IMPROVING THE FUEL EFFICIENCY OF THE VICTORIAN GOVERNMENT’S PASSENGER VEHICLE FLEET
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In 2009, The Myer Foundation and Monash University realised that Australia needed a new approach to drive action on climate change. One that understood the interests of business, government and investors and was trusted to be an independent, credible advisor in Australia’s transition to a prosperous low carbon future. That’s why they partnered to create ClimateWorks Australia - an independent, research-based, non-profit organisation committed to catalysing reductions in greenhouse gas emissions in Australia. Since then, ClimateWorks has built a reputation as a trusted, credible and fact-based broker by working in partnership with leaders from the private, public and non-profit sectors. With strong links to the US-based ClimateWorks Foundation, ClimateWorks Australia also benefits from an international network of affiliated organisations that support effective policies for greenhouse gas reduction.

This report was prepared for the Commissioner for Environmental Sustainability, Victoria, for discussion purposes only and does not necessarily reflect the views of the Commissioner.

IMPROVING THE FUEL EFFICIENCY OF THE VICTORIAN GOVERNMENT’S PASSENGER VEHICLE FLEET

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ClimateWorks has identified clear improvement opportunities for fuel efficiency of the Victorian Government’s passenger vehicle fleet. This report provides an overview of the current fuel efficiency of the Victorian Government’s passenger vehicle fleet and considers a range of potential short and long term options to overcome key barriers to achieve improvements.

At present, the Victorian Government’s passenger vehicle fleet that reports under the Environmental Management System (EMS) program emits approximately 16,000 tCO₂ per year, and has an average CO₂ emissions intensity of 180 gCO₂/km, based on vehicle manufacturer specifications. The emission intensity has been improving, decreasing from approximately 215 gCO₂/km in 2010-11. This has been achieved primarily through the natural turnover of vehicles and replacement with more efficient models, and through the Victorian Government mandate to purchase 2,000 Toyota Camry Hybrids in 2010¹.

While the emissions intensity of Victorian Government’s passenger vehicle fleet is in line with Australia’s national 2015 average of 182 gCO₂/km for new passenger vehicles², it falls below what would be considered a leadership position in comparison to global peers.

More broadly, Australia has scored poorly in the energy efficiency of its land transport sector. The recent American Council for an Energy-Efficient Economy (ACEEE) International Scorecard ranked Australia last out of 16 major OECD countries for the energy efficiency of the land transport sector³. State and Territory governments are working to reduce emissions and improve the fuel efficiency of their passenger fleet, demonstrated by the South Australian Government’s recent request for proposals to investigate the potential to convert its existing vehicle fleet to low or zero-emission intensity vehicles⁴.

Based on the current structure of the Victorian Government’s fleet, potential actions have been identified to inform improved fleet efficiency and reduced emissions. An overview of the potential emissions reduction and savings impact for each opportunity is summarised below. Whilst a detailed cost analysis has not been undertaken as part of this report, a number of measures which could potentially reduce costs and improve fleet fuel efficiency have been identified.

There are potential broader benefits to the Victorian Government on improving fuel efficiency of its fleet. By understanding the potential to improve the efficiency of its own fleet, this knowledge can be used to inform policy and programs providing leadership to other fleet owners across the state, to help Victoria achieve its emissions reduction potential. Further, by taking a leadership position and driving emission reductions in its fleet, the Victorian Government would provide a strong signal to vehicle manufacturers whilst also providing a market for more efficient vehicles. This could potentially increase the availability of more efficient vehicles in the Australian market, providing positive flow on effects to consumers through the sale of more efficient vehicles into the second hand market and driving efficiency gains for Victorian consumers.

Potential actions identified in this report to inform improved fuel efficiency of Victorian Government light vehicle fleet are outlined below, classified as overarching and short to medium term opportunities. It is recognised that some of these findings have been identified in previous studies and audits⁵.

**Overarching**

**Establishment of an ambitious long-term target to reach an ultra-low or zero-emission vehicle fleet before or by 2050, with annual improvement targets to be reviewed and updated.** To achieve long-term, sustainable decreases in the emissions intensity of Victorian Government’s passenger vehicle fleet, there is a need for an established process for future improvements, including review mechanisms to allow for increases in availability of low emission vehicles over time. This would also send a strong signal to manufacturers to allow for increased deployment of efficient vehicles models within Australia, increasing flow on benefits to consumers and businesses as choice increases. A target could be comprised of two elements; an ambitious long term target, such as zero net emissions by or before 2050, plus a shorter term target to ensure progress to this longer term goal. The short term targets can be structured in a number of ways; either varying the time horizon or based on a variety of metrics. A fleet average CO₂ emission intensity measured in gCO₂.

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¹ Required as part of Financial Reporting Directive FRD 24 C
⁴ South Australian Government (2015)
Table 1: Overview of approximate potential emissions reductions, fuel savings and cost impacts

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Business as Usual emissions and fuel use</td>
<td>~55,000 tCO₂e</td>
<td>~24 million litres</td>
<td>NA</td>
</tr>
<tr>
<td>Shifting executive fleet from six cylinder to four cylinder</td>
<td>2,200 tCO₂e</td>
<td>870,000 litres</td>
<td>Potential cost savings</td>
</tr>
<tr>
<td>Purchasing best in class efficient vehicles</td>
<td>4,783 tCO₂e</td>
<td>2.2 million litres of fuel</td>
<td>Potential cost savings for 6 cylinder. Potential cost increase for 4 cylinder</td>
</tr>
<tr>
<td>Increasing range of vehicles available for purchase</td>
<td>2,100 to 11,500 tCO₂e</td>
<td>900,000 to 4.6 million litres of fuel</td>
<td>Potential cost savings</td>
</tr>
<tr>
<td>Purchasing zero-emissions vehicles</td>
<td>2,290 to 5,054 tCO₂e</td>
<td>927,000 to 2.0 million litres of fuel</td>
<td>Potential cost savings or increase depending on vehicle use</td>
</tr>
<tr>
<td>Improving efficiency of vehicle use</td>
<td>~9,500 tCO₂e</td>
<td>~4 million litres of fuel</td>
<td>Potential cost savings</td>
</tr>
</tbody>
</table>

per kilometre is suggested as the most efficient target, as it will allow for vehicles which have higher emissions to be purchased to meet the fit for purpose requirement, and should result in the lowest cost solution as it provides flexibility. It can also be tightened over time. Once a metric is set, the quantum of the target can be set based on a desired annual percentage improvement in average fleet efficiency, which can factor in both the desired emission reduction goal and rate of improvement needed to achieve this. The target setting and review mechanism could be established and managed under the current EMS process, in collaboration with Department of Treasury and Finance and VicFleet.

Greater coordination in reporting of fuel efficiency of the Victorian Government’s passenger vehicle fleet, and greater clarity in the operational use of vehicles. The establishment of the whole of Victorian Government EMS program in 2003 has ensured that the performance of reducing office-based environmental impacts are recorded annually by participating departments, agencies and authorities. In terms of this reporting process and increasing the fuel efficiency of the Victorian fleet, greater coordination, consistency and more granular data is required. It would also be beneficial to report operational and executive vehicle use, specifically by total number of kilometres travelled and total megajoules. A review of executive vehicle use and operational vehicle needs is required to fill this gaps in information, to help determine suitability for efficiency measures and to ensure ongoing fleet optimisation.

Investigate the application of these potential actions and the emission reductions potential to the broader vehicle fleet under the management of the Victorian Government. VicFleet currently manage 8,290 vehicles, including passenger, light commercial vehicles, motorcycles and heavy vehicles. The scope of this project was defined by the available data and included all passenger vehicle fleet from departments and agencies that report under the Government’s EMS program. As such, the total number of vehicles included in the scope of the project was 2,965. The potential actions from this review could be extended to light commercial vehicles, of which 2,435 are managed by VicFleet in the Victorian Government Fleet, or to outer agencies that do not currently report under the Government’s EMS program.

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5 Victorian Auditor-General (2009), Productivity Commission (2014) and Department of Industry, Innovation and Science (2014)
Short to Medium-term Actions

**Incentivise a shift from six to four cylinder vehicles and procuring best in class vehicles in the executive fleet.** The executive fleet has had a generally consistent profile with a higher average emissions intensity and a higher proportion of six cylinder vehicles. Incentivising executives to shift from these six cylinder vehicles to four cylinder vehicles will reduce emissions, and could be structured to be revenue neutral. In terms of implementing a shift from six to four cylinder vehicles in the executive fleet, consideration for both financial and non-financial incentives and remuneration is required. A revenue neutral approach to incentivising the shift would be to set a differential cost or benefit as an incentive for the selection of lower emission vehicle and a disincentive against the selection of vehicles with poor environmental performance. In addition to this, there could be an exemption from the Australian Vehicles Manufacturers Policy for vehicles which go beyond either best in class CO₂ emission performance or a set benchmark for emissions performance, providing more choice to executives. Combined with this, greater adherence to the existing Executive Motor Vehicle Scheme could further optimise the use of current vehicles within the fleet, potentially reducing the size of the fleet. With the executive fleet leading by example, it will help to ensure that the recent policy changes mandating that all operational passenger vehicles must now be four cylinder, unless otherwise required, will be adhered to.

**Implementation of a most efficient in class procurement policy for whole of Victorian Government for all new vehicle purchases.** Current procurement policy requires that vehicle efficiency, safety rating, operational use and lifecycle cost should be taken into account when purchasing a new vehicle. There is an opportunity for government to demonstrate leadership by changing the way it structures the fleet by requiring the prioritisation of vehicle efficiency in the first instance when purchasing new vehicles. A most efficient in class procurement policy can be implemented based on current Australian made vehicles and with the cessation of Australian automotive manufacturing, from 2018 for all new vehicle purchases. The impact of this would be greater if applied to both operational and executive fleet procurement. A centralised approved list of vehicles providing a range vehicles choices within each vehicle category developed and approved by Department of Treasury and Finance, and updated based on changes to vehicle availability would support good decision making. Given the current policy to shift from six cylinder to four cylinder vehicles in the operational fleet there is an opportunity to move to best in class four cylinder vehicles at a net cost saving to government, as on average the most efficient four cylinder vehicles are cheaper than the average six cylinder vehicle.

