia which have not been identified in this paper?

Yes, the planned offsetting of the CPRS impact on transport fuels by reducing the fuel excise is a market barrier.

5. Are there opportunities to improve vehicle fuel efficiency within the Australian road transport sector which have not been identified in this paper?

Yes, the short to medium term uptake of new electric vehicles and the conversion of the current vehicle fleet to electric.

6. Do you have views on possible social or economic impacts arising from measures outlined in this paper? How could these impacts best be managed?

7. General Comments

Although, we support the direction of the majority of initiative within the Discussion Paper, we are concerned by the lack of treatment of electric vehicles including extended-range electric vehicles (otherwise known as plug-in hybrid vehicles). This appears to have stemmed from a major error of fact in the Discussion Paper regarding the viability of electric vehicles. Electric vehicles are viable now, both technically and commercially and fit perfectly within the 5-20 year timeframe. The important role of electric vehicles is a major omission that the Working Group must correct with urgency. The opportunities that electric vehicles have in reducing CO_2 emissions in the national vehicle fleet is so great that it is fundamental to the final report and will materially affect the conclusions of the report.

Category 1 Measures to Increase the Supply of Low Emission Vehicles

1.1 CO_2 Emission Targets for New Light Vehicles

1. Do you consider there is a case for tightened CO_2 standards for the light vehicle fleet in Australia?

Yes

2. If you consider tightened standards are required, should they be voluntary or mandatory?

Mandatory

3. Do you have a view about the design of any system – for example do you agree that the standard should be a sales-weighted average? Do you agree with the European Union proposal to link the standard to vehicle weight, or should it be based on different parameters?

A sales-weighted average is acceptable.

4. Do you consider that CO_2 standards can effectively operate independently of other measures, or are other measures critical to their success?

Other measures are critical to reduce to medium term costs of compliance with the standards.

5. Do you consider that market pressures, such as rising fuel prices, will be sufficient to deliver significant CO_2 reductions from the light vehicle fleet, without the need for CO_2 standards?

Rising fuel prices will not be sufficient to meet the magnitude of CO_2 reduction required by current climate science or by the currently stated Australian Government long term targets.

6. General Comments

The success of a CO_2 standard for light vehicles depends entirely on the level of the standard and the rate at which it is reduced over time. The AEVA believes that the standard should be reduced such that the emissions from light vehicles reduce in line with the overall Australian CO_2 emission reduction trajectory under the proposed CPRS.

Category	2	Measures to Increase Demand for Low Emission Vehicles
	2.1	Restructure State registration and stamp duty charges for light vehicles

1. Would a stamp duty differential charging scheme be an effective means of encouraging consumers to purchase more fuel efficient vehicles?

Yes.

2. Would a registration differential charging scheme be an effective means of encouraging consumers to purchase more fuel efficient vehicles?

Yes.

3. Of the range of basic system models outlined in Measure 2.1 of the discussion paper, which would be the most effective at improving vehicle fuel efficiency and most understandable to the average motorist?

As an ongoing cost, registration has greater appeal as a mechanism for driving consumer behaviour.

4. What other considerations should be made in the design of any system?

The price range over which the registration differential charging scheme is designed is important. We suggest that the 'standard' registration price should be paid for vehicles with emissions equal to the national CO_2 standard on a sliding scale down to zero dollars at zero CO_2, and equally upwards above the national CO_2 standard.

5. General Comments

We note the current inequitable system in states such as Victoria where hybrid electric vehicles receive a $50 registration discount whereas pure electric vehicles with lower emissions receive

no discount. This requires urgent interim rectification until the new national registration differential charging scheme is introduced.

Category	2	Measures to Increase Demand for low emission vehicles
	2.2	Provision of direct financial incentives/disincentives based on vehicle CO_2 emissions.

1. Do you consider that direct rebates for low emission vehicles are an effective measure in reducing CO_2 emissions?

Yes.

2. If so, do you consider that the cost of rebates should be offset with higher fees on high emitting vehicles (i.e. a feebate scheme)?

Yes, this will render the scheme consistent and cost-neutral to the Government.

3. Do you agree that any scheme should be based on CO_2 emissions and not linked to particular technologies?

Yes, although there is a case to be made for specific support to be granted to emerging technologies such as electric vehicles.

4. If a scheme was to be introduced, would you support it being based on a single threshold, or do you support a range of "class" based thresholds? What do you consider are the advantages and disadvantages of such approaches?

The scheme should encompass a single sliding scale applied to all vehicles. The scheme should not have different sliding scales or rates for different vehicle classes (such as small, medium, large, SUV etc) as this would defeat the purpose of the scheme on reducing overall emissions. Under a class scenario a "best in class" large car could attract a rebate but still produce far greater emissions than an "average in class" small car. This is clearly contrary to the aims of improving fleet fuel efficiency.

5. General Comments

In a similar design to the LPG conversion rebate scheme, it is proposed to introduce a scheme to rebate the conversion costs of existing vehicles from internal combustion engine to electric drive. This measure would offer CO_2 abatement that is additional to measures that address new vehicles and may therefore offer lower overall costs of abatement for vehicle emissions reduction. A direct rebate scheme to offset the cost of conversion would create a significant boost to the numbers of existing cars that are converted to electricity. The cost of a typical conversion is around A$12,000 and currently poses as a barrier to implementation.