**Increase the range of efficient vehicles available for procurement by amending the Australian Vehicle Manufacturers Policy ahead of the cessation of Australian automotive manufacturing at the end of 2017.** With Australian automotive manufacturing proposed to cease by the end of 2017, the Australian Vehicle Manufacturers Policy will be obsolete and alternative vehicle procurement guidelines will be required. An opportunity exists to provide an immediate exemption from the Australian Vehicles Manufacturers Policy for vehicles that can go beyond best in class CO₂ emission performance or a set benchmark for emissions performance. This can be implemented prior to the cessation of manufacturing to result in improved efficiency and will serve to trial alternative vehicles in the Victorian Government Fleet. The exemption could apply to the entire fleet, both operational and executive, and include a pre-determined list of non-Australian vehicles for procurement, or could be targeted exclusively towards to executive fleet, to incentivise the shift from high emissions intensity six cylinder vehicles to low emissions alternatives. This approach would most likely result in cost savings being achieved, as it provides greater choice in vehicle models to achieve emission reductions.

**Introduce electric vehicles into the fleet and extend the lease terms to accommodate ultra-low or zero-emission vehicles.** Electric vehicles provide a significant medium to long term opportunity to reduce emissions from the fleet as their costs continue to decrease and their functionality increases. In the short term the Victorian Government has an opportunity to be an early adopter of currently available electric vehicles to help drive uptake so that Victorian consumers can benefit from greater choice and lower costs. The introduction of electric vehicles specifically into the executive fleet could be a practical example, due to the use profile of executive fleet where there is generally a higher proportion of shorter round trips with the opportunity to charge vehicles at home or the office. A further study looking at operational use of vehicles is required to help determine potential uptake rates of electric vehicles, which could be undertaken by a range of electric vehicle service providers. Procurement of electric vehicles requires consideration of an amendment
to the lease terms extending it beyond the current 3 year or 60,000km term in response to differing short-term economics and deprecation. Reports from other fleet managers suggests that longer lease terms are better suited for electric vehicles, with the resale value being maintained over a longer period of time, without greater maintenance issues due to fewer moving parts in an electric engine.

**Implementation of a whole of Victorian Government Safety and Eco-Driving scheme.** Efficiency gains can be achieved by targeting driver behaviour and more efficient driving. A whole of Victorian Government education program delivered by a central provider focusing on both safe and efficient driving skills could be implemented with the aim that it would be a requirement for all drivers of fleet vehicles. The scheme would be crucial to achieving emission reductions, and also allow for familiarisation with new vehicle technologies and the introduction of ultra-low and zero-emission vehicles. There could be a focus on ways to reduce travel demand by educating staff on public transport and video conferencing options available, and could be structured in a number of ways, potentially incorporating regional and metro training. These types of programs have been suggested and developed previously, however have not been implemented.

**Introduction of a range of measures to reduce overall fleet costs and achieve greater optimisation.** Analysis demonstrated a range of measures to reduce overall fleet costs including reducing the total number of kilometres travelled, reducing the overall fleet size, potential digital platforms allowing for better sharing and utilisation of assets within government, or introducing greater competition into the leasing process. In addition, an education program could assist in reducing the actual travel requirements and encouraging mode shift to active and public transport. Other approaches could also include collaboration with private sector and investigation into the establishment of a second-hand market for lower emission vehicles to help reduce depreciation. Savings achieved through overall cost reductions and fleet optimisation could offset any additional costs associated with more efficient vehicles.
1. Introduction

The Victorian Government has committed to review legislation and programs to commit to an achievable emissions reduction target for the state, and has identified six high growth industry sectors including transport technology\(^6\). This commitment is supported by the Future Industries Fund\(^7\), as well as the Energy Efficiency and Productivity Statement to save energy, grow jobs and protect the environment. One of the priority opportunities identified is government leadership and best practice, which includes the identification of options to improve the energy efficiency of the government’s assets and operations.

The Commissioner for Environmental Sustainability’s 2013-14 Strategic Audit Report of Environmental Management Systems in the Victorian Government, tabled in 2015 highlighted that:

*The public sector has a great opportunity to influence environmental outcomes through procurement choices. Incorporating environmental considerations into purchasing decisions and selecting products and services that represent value for money with the least environmental impact over the life of the product or service is a win-win*\(^8\).

Australia’s transport sector accounts for approximately 17 per cent of national emissions, with passenger and light commercial vehicles accounting for over 60 per cent of the sector’s emissions\(^9\). Light vehicle fuel efficiency presents one of the most cost effective emission reduction opportunities across the economy, providing significant cost savings to consumers and the broader economy. Significant reductions in transport emissions are required if Australia is to reduce its emissions in line with its recent climate pledges to limit global warming to 2 degrees, with significant transformation of the light vehicle fleet required to 2050.

In the Light Vehicle Emissions Standards for Australia Research Report\(^10\), the Climate Change Authority identified the following ways by which to reduce the CO\(_2\) emissions from light vehicle transport activities:

1. **Increased efficiency of motorised vehicles:**
   - As the fleet composition changes to include more new and efficient cars, and old vehicles are retired, the average efficiency of the fleet improves;

2. **Reduced emissions intensity of fuels:**
   - switching from conventional fossil based fuels to alternative fuels with potentially lower emissions such as electricity, natural gas, hydrogen and sustainable biofuels;

3. **More efficient demand management:**
   - reducing the emissions intensity of travel or the need for travel through a range of measures including mode shift, intelligent transport systems and urban and transport planning.

At present, the Victorian Government’s passenger vehicle fleet that reports under the EMS program emits approximately 16,000 tCO\(_2\) per year, and has an average CO\(_2\) emissions intensity of 180 gCO\(_2\)/km, based on manufacturer specifications. While this emission intensity has been improving, decreasing from approximately 215 gCO\(_2\)/km in 2010-11, and is in line with Australia’s national average of 182 gCO\(_2\)/km for passenger vehicles, it is still well below what would be considered a leadership position. In comparison to global peers, Australia has scored poorly in the energy efficiency of its land transport sector, with the recent American Council for an Energy-Efficient Economy (ACEEE) International Scorecard ranking Australia last out of 16 major OECD countries for the energy efficiency of our transport sector\(^11\).

ClimateWorks has reviewed the current fuel efficiency of the Victorian Government’s passenger vehicle fleet and presents potential actions which consider a range of opportunities to guide improvements. By understanding the potential to improve the efficiency of its own fleet, this knowledge can be used to inform policy and programs providing leadership to other fleet owners across the state, to help Victoria achieve its emissions reduction potential.

By taking a leadership position and driving emission reductions in its fleet, the Victorian Government would provide a strong signal to vehicle manufacturers, whilst also providing a market for more efficient vehicles. This could potentially increase the availability of more efficient vehicles in the Australian market, providing positive flow on effects to consumers through the sale of more efficient vehicles into the second hand market, driving efficiency gains for Victorian consumers.

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\(^6\) Victorian Government (2015)

\(^7\) Future Industries Fund will invest in six key sectors to support and drive Victoria’s future economic growth. The $200 million Fund which will play an active role in working with business experts and industry to grow traditional industries and invest in emerging sectors.

\(^8\) Commissioner for Environmental Sustainability (CES) (2015)

\(^9\) ClimateWorks (2014)

\(^10\) CCA (2014)

\(^11\) ClimateWorks (2014)
2. Overview of the Victorian Government Fleet

Victorian Government Fleet Management

The Victorian State Government provides access to vehicles where it is appropriate for departments and agencies to operate its own transport or where, in the interests of financial and operational efficiency, it is appropriate to use motor vehicle transport. The overarching policy objective of the government is that motor vehicle use supports the government’s service delivery requirements and also delivers effective outcomes in relation to vehicle efficiency, safety, environmental performance and the purchase of Australian manufactured vehicles.

To support the efficient management of the Victorian Government vehicle fleet, a vehicle Finance Lease Facility, managed by VicFleet within the Department of Treasury and Finance, has been established.

The key policy within the Finance Lease Facility is the Standard Motor Vehicle Policy, which is a whole of Government framework used to optimise the management and use of government vehicle assets. Adherence to this policy is a requirement for all Victorian Government departments and inner budget agencies, and applied as a guide for all other agencies, statutory authorities and government business enterprises.

Departments and inner budget agencies operating under this policy are required to establish a fleet management framework that incorporates the policy and rules of use for government vehicles and drivers, alongside department-specific requirements, processes and procedures. The standard motor vehicle policy provides the overarching governance framework including policies and rules of use relating to the management and operation of the government motor vehicle fleet.

Current Fleet Structure

The proportion of the Victorian Government Fleet managed by VicFleet is diverse in its range of vehicle types; including passenger and light commercial vehicles through to custom motorcycles and heavy vehicles, as shown in Figure 1. For the purposes of this project and based on available data, the scope has been defined to include all passenger vehicle fleet from departments and agencies that report under the Government’s EMS program. Passenger vehicles are defined as motor vehicles constructed primarily for the carriage of persons and containing up to nine seats including the driver’s seat.

![Figure 1: Total number of vehicles managed by VicFleet, as at 30 June 2015](image)

The Victorian Government passenger vehicle fleet from departments and agencies that report under the Government’s EMS program, as at 30 June 2015, totalled 2,965 of which 2,465 are operational and 500 executive vehicles. The size of this vehicle fleet has decreased by approximately 18 per cent between 2010-11 and 2014-15. In addition, the overall composition continues to move to a lower intensity fleet with decreases in unleaded six cylinder by 12 per cent and four cylinder by 19 per cent petrol vehicles, and increases in hybrid vehicles by 20 per cent over the five year period. Table 2 shows the number of operational and executive passenger vehicles by department as at 30 June 2015.

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11 ACEEE (2014)
12 Department of Treasury and Finance (2015)
13 Inner budget departments and administrative offices are those which are directly accountable through ministers to Parliament. Outer agencies refer to the agencies that are only partly funded by Government such as statutory authorities and Government Business Enterprises.
14 Including all Victorian Government Departments, Sustainability Victoria and the Environment Protection Authority Victoria
15 The Government’s EMS program which requires participating departments, agencies and authorities to report performance in reducing office-based environmental impacts in the annual reporting process.
Table 2: Number of passenger vehicles by department, as at 30 June 2015

<table>
<thead>
<tr>
<th>Department or Agency</th>
<th>Operational</th>
<th>Executive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment Protection Authority</td>
<td>45</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>Department of Economic Development, Jobs, Transport and Resources</td>
<td>139</td>
<td>63</td>
<td>202</td>
</tr>
<tr>
<td>Department of Education and Training</td>
<td>252</td>
<td>93</td>
<td>345</td>
</tr>
<tr>
<td>Department of Environment, Land, Water and Planning</td>
<td>382</td>
<td>61</td>
<td>441</td>
</tr>
<tr>
<td>Department of Health and Human Services</td>
<td>1043</td>
<td>131</td>
<td>1174</td>
</tr>
<tr>
<td>Department of Justice and Regulation</td>
<td>395</td>
<td>68</td>
<td>463</td>
</tr>
<tr>
<td>Department of Premier and Cabinet</td>
<td>45</td>
<td>34</td>
<td>79</td>
</tr>
<tr>
<td>Department of Treasury and Finance</td>
<td>1</td>
<td>46</td>
<td>47</td>
</tr>
<tr>
<td>State Government Vehicle Pool</td>
<td>154</td>
<td>0</td>
<td>154</td>
</tr>
<tr>
<td>Sustainability Victoria</td>
<td>9</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>2465</strong></td>
<td><strong>500</strong></td>
<td><strong>2965</strong></td>
</tr>
</tbody>
</table>

In addition to the data provided by departments and agencies that report under the EMS program, the above table also includes 154 operational vehicles assigned to the State Government Vehicle Pool. These vehicles are managed by the Shared Service Provider from within the Department of Treasury and Finance, and are utilised similarly to a commercial car hire structure for when Departments require access to more cars than leased.

As a part of the Executive Motor Vehicle Scheme, outlined in the standard motor vehicle policy, executives as an employee benefit are provided a vehicle on a shared two-thirds private use and one-third business use basis. All government vehicles, including vehicles in the Executive Motor Vehicle Scheme, are to be made available in a pooling arrangement for operational use during normal business hours. Executive vehicles account for approximately one-sixth or 17 per cent of the Victorian Government’s passenger fleet, and number of vehicles vary significantly across departments; with some departments such as Sustainability Victoria having no executive vehicles, and others such as Department of Treasury and Finance having only one operational vehicle.

Vehicle Efficiency Performance

Managing the environmental performance of the motor vehicle fleet primarily involves reducing greenhouse gas emissions associated with travel through improvements to the efficiency of fleet operations, reducing the total number of kilometres travelled and reducing the total number of vehicles in the fleet.

Victorian Government fleet efficiency has continued to improve. The shift to more fuel efficient passenger vehicles has resulted in a reduction of the average vehicle emission rate, based on manufacturer specifications from 215 gCO₂/km in 2010-11 to 180 gCO₂/km in 2014-15, a decrease of approximately 16 per cent. The actual average emission intensity reported was significantly higher at 248 gCO₂/km

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17 As per the Standard Motor Vehicle Policy an operational vehicle refers to the use of vehicles by government employees to conduct their regular duties where motor vehicles are required.

18 As per the Standard Motor Vehicle Policy an executive vehicle is a vehicle used by executive officers.

19 Department of Treasury and Finance (2015)

20 CES (2015)
with total observed emissions of 21,295 tCO₂e. This higher figure could be attributed to on road driving conditions and driver behaviour, however this figure has also decreased proportionally over the same period. In addition, total number of kilometres travelled has decreased by 12 per cent between 2010-11 and 2014-15.

The average emissions intensity of vehicles across Departments varies, as shown in Figure 2 below. Department of Treasury and Finance and Department of Premier and Cabinet have the highest average emissions intensity, due to the greater proportion of less inefficient executive vehicles, while the Environmental Protection Agency and Department of Environment, Land, Water and Planning are both above the fleet average, driven by their higher proportion of six cylinder vehicles in their fleets. Department of Health and Human Services has the largest fleet, and in part due to this, an average emissions intensity. The vehicle pool, Department of Education and Training and Department of Justice and Regulation all fall below the average emissions intensity, whilst Sustainability Victoria has the lowest emissions intensity and smallest fleet size.

A number of Departments have a higher proportion of six cylinder vehicles compared to four cylinder vehicles in their fleet, including Department of Health and Human Services, Department of Premier and Cabinet, Department of Environment, Land, Water and Planning, Department of Treasury and Finance, Environmental Protection Agency as shown in Figure 3, to the right. These Departments also have above average CO₂ ratings for their fleet, driven by this higher proportion of six cylinder vehicles.

In analysing the current composition of the passenger vehicle fleet, sedans are the most common type vehicle in operation, accounting for 67 per cent. This vehicle is on average the most efficient vehicle category with an average emissions intensity of 155 gCO₂/km, primarily due to the inclusion of hybrid vehicles in this category. The least efficient vehicle category is wagons with an average emissions intensity of 225 gCO₂/km. The higher emissions in this category can be attributed to the inclusion of SUVs. The executive fleet represents a 27 per cent share of the total number of wagons compared to only a 10 per cent share of sedans.

Figure 2: Average CO₂ rating for vehicles in each department
Figure 3: Departmental breakdown of total number of vehicles by cylinder and CO₂ rating versus average

Figure 4: Total number of vehicles by body type (%), emissions and fuel efficiency, as at 30 June 2015
Almost half the current passenger fleet, totalling 48 per cent, is composed of six cylinder vehicles, which based on manufacturer’s specifications emit on average 35 per cent more emissions and use 40 per cent more fuel than four cylinder vehicles.

The Commissioner for Environmental Sustainability Strategic Audit in 2012-13 indicated that the executive fleet has had a generally consistent profile with a specifically high proportion of six cylinder vehicles. This trend appears to continue with six cylinder vehicles over represented in the executive fleet, 72 per cent of six cylinder vehicles compared to only a 28 per cent of four cylinder vehicles. Recommendations have been made previously to reduce the number of six cylinder vehicles in the executive fleet21 however this reduction has not been significant.

In terms of fuel type, vehicles utilising unleaded and hybrid account for the majority of the fleet at approximately 37 per cent share respectively. Hybrid vehicles produce over 40 per cent less emissions on average, based on the manufacturer’s specifications.

21 The Commissioner for Environmental Sustainability Strategic Audit in 2007-08 recommended a revision to the executive vehicle policy to establish incentives for those executives, members of Parliament and Judicial officers choosing personal motor vehicles or alternate transport modes.
Machinery of Government changes, with the allocation of functions and responsibilities between departments and ministers, have been reflected in departmental reporting effective from 1 January 2015. As such, Victorian Government vehicle fleet data reflects the operations of departments as they existed after the machinery of government changes.

Whilst benchmarking data was not available for this study, the below data of all new vehicles (passenger and light commercial) purchased by Government in 2014 collected by the National Transport Commission shows that Victoria is average in comparison to other Governments within Australia, but still above the national average once private and public purchases are factored in.

Figure 8: Average CO₂ emission intensity for new passenger and light commercial vehicles by government, 2014\(^\text{22}\)
3. Factors Impacting Victorian Government Fleet Efficiency

The Victorian Government fleet procurement practices operate under a number of prescriptions, as outlined in the Standard Motor Vehicle Policy. These include supporting Australian vehicle manufacturers, minimum vehicle safety standards and a fit for purpose test. An additional recent amendment to this policy in August 2015, mandates that all operational passenger vehicles must now be four cylinder. The current requirements and additional barriers are further detailed below.

**Policy Factors**

**Supporting Australian Vehicle Manufacturers Policy**

The Victorian Government’s Standard Motor Vehicle Policy requires that only passenger motor vehicles that are ‘manufactured in Australia’ may be leased or purchased by Victorian Government departments and selected agencies, including vehicles leased or purchased as a part of the Executive Motor Vehicle Scheme.

In instances where passenger vehicles are required for specific purposes, including emergency services vehicles and vehicles intended to transport people with a disability, exemptions may apply if a suitable vehicle is not manufactured in Australia or imported for sale by an Australian vehicle manufacturer. Victorian government departments or agencies must demonstrate a ‘clearly defined operational need’ to choose an imported passenger vehicle, which must have been approved by the requesting department secretary or agency chief executive officer.

Similar government procurement policies are in effect with the Australian Government’s Fleet Vehicle Selection Policy and the South Australian Government Financing Authority. Recommendations outlined in the Productivity Commission’s Inquiry Report for Australia’s Industry Automotive Manufacturing included that the Australian, South Australian and Victorian governments’ should remove fleet procurement policies that require government agencies to purchase vehicles manufactured in Australia after the cessation of automotive manufacturing in Australia. In response to this recommendation, Australian Government’s fleet procurement policy that favours the purchase of locally-made vehicles will be abolished which will likely occur after manufacturing has ceased.

The average emissions intensity for all Australian-made vehicles from the three remaining automotive manufacturers was 210 g/km in 2014, a figure that is unchanged since 2012. Australian automotive manufacturing is proposed to cease by the end of 2017; with Ford Motor Company ending production by late 2016 and, GM Holden and Toyota Motor Corporation by the end of 2017. It is expected that Australian made vehicles will be available for purchase until approximately March 2018 when stock runs out.

**Government Procurement Policies**

The Australian Government’s Fleet Vehicle Selection Policy applies to Commonwealth agencies operating under the Financial Management and Accountability Act 1997 (Cwlth) and to those that have ‘opted in’ under this Act. To comply with the policy, relevant agencies are required to select passenger and light commercial vehicles that are manufactured in Australia, unless it can be demonstrated that no suitable vehicle is available.

The South Australian Government Financing Authority has noted that:

*The purchase of motor vehicles is outside the scope of the State Procurement Act 2004. However, where practicable, the South Australian government supports Australian based manufacturers, purchasing Australian made passenger vehicles where possible.*

State Governments that have not implemented an Australian vehicle manufacturer’s policy, generally provide a comprehensive list of vehicles which meet most requirements of departments and agencies through motor vehicle supply contracts.