Category 2 Measures to Increase Demand for Low Emission Vehicles

2.3 Develop fleet purchasing frameworks that incorporate greenhouse reduction objectives

1. Do you consider fleet operators would be motivated to participate in a national fleet accreditation process to improve the fuel efficiency of their fleet?

Probably not unless they thought that there were overall cost savings to be made. A reasonable level of abatement is likely to be possible on a cost-negative basis, however significant abatement (>30%) is likely to incur costs. For this reason it is proposed that it is made mandatory for Government body fleets to undertake fleet management based on CO2 emissions. This will have wide ranging market benefits in driving demand for locally manufactured low emission vehicles.

2. If you do, what benefits do you consider fleet operators would expect to result from participation in such a scheme?

3. Do you think that an accreditation scheme should have the sole goal of reducing CO_2 emissions? Should additional goals be considered (such as air quality)?

CO_2 reduction should be the primary goal. Air quality should be addressed by complementary standards covering for example particulate emissions from diesel vehicles.

4. Are you aware of fleet fuel efficiency schemes operating within Australia or overseas? Has there been an analysis of the effectiveness of these schemes?

Yes, the Victorian Department of Human Services manages its fleet based on CO_2 emissions within constraints such as place of manufacture. The DHS is also trailing an Australian made electric car in its vehicle fleet as part of this initiative.

5. General Comments

It should be noted that the current requirement for government fleets to source a certain proportion of vehicles from local manufacturers is generally considered a barrier to the wide-scale uptake of low emission vehicles. However it should be remembered that manufacturers will produce vehicles to suit the market demand. Mandating government fleets to use CO_2 emission criteria in their fleet management is a powerful method of supporting product development in the market. This product development can be facilitated by the Green Car Innovation fund.

Category 3 Measures to Improve Consumer Awareness

3.1 Including Fuel Consumption Data in Vehicle Advertisements

1. Do you consider there is a case for including fuel consumption and CO_2 emissions data in vehicle advertising?

Yes

2. If so, what do you think would be the best way to implement it?

A non-regulatory mechanism such as an extension to the code of practice is the best initial approach.

3. Are there any matters not identified which would facilitate or impede the introduction of this measure? We are particularly interested in any published material you can point to.

No.

4. What do you consider are the costs and benefits of the measure, and their likely magnitude? What is the basis of your views on this question?

Costs are likely to be minimal. Vehicle manufacturers already have all the data required. The incorporation of text into television or print media is simple and inexpensive. Benefits are likely to be moderate, but measureable. Considering that the information already exists at the point of sale, the benefit extends to the ready comparison of models during pre-purchase research. A further benefit exists from the marketing perspective of manufacturers. Data for low emission cars will emphasised and the negative public image of the data for high emission vehicles will further drive manufacturers to improve performance. Comparison to the electrical appliance MEPS and energy efficiency labelling suggests that this is information that consumers want at the point of advertising and that is important in making purchase decisions.

5. Are you aware of any other countries implementing similar measures, and whether there has been any analysis of their effectiveness?

6. General Comments

The font size, typeface and duration of display are important considerations for visual advertising media.

Category 3 Measures to Improve Consumer Awareness

3.2 Standards / Labelling Requirements for Non-engine Components Which Impact on Fuel Consumption

1. Do you consider that measures in relation to non-engine components are worth pursuing?

Not at the expense of introducing the other measures, but otherwise yes.

2. Do you agree with the Working Group's assessment that Australia should move quickly to assess/establish within Australia any measures agreed to internationally?

Yes.

3. General Comments

Tyre rolling resistance is rarely quoted and difficult to obtain, even from manufacturers. It is proposed that all tyres sold in Australia are tested for rolling resistance and that the information is available at the point of sale.

Category 3 Measures to Improve Consumer Awareness

3.3 Heavy Vehicle Environmental Rating Scheme

1. Do you consider there are gaps/inadequacies in the provision of heavy vehicle fuel efficiency data to business purchasers? Can you identify those deficiencies?

2. If deficiencies exist, what do you consider is the most effective way to address these? Do you consider there is a case for web-based fleet management tools, and how should they be funded?

3. What do you think would be the most important areas for any tools to address?

4. Are you aware of any other countries implementing similar measures and whether there has been any analysis of their effectiveness?

5. Are there any additional matters that would facilitate or impede the introduction of fleet management tools? We are particularly interested in any published material you can point to.

6. Do you think the development of fuel efficiency guides for fleets would be a cost effective means to reduce fuel use of heavy vehicles?

7. Do you consider there is a case for development of a heavy vehicle environmental rating scheme similar to the light vehicle rating scheme? Do you agree with the assessment that any scheme should wait for the finalisation of international emission measurement standards?

8. What do you think would be the most important areas for any scheme to address?

9. General Comments

Category	3	Measures to Improve Consumer Awareness
	3.4	Establish a technology demonstration scheme for Australian road transport fleets linked to achievement of greenhouse outcomes

1. Do you consider a subsidy scheme to support the development and trial of emerging low emission technologies is necessary to encourage innovation within the light commercial and heavy vehicle market segments? If so, is it an effective approach?

Yes. The solutions to reduce CO_2 emissions from commercial vehicles will come from technological development so it is considered effective to encourage technological innovation.

2. Are there additional (non-financial) barriers to the adoption of proven and emerging low emission technologies within the light commercial and heavy vehicle segments?

Knowledge of available systems to reduce emissions.

3. Are you aware of any other countries implementing similar measures and whether there has been an analysis of its effectiveness?