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23 ‘Manufactured in Australia’ means any vehicle where the body is assembled and painted in Australia and the compliance plate is fitted at the point of manufacture in Australia.

24 Productivity Commission (2014)

25 Department of Industry, Innovation and Science (2014)


27 Australian Department of Finance (2012)

28 South Australian Government Financing Authority (2014)
ANCAP 5

The Australasian New Car Assessment Program (ANCAP) provides independent and consistent information about safety features in new car models; crash testing, publicising results and awarding comparative star ratings to inform consumers of the relative safety performance of new cars on the Australian market.

The Victorian Government’s Standard Motor Vehicle Policy outlines that wherever practicable, only vehicles with an ANCAP five star rating or better should be considered for procurement purposes. Vehicles that have earned the maximum five star ANCAP safety rating offer a high level of protection for passengers, are equipped with effective restraint systems and, life-saving safety features and technologies.

Since 1992, ANCAP has published safety ratings for over 1,000 vehicle makes, models and variants, with 81 per cent of current new cars sold holding the maximum 5 star ANCAP safety rating.

Fit for Purpose

The Standard Motor Vehicle Policy mandates that passenger and light commercial vehicles must be manufactured in Australia, wherever a fit-for-purpose locally produced option is available. The key criteria for vehicle fit-for-purpose and safety selection includes:

> that the vehicle must fit the intended operational purpose, accommodating the operating cost and environmental impact;
> consideration of the environment and operational tasks in which a vehicle will be operating;
> the operational tasks that a driver will be required to perform;
> any atypical physical characteristics of particular drivers and the capabilities of the user population;
> the vehicle is compliant with all legal and OH&S requirements;
> the applicable Australian Design Rules are met; and
> the employer shall exceed the requirements of the vehicle Australian Design Rules by fitting vehicles with manufacturer-approved options, so far as is practicable, to provide vehicles that are safe and without risk to health.

With the announcement that automotive manufacturing in Australia would cease by the end of 2017, the Standard Motor Vehicle Policy was extended so that in the event that light commercial vehicles manufactured in Australia are not fit for purpose, only light commercial vehicles imported for sale by Australian vehicle manufacturers (i.e. Ford Motor Company, GM Holden and Toyota Motor Corporation) are permitted for lease or purchase.

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29 Australasian New Car Assessment Program (ANCAP) (2015)
30 Department of Treasury and Finance (2015)
31 ANCAP (2015)
32 Department of Treasury and Finance (2015)
Vehicle Leasing Structure

All vehicle leases managed by VicFleet are financed via a loan agreement with the Treasury Corporation of Victoria, whereby VicFleet is the lessor and eligible government departments and agencies are structured as lessees\(^{33}\).

Leases provided by VicFleet are based on a fixed whole-of-life budget, which involves forecasting all predictable lease costs connected with ownership and usage of the vehicle. In some instances, some of the operating costs are removed and managed directly. Key features of the vehicle leasing structure are detailed below.

Finance Vs Operational Leases

Finance and operating leases are the two kinds leases generally offered\(^{34}\). The key difference relates to whether there has been a transfer of substantially all risks and benefits of ownership.

Finance leases are often used to buy equipment for the major part of its useful life, and where the risks and benefits of ownership are transferred to the lessee (in Victoria’s case Government departments and agencies). The goods are financed excluding GST and the residual value, a lump sum owed to the financier at the end of a loan term after all regular monthly repayments have been made, is payable at the end of the lease. With these types of leases, at the end of the lease term the lessee will obtain ownership of the equipment upon a successful ‘offer to buy’ the equipment. Traditionally this ‘offer’ is the balloon amount.

An operating lease agreement is used to finance equipment for less than its useful life, and where the lessee (Victorian Government departments and agencies) can return equipment to the lessor (VicFleet) at the end of the lease period without any further obligation. With operating leases, substantially all risks and benefits of ownership are retained by the lessor (VicFleet).

For the Victorian Government, all passenger vehicles are offered by VicFleet under a finance lease, where the risk and benefits of ownership are borne by the departments and agencies. However, VicFleet provides a service to sell the vehicles (through local auction houses) at the end of their lease terms on the department and agencies behalf. Any residual costs are covered by the departments and agencies as per their lease agreement.

Lease Terms

In line with the Standard Motor Vehicle Policy, all vehicles are required to be sold in a timely and efficient manner specifically disposing of a vehicle at:

- 60,000 kms or three years from the date of delivery, whichever occurs first – unless an extension to the vehicle lease term has been granted by VicFleet\(^{35}\).

The lease terms are based on optimising lifecycle vehicles costs and resale values.

While it is a requirement to update vehicles based on this policy, as at 30 June 2015, approximately 4.7 per cent of the current Victorian Government passenger vehicle fleet exceeded the three year or 60,000km term. The VicFleet Monthly Active Vehicle Register included 141 vehicles with a start data of June 2012 or earlier.

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\(^{33}\) Department of Treasury and Finance (2015)

\(^{34}\) The difference between the two lease types are established in Australian Accounting Standard AAS17 Leases, Australian Accounting Research Foundation (1998)

\(^{35}\) Department of Treasury and Finance (2015)
Costs and Depreciation

Vehicle lease rates are set on a cost-recovery basis, and rates are set to reflect all predictable costs, including administrative fees, depreciation, fuel, servicing and disposal costs. On disposal of the vehicle, the actual costs are determined and applied to the final lease payment.

All items of property, plant and equipment that have finite useful lives are depreciated, generally calculated on a straight-line basis, at rates that allocate the asset's value, less any estimated residual value, over its estimated useful life\textsuperscript{36}.

The estimated useful lives, residual values and depreciation method are generally reviewed at the end of each annual reporting period, and adjustments made where appropriate.

Behavioural Factors

Coordinated Reporting Processes

The establishment of the whole of Victorian Government EMS program in 2003 has ensured that the performance of reducing office-based environmental impacts are recorded annually by participating departments, agencies and authorities. In terms of this reporting process and increasing the fuel efficiency of the Victorian fleet, greater consistency and more granular data is required.

While the majority of departments report total kilometres, fuel consumption and greenhouse gas emissions by fuel type (diesel, LPG, unleaded and hybrid) some report by engine size or vehicle type. Departments capture extensive data on vehicle use, but only report high-level overviews as a part of the EMS requirements based on financial reporting directive 24C (FRD 24C). ClimateWorks' research\textsuperscript{37} has shown that those companies who undertake regular analysis of energy data achieve higher energy savings than those who don't. Without having robust and accurate data, this limits the ability to undertake analysis to identify opportunities and track performance.

Understanding of Operational Use of Vehicles

Anecdotal evidence indicates that while consideration is generally given to the operational use of vehicles before they are purchased, overall there is limited knowledge of the broader fleet needs and vehicle use.

To optimise the Victorian Government fleet, individual departments need to be able to demonstrate how the fleet size and mix aligned with overall business needs and service delivery. Operational requirements for fleet should be reviewed regularly to confirm that the type and number of vehicles met specific business needs. A process to fill this gap in information is required and to help determine suitability for ongoing efficiency measures.

Consumer and Staff Preferences

Customers consider many criteria when choosing a car including safety, comfort, aesthetics and price, and fuel efficiency is only a small part of the decision process. Australia’s relatively low fuel prices and high upfront costs for new cars, compared to other countries, also serve to reduce the importance of fuel efficiency. Fleet cars could be expected to be more sensitive to factors such as total cost of ownership, but these are also chosen based on other factors.

Other Factors

Vehicle Availability

There are a range of vehicles models available when it comes to low, ultra-low and zero-emission vehicles in Australia. The National Transport Commission classifies these types of vehicles as ‘green’ vehicles, defining them as a vehicle with a carbon dioxide emissions intensity that does not exceed 120 gCO\textsubscript{2}/km\textsuperscript{38}. There were 59 green vehicle models available in Australia in 2014, compared with 45 in 2013.

If all new purchased vehicles within Australia in 2014 had all been with best-in-class emissions intensity, the national average carbon dioxide emissions would have been reduced to 95 gCO\textsubscript{2}/km, which would be a 50 per cent reduction on actual performance\textsuperscript{39}. While implementing a best-in-class policy does not account for the potential increased costs, it does demonstrate the high emissions intensity reductions that could be achieved with currently available vehicles and technologies. There will continue to be more low emissions vehicle models available in Australia over time.

\textsuperscript{36} CES (2014)  
\textsuperscript{37} ClimateWorks Australia (2013)  
\textsuperscript{38} NTC (2015)  
\textsuperscript{39} NTC (2015)
4. Opportunities to Improve Efficiency of Victorian Government Fleet

Analysis has been undertaken to forecast potential fuel efficiency and emissions savings utilising data reported in the VicFleet Monthly Active Vehicle Register. The analysis has been structured to consider a number of scenarios out to 2020.

A number of assumptions have been applied to underpin the analysis. It has been recognised that there are restrictions in relation to predicting future specifications of vehicles, as well as policy settings both at the whole of Victorian Government and departmental level. An outline of the key assumptions applied to this analysis are included in Table 3, below.

Cost considerations have been considered more broadly, but not specifically incorporated into the modelling due to data constraints and the variable nature of lease costings. Additional work beyond the scope of this project could investigate future lease costs in more depth.

Table 3: Outline of the key assumptions applied to analysis

<table>
<thead>
<tr>
<th>General Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of vehicles in the fleet remains constant over time</td>
</tr>
<tr>
<td>New vehicles leased are chosen out of currently available vehicles, with improvement factors applied in instances where vehicles are replaced after 36 months</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BAU Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six cylinder vehicles have been split into sedans and wagons, and this proportion also remains constant.</td>
</tr>
<tr>
<td>In line with recent policy changes mandating that all operational passenger vehicles must now be four cylinder, it is assumed that 50% of all new operational vehicles that would previously have been six cylinder will now be four cylinder. This assumes that 50% of operational vehicles will need to be 6 cylinder for a ‘fit for purpose’ requirement.</td>
</tr>
<tr>
<td>All vehicles have a 36 month lease term</td>
</tr>
<tr>
<td>All vehicles travel 30,000 kms per year, which has been derived using the average total kilometres travelled in 2014/15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All four cylinder vehicles can be transitioned to best in class</td>
</tr>
<tr>
<td>Each financial year starting from 2015-16, vehicles that are due to expire at the end of the three year lease are replaced by a most efficient vehicle in gCO₂/km terms. Therefore the whole fleet is replaced every three years.</td>
</tr>
<tr>
<td>Alternative best in class vehicles are price comparable to the original vehicle</td>
</tr>
<tr>
<td>Electric vehicles are phased in over the shorter-term and increased over time, and assumed that renewable energy is used to fuel these with no emissions</td>
</tr>
<tr>
<td>The manufacturers stated efficiency rating has been used in the first instance, and Departmental observed data for fuel efficiency and emissions has been used to test assumptions</td>
</tr>
</tbody>
</table>

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40 Data captured as at 30 June 2015
**Business as Usual**

The Climate Change Authority commissioned modelling from the CSIRO to explore the business as usual case for average CO₂ emissions intensity across Australia in 2018, 2020 and 2025. The modelling indicates that the average emissions intensity of new light vehicles\(^{41}\) will reduce to 176 gCO₂/km in 2018, 169 gCO₂/km in 2020 and 156 gCO₂/km in 2025\(^{42}\). These projections are similar to other recent estimates of emissions intensity levels for Australia\(^{43}\).

Established targets and current projections in other jurisdictions provides a useful understanding of Australia’s national average in comparison to global peers. While recognising the differing policy environments of these other jurisdictions, it is evident that Australia is currently lagging behind other major OECD countries in terms of energy efficiency of the transport sector. Table 4 outlines the targets and current predictions for average emissions intensity of new light vehicles in comparable OECD countries including Canada, Europe and the US.

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>Canada</th>
<th>Europe</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>169 gCO₂/km</td>
<td>147 gCO₂/km</td>
<td>95 gCO₂/km</td>
<td>121 gCO₂/km</td>
</tr>
<tr>
<td>2025</td>
<td>155-160 gCO₂/km</td>
<td>93 gCO₂/km</td>
<td>68-78 gCO₂/km</td>
<td>93 gCO₂/km</td>
</tr>
</tbody>
</table>

Table 4: Comparison of EU, US and Canadian projected average emissions intensity

At present, the Victorian Government’s passenger vehicle fleet emits approximately 16,000 tCO₂ per year, and has an average CO₂ emissions intensity of 180 gCO₂/km, based on vehicle manufacturer specifications. While the emission intensity has been improving, decreasing from approximately 215 gCO₂/km in 2010-11, this has been achieved primarily through the natural turnover of vehicles and replacement with more efficient models, and through the Victorian Government mandate to purchase 2,000 Toyota Camry Hybrids in 2010\(^{44}\).

Based on the efficiencies gained in the previous five years and assuming consistent improvements, it can be predicted that the average CO₂ emissions intensity will be roughly 120 gCO₂/km by 2025. While this is projected to be below the Australian average for new vehicles sold in 2025, it is still well above gains that have been targeted in other markets.

\(^{41}\) Where light vehicles includes all motor vehicles under 3.5 tonnes gross vehicle mass, including passenger vehicles, sports utility vehicles (SUVs) and light commercial vehicles, but excluding motorcycles.

\(^{42}\) Climate Change Authority (2014)

\(^{43}\) Including research from ClimateWorks (2014) and FCAI/PWC (2010)

\(^{44}\) Victorian Government (2010)
Opportunities for Improvement

Based on the current structure and prescriptions on the Victorian Government’s fleet, a range of opportunities have been identified to improve the fleet’s efficiency and reduce emissions. This section provides an overview of these opportunities and identifies the potential efficiency gains that these opportunities can provide. It also details the interactions between a number of these opportunities. The following section outlines cost considerations of these opportunities.

Shifting executive fleet from six cylinder to four cylinder

At present, there is no mandate on the executive fleet regarding the purchase of six cylinder vehicles, unlike the operational fleet which is required to be four cylinder. The executive fleet has a higher proportion of six cylinder vehicles with 72 per cent in executive versus 43 per cent in operational. In addition, the efficiency of the executive fleet is 212 gCO₂/km based on manufacturer specifications, well above the fleet average of 180 gCO₂/km. The average rating of six cylinder vehicles in the executive fleet is currently 231 gCO₂/km, compared to 164 gCO₂/km for four cylinder vehicles.

On average, six cylinder vehicles emit over 50 per cent more emissions than four cylinder vehicles. Executive vehicles tend to be more emissions intensive on average for both four and six cylinder vehicles; four cylinder executive vehicles emit 19 per cent more than operational and six cylinder executive vehicle emit 10 per cent more than operational vehicles.

Efficiency gains can be achieved by shifting the 359 existing six cylinder vehicles in the executive fleet to four cylinder vehicles typically used by the executive fleet. On average, for each vehicle that switches from six to four cylinders in the executive fleet, 2 tCO₂ and 787 litres of fuel can be saved per year. If the entire executive fleet was shifted to four cylinder vehicles at the natural time of replacement over the next three years, this would cumulatively save approximately 2,219 tCO₂e and 867,000 litres of fuel by 2019-20.

Figure 9: Average emissions intensity of operational vehicles vs executive vehicles
Purchasing best in class efficient vehicles

Vehicle efficiency is considered in the vehicle procurement process, however it is often a lower priority than other purchasing factors. There is significant variation in the efficiency of different vehicles within the same class across the fleet. While the range of Australian made vehicles currently available includes a number of types and categories to suit various operational needs, the efficiency of these vehicles extends from 121 gCO₂/km for the Toyota Camry Hybrid45 to 249 gCO₂/km for the Ford Territory46. In August 2015, the Standard Motor Vehicle Policy was amended, mandating that all operational passenger vehicles must be four cylinder, however again the efficiency of Australian made four cylinder vehicles ranges from 121 gCO₂/km for the Toyota Camry Hybrid to 208 gCO₂/km for the Ford G6E47.

Table 5: Comparison of CO₂ (gCO₂/km) ratings across the fleet for different currently available vehicle types

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Least efficient</th>
<th>Fleet average</th>
<th>Most efficient available</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 cylinder (sedan)</td>
<td>236</td>
<td>200</td>
<td>185</td>
</tr>
<tr>
<td>6 cylinder (wagon)</td>
<td>249</td>
<td>225</td>
<td>189</td>
</tr>
<tr>
<td>4 cylinder</td>
<td>208</td>
<td>140</td>
<td>121</td>
</tr>
</tbody>
</table>

45 Including the Toyota Camry Altise Hybrid, Camry Atara S Hybrid and Camry Atara SL Hybrid
46 Including the Ford Territory Titanium RWD and Territory TS RWD
47 Department of Treasury and Finance (2015)
48 Department of Justice (2008)
The Department of Justice and Regulation implemented an internal policy mandating the purchase of most efficient in class or hybrid for all operational vehicles, with an exemption from this policy requiring the submission of a business case to be endorsed by the business unit Director and approval from Built Environment and Business Sustainability. The implementation of this policy has seen Department of Justice and Regulation improve the average CO$_2$ emissions intensity across its fleet to 158 gCO$_2$/km, which is the second most efficient across all departments behind Sustainability Victoria, while it has kept average lease costs for its four cylinder vehicles at approximately the average across all departments. The average monthly lease costs for four cylinder vehicles for Department of Justice and Regulation is $877, compared to $850 per month across all four cylinders.

Based on currently available models, there is an opportunity to prioritise purchase of best in class vehicles across other departments and across both six and four cylinder varieties.

Assuming all new vehicles are replaced by the best in class Australian manufactured vehicles from 2016-17, figure 11, below, shows that in 2019/20, this approach would save over 800,000 litres in fuel, and over 1,800 tonnes of CO$_2$. By 2019/20 the cumulative savings would be equivalent to approximately 2.2 million litres in fuel, and 4,783 tonnes of CO$_2$.

Figure 11: Annual emissions and fuel savings through purchasing currently available best in class vehicles.
Increasing range of lower emission vehicles available for procurement

Australian automotive manufacturing is proposed to cease by the end of 2017, with Australian made vehicles expected to be available for purchase until approximately early 2018. With this, the Australian Vehicle Manufacturers Policy will be obsolete and alternative vehicle procurement guidelines will be required.

The current Australian Vehicle Manufacturers Policy allows for the purchase of ten vehicle models across the three Australian based automotive manufacturers. These vehicles have an emissions range of 121 to 249 gCO₂/km. Table 6 below shows that this is a narrower range of performance than all non-Australian made vehicles available in Australia purchased from the those same three automotive manufacturers49. Within this group of vehicles there are more efficient models available, with the lowest being the Toyota Prius at 86 gCO₂/km. The range is even greater still for all vehicles available on the Australian market, with a range of ultra-low and zero-emission vehicles currently available.

An early percentage phase out of Australian manufactured vehicles over the next few years could result in improved efficiency, as it increases the number of efficient models available. A percentage based phase out over the next two years could be targeted exclusively towards the executive fleet, to incentivise the shift from high emissions intensity six cylinder vehicles to low emissions alternatives, or include the entire fleet. The analysis presented in table 7 looks at the impact of the potential early phase out of Australian made vehicles to either vehicles from Australian based manufacturers or any vehicle available in Australia, as well as the rates of this phase out. A more gradual phase out structured to be 10 per cent in 2016/17, 50 per cent in 2017/18 and 100 percent phase out beyond that, and a rapid phase out structured to be 100 percent phase out from 2016/17. Table 7 below includes the vehicles that have been used in this analysis to represent best in class (excluding pure electric vehicles), which have been selected based on vehicles in a similar price category to those currently used within the Victorian fleet.

Table 6: Comparison of CO₂ rating ranges for currently available Australian vehicles vs all vehicles available50

<table>
<thead>
<tr>
<th>Victorian Fleet average</th>
<th>Range for Australian made vehicles</th>
<th>Range for vehicles available from Australian manufacturers</th>
<th>Range for all vehicles available in Australian market</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 gCO₂/km</td>
<td>121 - 266 gCO₂/km</td>
<td>86 - 323 gCO₂/km</td>
<td>0 - 450 gCO₂/km</td>
</tr>
</tbody>
</table>

Table 7: Best in class vehicles used in analysis

<table>
<thead>
<tr>
<th>Vehicle class to be replaced</th>
<th>Victorian Fleet average</th>
<th>Australian made vehicles</th>
<th>Vehicles available from Australian based manufacturers</th>
<th>Vehicles available in Australian market</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 cylinder (sedan)</td>
<td>200 gCO₂ / km</td>
<td>Holden Evoke 198 gCO₂/km</td>
<td>Ford LW Focus Trend 155 gCO₂ / km</td>
<td>Peugeot 508 Active 128 gCO₂/km</td>
</tr>
<tr>
<td>6 cylinder (wagon)</td>
<td>225 gCO₂ / km</td>
<td>Ford Territory 216 gCO₂/km</td>
<td>Ford MD Mondeo 140 gCO₂/km</td>
<td>Mitsubishi ZJ Outlander 44 gCO₂/km</td>
</tr>
<tr>
<td>4 cylinder</td>
<td>140 gCO₂ / km</td>
<td>Toyota Camry Hybrid 121 gCO₂/km</td>
<td>Toyota Prius 86 gCO₂/km</td>
<td>Toyota Prius 86 gCO₂/km</td>
</tr>
</tbody>
</table>

49 Ford Motor Company, GM Holden and Toyota Motor Corporation
50 Figures sourced from NTC (2015) and Green Vehicle Guide
The more rapid the phase out, the greater the efficiency gains will be. This is demonstrated in comparing Figure 13 which depicts a gradual phase out and Figure 14 showing a rapid phase out. Where a gradual phase out is applied, a cumulative saving of between 900,000 and 1.4 million litres of fuel could be achieved, while a rapid phase out results in a saving of between 2.9 and 4.6 million litres of fuel.

Greater efficiencies can be gained by a phase out which allows for an open market versus limiting choice to the three existing manufacturers brands in Australia. An open market allows for a saving of almost 500,000 litres of fuel more than in the gradual phase out case, and almost 2 million litres more in the rapid phase out case. An open market is also likely to result in lower costs than a phase out which allows for purchase of vehicles from the three existing manufacturers, as choice will be limited with this option.

From an emissions perspective, the ratio of savings is similar to fuel savings. Cumulative emission reductions to 2019/20 range from 2,098 to 3,672 tCO$_2$ for the gradual phase out and up to 6,605 to 11,551 tCO$_2$ for the rapid phase out.

Figure 12: Annual litres of fuel saved over time for phase out scenarios 1 and 3 (10% in 2016-17, 50% in 2017-18)
Figure 13: Annual litres of fuel saved over time for immediate replacement scenarios 2 and 4 (100% from 2016-17 onwards)

Figure 14: Annual emissions savings for each scenario
Purchasing zero-emissions vehicles

Zero-emission vehicles provide a significant opportunity to reduce emissions from the vehicle fleet. A zero-emissions vehicle is a vehicle that emits no tailpipe pollutants from the on-board source of power. This analysis is focused on electric vehicles, as they are the more mature technology and commercially available within Australia at present.

Through the Pathways to Deep Decarbonisation project, ClimateWorks has identified that in order to limit global warming to two degrees, electric vehicles are key to reducing emissions from the light vehicle sector. These vehicles also have benefits in terms of reducing local air pollution, which comes with the associated health benefits. Whilst a range of electric vehicles are currently available, they face a number of barriers to their broader adoption. There is an opportunity for government to play a leadership role in being early adopters of zero-emission vehicles to help drive their uptake among broader consumers, which will contribute to the state achieving its long term emission reduction objectives.

The Victorian Government conducted an Electric Vehicle Trial from 2010 to 2014, with the aim of gaining a better understand the process, timelines and barriers for transitioning to electric vehicle technologies. As part of the $5 million initiative, participants were given access to an electric vehicle and were required to keep a detailed log of their use. Participants included private households, local Victorian councils and private corporate fleets. A mid-term report of the trial was released in 2013. While at this stage cost constraints remains an issue, it is recognised that by 2020 the electric vehicle operating cost advantage is expected to outweigh the purchase price penalty for most Victorian drivers51.

For passenger vehicles, which are the focus of this analysis, there are eight electric vehicles52 currently available on the Australian market; ranging from small passenger vehicles such as the Nissan Leaf and Mitsubishi i-MiEV, wagons such as the Audi e-tron, SUVs such as the BMW i3, Mitsubishi Outlander and Tesla Model X (pending late 2016), to sports cars such as the Tesla Model S and the BMW i8. This range of vehicles provides opportunities for substitution across the range of current vehicle models, sedans, wagons and SUVs, used within the Victorian Government Fleet. The range of vehicles available will continue to increase over the coming years. Manufacturers such as BMW, for example, plan to provide eight current models in an electric option in 2016 and the remaining models available by 2017, with fleet e-mobility solutions provided through their subsidiary Alphabet Fleet. There are also offerings of EV solutions from other major corporates, with AGL announcing their EV Advantage53 turn-key solution in late 2015, which provides the analysis to assess EV requirements, leasing of the vehicle and charging infrastructure, along with a range of other services.

When coupled with renewable energy sources, electric vehicles are able to achieve zero emissions. While most electric vehicles are currently priced at a premium, they do have cheaper running costs than conventional vehicles in certain applications; particularly for urban based trips and for vehicles that travel higher average annual kilometres. Electric vehicles, due to their range constraints, are also suited to shorter round trips, the distance of which depends on the particular model but is generally 150 km or less.

Given these considerations, in the short term electric vehicles would be suited to specific applications within the Victorian Government Fleet. In particular, the introduction of electric vehicles into the executive fleet could be a practical example, due to the use profile where there is generally a higher proportion of shorter round trips with the opportunity to charge vehicles at home or the office.

The analysis has looked at the impact of introducing electric vehicles into the Victorian Government Fleet under two different scenarios; a conservative54 and a more ambitious55 adoption rate. It has been assumed that these vehicles will be powered by 100 per cent renewable energy to achieve the greatest emission reductions.

The analysis shows that over 2 million litres in fuel could be saved by adopting a more ambitious rate of EV uptake, as opposed to 927,000 litres in the more conservative case. Assuming that the EVs are powered by renewables, this results in cumulative savings of between approximately 2,290 to 5,054 tCO₂ over this period for these two scenarios.

51  Department of Economic Development, Jobs, Transport and Resources (2013)
52  Electric Vehicle Council (2015)
53  AGL (2015)
54  Assumed the following percentage of new vehicles are EVs - 2.5% in 2016/17, 5% in 2017/18, 7.5% in 2018/19 and 10% in 2019/20
55  Assumed the following percentage of new vehicles are EVs - 5% in 2016/17, 10% in 2017/18, 20% in 2018/19 and 25% in 2019/20
Improving efficiency of vehicle use

Whilst the above measures target improving the efficiency of the vehicles being driven, efficiency gains can also be made by targeting the use of vehicles. This can be achieved through either reducing the total amount of kilometres driven, or by improving driving practices to be more efficient.

At present, an average vehicle in the Victorian Government Fleet travels approximately 30,000 kms per year. This average could be decreased by reducing the need for travel through increasing videoconferencing and carpooling, or switching modes of transport to public or active transport. If a reduction in the average kilometres driven to 25,000 km per vehicle was achieved, this would result in over one million litres in fuel savings per annum, equivalent to a cumulative savings of 9,500 tCO$_2$ by to 2019/20. Reducing travel demand can have significant cost benefits, as fuel use is decreased, and pool size can also be decreased.

Another efficiency gain can be achieved by targeting driver behaviour and more efficient driving. Eco-driving refers to driving practices that encompasses driver behaviours, vehicle maintenance and trip planning actions to reduce overall fuel consumption. Eco-driving is well developed in Europe with programs encompassing media campaigns, basic driver licence training, short and long-term training modules, and in bus and truck fleet management. An RACQ EcoDrive Research Study in 2011 and 2012 showed that the average effect of training provided a 4.6 per cent or 0.51 litres per 100 kilometre reduction in fuel use among participants.
Cost Considerations

Cost considerations have been considered more broadly, but not specifically incorporated into the modelling due to data constraints and the variable nature of lease costings. Additional work beyond the scope of this project could investigate future lease costs in more depth.

In general, the cost considerations for efficiency gains for the fleet are influenced by the vehicle’s depreciation over the life of the lease and the potential fuel savings available. For short term leases, depreciation is the most significant factor in terms of determining lease costs. Depreciation costs are lower for vehicles with a higher resale value. This has been demonstrated with the inclusion of the Hybrid Camry into the Victorian Government Fleet, where there has been a strong second-hand market demand specifically taxi operators. For electric vehicles, depreciation can potentially be reduced by increasing the length of the lease. For example, the City of Sydney incorporated electric vehicles into its fleet and found that for the Nissan Leaf, while depreciation occurred rapidly over the first year of ownership it then plateaued and held its value after this. The City of Sydney has kept these vehicles in the fleet for five years, as they have maintained their resale value over this time and continue to have limited maintenance issues due to fewer moving parts in an electric engine.

There is a broad spread of lease costs for passenger vehicles across the range of CO₂ ratings, as shown in Figure 16. In general, the cheapest lease costs are for vehicles with mid-range efficiency performance, while larger, more inefficient vehicles have the highest lease costs. On average, four cylinder vehicles have lower lease costs and emission intensity compared with six cylinder vehicles.

Nissan Offers Incentive for LEAF in the US

For the first time, Nissan is offering an $8,000 fleet incentive for the 2016 and 2015 model-year LEAF electric vehicles in the US. The incentive is currently available to commercial and government fleets, and can be combined with additional US federal and state rebates. The 2016-MY LEAF S model is set to retail for USD $29,010.

While the offer does not currently apply to the Australian market, the sale of larger volumes of electric vehicles will incentivise manufacturers to reduce price and increase model availability.
Looking at an average lease cost, in Table 8 below, it can be seen that four cylinder vehicles have lower costs than six cylinder vehicles, and that four cylinder vehicles are also more efficient. Within the six cylinder vehicle category, the more efficient vehicles also have lower than average lease costs. The opposite is true for four cylinder vehicles, where the more efficient vehicles have an average lease cost that are higher than the fleet average. Through the shift to more efficient vehicles, additional costs for more efficient four cylinder vehicles could be recouped through savings from the shift from six to four cylinder vehicles, or the shift to more efficient six cylinder vehicles.

There are a range of cost savings that can be achieved through the opportunities identified above, which can work towards offsetting any additional costs for shifting to more efficient vehicles that may have higher depreciation rates. These savings are detailed below and include overall fuel savings, savings from shifting vehicle classes, savings from reducing fleet size and maintenance and repair savings. In total, these savings could equate to approximately $7 million per year in lease costs, and 2.5 to 4.5 million in fuel savings per year which could be used to offset additional costs for purchase of best in class or electric vehicles.

Table 8: Comparison of CO₂ ratings and average lease costs across fleet for different currently available vehicle types

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Least efficient</th>
<th>Fleet average</th>
<th>Most efficient available</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 cylinder (sedan)</td>
<td>236 gCO₂ / km, $1,615/mth lease</td>
<td>200 gCO₂ / km, $1,133/mth lease</td>
<td>149 gCO₂ / km, $1,085/mth lease</td>
</tr>
<tr>
<td>6 cylinder (wagon)</td>
<td>249 gCO₂ / km, $1,173/mth lease</td>
<td>225 gCO₂ / km, $1,153/mth lease</td>
<td>189 gCO₂ / km, $1,089/mth lease</td>
</tr>
<tr>
<td>4 cylinder</td>
<td>208 gCO₂ / km, $802/mth lease</td>
<td>140 gCO₂ / km, $850/mth lease</td>
<td>121 gCO₂ / km, $870/mth lease</td>
</tr>
</tbody>
</table>
Shifting vehicle classes
As previously identified and outlined by each department in Figure 18, to the right, shifting vehicles from six to four cylinders can result in lower average monthly lease costs.

If the entire executive fleet were to be shifted from six to four cylinders as identified, on average this would result in annual lease savings of over $1.5 million.

Reducing fleet size
By reducing vehicle demand, the size of the fleet and overall leasing costs could potentially be reduced. These reductions could be targeted at departments that have higher total leasing spend or higher average lease cost, such as Department of Health and Human Services, as shown in Figure 19. to the right. A 16 per cent reduction in fleet use, achieved by reducing the average kilometres per vehicle from 30,000 km/year to 25,000 km/year, could result in an equivalent 16 per cent reduction in fleet size. Based on the average leasing costs, this equates to approximately $5.5 million savings per year in lease costs.

Maintenance and repair savings
In the case of electric vehicles, there is a tendency for lower maintenance costs as a result of fewer moving parts in electrical engines. While maintenance is a relatively small proportion of overall lease costs, it is still a factor. Fleet managers at both the City of Sydney and City of Melbourne have anecdotally reported that electric vehicles within their fleet are also involved in fewer road accidents than non-electric vehicles, which also contributes to lower maintenance costs.
Figure 17: Average monthly lease cost for 4 and 6 cylinder vehicles across Departments

Figure 18: Total and average monthly lease costs by Department
5. Potential Actions

A range of opportunities have been identified in this report for improved fuel efficiency of Victorian Government light vehicle fleet. From these opportunities, key actions to achieve these opportunities have been developed and classified as either overarching or short to medium-term.

**Overarching Actions**

*Establishment of an ambitious long-term target to reach an ultra-low or zero-emission vehicle fleet before or by 2050, with annual improvement targets to be reviewed and updated.* The commercialisation and availability of ultra-low and zero-emission vehicles in Australia continues to advance with costs steadily decreasing. To achieve long-term, sustainable decreases in the emissions intensity of Victorian Government’s passenger vehicle fleet, there is a need for an established process for future improvements, including review mechanisms to allow for increases in availability of low emission vehicles over time. Whilst other state governments have signalled intent, such as South Australia with the expression of interest for a zero net emissions fleet, none have yet to set a zero net emissions fleet target or supporting process to achieve this, providing a potential leadership opportunity for the Victorian Government. This would also send a strong signal to manufacturers to allow for increased deployment of efficient vehicles models within Australia, increasing flow on benefits to consumers and businesses as choice increases. The establishment of a target is also within the government’s complete control as zero emission technologies already exist today, and will continue to become more cost effective and readily available over time. The target setting and review mechanism could be established and managed under the current EMS process, in collaboration with Department of Treasury and Finance and VicFleet. The costs of meeting a specific target will be impacted by the short to medium term actions outlined below to achieve emission reductions across the fleet.

A target could be comprised of two elements; an ambitious long term target, such as zero net emissions by or before 2050, plus a shorter term target to ensure progress to this longer term goal. The short term targets can be structured in a number of ways. Firstly the time horizon can be varied; either annually or over a number of years. Given the average lease age for vehicles is 3 years, short term targets should be set at a time period equal or less than this, as within this time period the whole fleet will be renewed; a target which goes beyond this means that there is limited incentive on vehicles purchased within the first year of the target period as they would not be in the fleet in the year the target falls.
Targets can also be based on a variety of metrics; a fleet wide emissions intensity or efficiency target, a requirement of a percentage of new vehicles purchased to be below a certain emissions threshold or a cap on the maximum number of grams of CO₂ per kilometre for any vehicle. The metric chosen should be aligned with the Victorian Government’s ultimate aim. A fleet average CO₂ emission intensity measured in gCO₂ per kilometre is suggested as the most efficient target, as it will allow for vehicles which have higher emissions to be purchased to meet the fit for purpose requirement, and should result in the lowest cost solution as it provides flexibility. It can also be tightened over time.

Once a metric is set, the quantum of the target can be set based on a desired annual percentage improvement in average fleet efficiency, which can factor in both the desired emission reduction goal and rate of improvement needed to achieve this. Available technologies and associated costs/benefits of achieving it can also be factored in. Leading markets such as Europe, Canada and the US, are targeting a 50% improvement in efficiency in all new light vehicles sold over the next ten years, which equates to a 5 per cent annual improvement. This number is approximately twice the natural rate of improvement seen in the Australian market over the last ten years, but entirely feasible based on current available vehicle models. The emission reduction opportunities identified in this report to 2020 are in line with efficiency gains of this magnitude.

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Great coordination in reporting of fuel efficiency of the Victorian Government’s passenger vehicle fleet, and greater clarity in the operational use of vehicles. The establishment of the whole of Victorian Government EMS program in 2003 has ensured that the performance of reducing office-based environmental impacts are recorded annually by participating departments, agencies and authorities. In terms of this reporting process and increasing the fuel efficiency of the Victorian fleet, greater coordination, consistency and more granular data is required. While the majority of departments report total kilometres, fuel consumption and greenhouse gas emissions by

Investigate the application of these potential actions and the emission reductions potential to the broader vehicle fleet under the management of the Victorian Government. VicFleet currently manage 8,290 vehicles, including passenger, light commercial vehicles, motorcycles and heavy vehicles. The scope of this project was defined by the available data and included all passenger vehicle fleet from departments and agencies that report under the Government’s EMS program. As such, the total number of vehicles included in the scope of the project was 2,965. The potential actions from this review could be extended to light commercial vehicles, of which 2,435 are managed by VicFleet in the Victorian Government Fleet, or to outer agencies that do not currently report under the Government’s EMS program.

57 Including all Victorian Government Departments, Sustainability Victoria and the Environment Protection Authority Victoria 58 The Government’s EMS program which requires participating departments, agencies and authorities to report performance in reducing office-based environmental impacts in the annual reporting process.
59 Outer agencies refer to the agencies that are only partly funded by Government such as statutory authorities and Government Business Enterprises.
Short to Medium-term Actions

Incentivise a shift from six to four cylinder vehicles and procuring best in class vehicles in the executive fleet. The Victorian Government passenger vehicle fleet as at 30 June 2015 totalled 2,965, of which 2,465 are operational and 500 executive vehicles. The executive fleet has had a generally consistent profile with a higher average emissions intensity and a higher proportion of six cylinder vehicles. Six cylinder vehicles are over represented in the executive fleet, with a 72 per cent of six cylinder vehicles compared to only a 28 per cent of four cylinder vehicles. Incentivising executives to shift from these six cylinder vehicles to four cylinder vehicles will reduce emissions, and could be structured to be revenue neutral.

In terms of implementing a shift from six to four cylinder vehicles in the executive fleet, consideration for both financial and non-financial incentives and remuneration is required. Remuneration for public sector executives is established by government and managed by the Government Sector Executive Remuneration Panel (GSERP). The total remuneration package offered to executives includes cash salary, allowances, benefits, superannuation, and Fringe Benefits Tax (FBT). A revenue neutral approach to incentivising the shift would be to set a differential cost or benefit as an incentive for the selection of lower emission vehicle and a disincentive against the selection of vehicles with poor environmental performance. These types of incentives have been implemented successfully in a range of broader consumer markets from the ACT Government’s Green Vehicle Scheme to the French ‘bonus malus’ system. The differential in this instance could be the ratio of the employer: employee contribution to the vehicle, with a higher ratio for more efficient vehicles, and a lower ration for less efficient vehicles.

In addition to this, there could be an exemption from the Australian Vehicles Manufacturers Policy for vehicles which go beyond either best in class CO₂ emission performance or a set benchmark for emissions performance, providing more choice to executives. This could provide an option for executives to purchase a much more efficient version of an SUV or wagon if they require this type of vehicle for its utility, for example towing and extra space. Further incentives could be provided to drive this shift, such as preferential parking arrangements for more efficient vehicles. In the case of encouraging greater uptake of ultra-low or zero-emission vehicles in the executive fleet, both home and workplace charging infrastructure could be provided as part of the vehicle package, providing greater convenience for the driver. This could include, for example, providing the option of a Mitsubishi Outlander PHEV that has an emissions intensity of 44 gCO₂/km instead of a Ford Territory with an emissions intensity of 216 gCO₂/km, with both vehicles being at a similar price point.

Also, by providing an exemption to the Australian Vehicles Manufacturers Policy for executive vehicles, this provides greater options for premium executive models such as the Tesla Model S and the BMW i3. The additional cost for these premium vehicles would be borne by the staff member, beyond any incentive provided as per above.

In addition, greater adherence to the existing Executive Motor Vehicle Scheme could further optimise the current vehicles within the fleet. As a part of the Executive Motor Vehicle Scheme, outlined in the standard motor vehicle policy, executives as an employee benefit are provided a vehicle on a shared two-thirds private use and one-third business use basis. All government vehicles, including vehicles in the Executive Motor Vehicle Scheme, are to be made available in a pooling arrangement for operational use during normal business hours. Anecdotal evidence suggests however, that only a small proportion of vehicles within the executive fleet are made available for this purpose. If a higher proportion of executive vehicles are available during normal business hours, this could allow for a reduction in the number of operational vehicles required including the State Government Vehicle Pool, which includes 150 operational vehicles accessed through a commercial car hire type structure and managed by the Shared Service Provider from within the Department of Treasury and Finance. Noting however, that this recommendation would need to be implemented in conjunction with shifting the executive fleet from six to four cylinder vehicles as at this stage the executive fleet has a higher average emissions intensity than the operational fleet. With the executive fleet leading by example, it will help to ensure that the recent policy changes mandating that all operational passenger vehicles must now be four cylinder will be adhered to.

Implementation of a most efficient in class procurement policy for whole of Victorian Government for all new vehicle purchases. Current procurement policy requires that vehicle efficiency, safety rating, operational use and lifecycle cost should be taken into account when purchasing a new vehicle.

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60 Victorian Public Sector Commission (2015)
61 ACT Government (2015)
62 In 2008, the French government set up the bonus/malus system, an upfront financial incentive scheme aimed to increase the market uptake of efficient cars.
63 Department of Treasury and Finance (2015)
There is an opportunity for government to demonstrate leadership by changing the way it structures the fleet by prioritising vehicle efficiency when purchasing new vehicles. A most efficient in class procurement policy can be implemented based on current Australian made vehicles and with the cessation of Australian automotive manufacturing, from 2018 for all new vehicle purchases. As outlined in the analysis, the current range of Australian made vehicles available have efficiencies ranging from 121 gCO₂/km for the Toyota Camry Hybrid\textsuperscript{64} to 249 gCO₂/km for the Ford Territory\textsuperscript{65}. While the Standard Motor Vehicle Policy was amended in August 2015 to mandate that all operational passenger vehicles must be four cylinder, the efficiency of these vehicles still extends from 121 gCO₂/km for the Toyota Camry Hybrid to 206 gCO₂/km for the Ford G6E\textsuperscript{66}.

As a test case, the Department of Justice and Regulation implemented an internal policy mandating the purchase of most efficient in class or hybrid for all operational vehicles, with an exemption from this policy requiring prior approval. The implementation of this policy has seen the Department of Justice and Regulation improve the average CO₂ emissions intensity across its fleet to 158 gCO₂/km, which is the second most efficient across all departments, and while keeping average lease costs for its four cylinder vehicles only slightly above the average across all departments. This approach could be adopted across all departments and agencies, with the requirement for a business case to be put forward for exemption. This approach could be phased in as a requirement on a percentage of new vehicles purchased, increasing over time.

The impact of this would be greater if applied to both operational and executive fleet procurement. A centralised approved list of vehicles providing a range of vehicle choices within each vehicle category developed and approved by Department of Treasury and Finance, and updated based on changes to vehicle availability would support good decision making.

Given the current policy to shift from six cylinder to four cylinder vehicles in the operational fleet there is an opportunity to move to best in class four cylinder vehicles at a net cost saving to government, as on average the most efficient four cylinder vehicles are cheaper than the average six cylinder vehicle.

\textsuperscript{64} Including the Toyota Camry Altise Hybrid, Camry Atara S Hybrid and Camry Atara SL Hybrid

\textsuperscript{65} Including the Ford Territory Titanium RWD and Territory TS RWD

\textsuperscript{66} Department of Treasury and Finance (2015)
Increase the range of efficient vehicles available for procurement by amending the Australian Vehicle Manufacturers Policy ahead of the cessation of Australian automotive manufacturing at the end of 2017. With Australian automotive manufacturing proposed to cease by the end of 2017, the Australian Vehicle Manufacturers Policy will be obsolete and alternative vehicle procurement guidelines will be required. An opportunity exists to provide an immediate exemption from the Australian Vehicles Manufacturers Policy for vehicles that can go beyond best in class CO₂ emission performance or a set benchmark for emissions performance. This can be implemented prior to the cessation of manufacturing to result in improved efficiency and will serve to trial alternative vehicles in the Victorian Government Fleet. There is a precedent for this approach with the previous exemption of the Toyota Prius from an emissions perspective.

Ideally this exemption would apply to the entire fleet, both operational and executive, and include a pre-determined list of non-Australian vehicles for procurement. However, this exemption could be targeted exclusively towards executive fleet, to incentivise the shift from high emissions intensity six cylinder vehicles to low emissions alternatives. It could also be structured to include non-Australian made vehicles primarily purchased from the three remaining automotive manufacturers Ford Motor Company, GM Holden and Toyota Motor Corporation.

This approach would most likely result in cost savings being achieved, as it provides greater choice in vehicle models to achieve emission reductions.

Introduce electric vehicles into the fleet and extend the lease terms to accommodate ultra-low or zero-emission vehicles. Electric vehicles provide a significant medium to long term opportunity to reduce emissions from the fleet as their costs continue to decrease and their functionality increases. In the short term the Victorian Government has an opportunity to be an early adopter of the currently available electric vehicles to help drive the uptake so that Victorian consumers can benefit from greater choice and lower costs.

The introduction of electric vehicles specifically into the executive fleet could be a practical example, due to the use profile of executive fleet where there is generally a higher proportion of shorter round trips with the opportunity to charge vehicles at home or the office. A further study looking at operational use of vehicles is required to help determine potential uptake rates of electric vehicles, which could be provided by a range of electric vehicle service providers. By taking this targeted approached, electric vehicles could be introduced to the fleet and provide cost savings.

A number of the previous recommendations will also provide for increased uptake of electric vehicles in the fleet, such as incentives for executive fleet, and providing exemptions from the Australian Vehicle Manufacturers Policy.

Procurement of electric vehicles requires consideration of an amendment to the lease terms extending it beyond the current 3 year or 60,000km term in response to differing short-term economics and depreciation. Evidence suggests that longer lease terms are better suited for electric vehicles, with the resale value being maintained over a longer period of time, without greater maintenance issues due to fewer moving parts in an electric engine. There is also historical evidence of this type of policy change, when lease terms were amended from two to three years to accommodate the purchase of the Toyota Prius.

Implementation of a whole of Victorian Government Safety and Eco-Driving scheme. Efficiency gains can be achieved by targeting driver behaviour and more efficient driving. A whole of Victorian Government education program delivered by a central provider focusing on both safe and efficient driving skills could be implemented with the aim that it would be a requirement for all drivers of fleet vehicles. The scheme would be crucial to achieving emission reductions, and also allow for familiarisation with new vehicle technologies and the introduction of ultra-low and zero-emission vehicles. There could be a focus on ways to reduce travel demand by educating staff on public transport and video conferencing options available, and could be structured in a number of ways, potentially incorporating regional and metro training.

There are a range of service providers available and some governments are developing their own programs. A grouping of local governments for example in Melbourne’s south east through the South East Council Climate Change Alliance have developed and delivered an eco-driving program targeting council staff. A similar model could be adopted for the whole of Victorian Government, factoring in the previously developed eco-driving program that was developed by the Victorian Government but not implemented.
Introduction of a range of measures to reduce overall fleet costs and achieve greater optimisation. Analysis demonstrated a range of measures to reduce overall fleet costs including reducing the total number of kilometres travelled, reducing the overall fleet size, potential digital platforms allowing for better sharing and utilisation of assets within government, or introducing greater competition into the leasing process. In addition, an education program as outlined above could assist in reducing the actual travel requirements and encouraging mode shift to active and public transport.

Other approaches could also include collaboration with private sector and investigation into the establishment of a second-hand market for lower emission vehicles which would contribute to a reduction in depreciation. With the high turnover of vehicles leased by the Victorian Government, there are significant efficiency gains and fuel savings which are likely to have impact as more efficient vehicles are resold into the second-hand market. The ability to create second-hand markets has been demonstrated previously with the purchase of Toyota Camry Hybrid’s, which have made hybrid vehicles an affordable and obtainable choice for those purchasing a second-hand vehicle, and in particular the taxi industry. The Victorian Government could use its purchasing power and networks with industry to establish a reliable second hand market for low emission vehicles, to help increase resale values and reducing depreciation. Savings achieved through overall cost reductions and fleet optimisation could offset any additional costs associated with more efficient vehicles.

South Australian Government Low or Zero-Emission Vehicle Fleet

The South Australian State Government is investigating opportunities to convert the current vehicle fleet to low or zero-emission vehicles.

On 27 November 2015, the South Australian Minister for Energy Tom Koutsantonis, announced a new expression of interest process to seek proposals regarding the cost effective supply, maintenance and fuelling of motor vehicles with low or zero-emissions.

Not only will the expression of interest seek information about low or zero-emission technologies, it will also focus on achieving cost savings for taxpayers and developing opportunities to create additional jobs and economic activity through the provision of hybrid and electric vehicles.

NSW Government StateFleet Review

On 28 August 2015, the NSW Government announced a new model to manage the state’s vehicle fleet, including competitive sourcing from the private sector and leveraging the collaboration economy. Rather than a single government-owned fleet, the new model will see a fleet manager engaged by each agency to deal directly with a separate panel of vehicle leasing companies. The existing fleet will be wound down over time, and it is expected that the new model will free up approximately $1 billion in capital over the next four years.

StateFleet currently includes over 22,000 passenger and light commercial vehicles at an annual cost to taxpayers of around $240 million.

The Government accepted recommendations from a 2014 PricewaterhouseCoopers review that competition should be introduced in fleet leasing and management services, and a trial of car-sharing services conducted as an alternative to government pool cars.


