



Commissioner
for Environmental
Sustainability
Victoria



Strategic Audit

Implementation of environmental management systems in
Victorian Government 2016-17

Published by the Commissioner for Environmental Sustainability, Melbourne, Victoria, January 2018
© The State of Victoria, Commissioner for Environmental Sustainability 2018.

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Printed on recycled paper.

Authorised by the Victorian Commissioner for Environmental Sustainability, Level 36,
2 Lonsdale Street, Melbourne, Victoria 3000.

For further information email the Office of the Commissioner for Environmental Sustainability at info.ces@ces.vic.gov.au or visit www.ces.vic.gov.au.

Disclaimer:

This report may be of assistance to you and every effort has been made to ensure that the information provided is correct. It is based largely on data and information provided by the Victorian Government. The Commissioner for Environmental Sustainability does not guarantee that the report is without flaw of any kind or is wholly appropriate for your purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Traditional Owners

The Office of the Commissioner for Environmental Sustainability proudly acknowledges Victoria's Aboriginal community and their rich culture and pays respect to their Elders past and present. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.



Contents

Abbreviations.....	2
Executive Summary	3
Performance at a glance.....	8
Performance summary 2016-17.....	9
Method	10
Background.....	10
Data integrity.....	11
Limitations of the report	11
Results	13
Greenhouse gas emissions	13
Energy use	17
Office	17
GreenPower.....	18
Transport energy and usage.....	19
Waste.....	27
Paper use	29
Water use	31

Abbreviations

CES	Commissioner for Environmental Sustainability
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
DET	Department of Education and Training
DHHS	Department of Health and Human Services
DJR	Department of Justice and Regulation (Victoria)
DPC	Department of Premier and Cabinet (Victoria)
DTF	Department of Treasury and Finance (Victoria)
EMS	Environmental Management System
EPA	Environment Protection Authority (Victoria)
FRD	Financial Reporting Directive
FTE	Full Time Equivalent
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
SV	Sustainability Victoria

Dr Gillian Sparkes
Commissioner for
Environmental Sustainability



Executive Summary

I am pleased to present the 2018 strategic audit on the implementation of environmental management systems (EMS) by mandated Victorian Government agencies. This audit for the 2016-17 financial year is based on annually reported information provided by all Victorian Government departments, Sustainability Victoria (SV) and the Environment Protection Authority Victoria (EPA) according to the mandatory reporting requirements described by Financial Reporting Directive (FRD) 24C. The directive applies minimum criteria for government to report its office based emissions.

In my three previous Strategic Audit reports I have taken the opportunity to reflect on the currency and relevance of the FRD 24C reporting framework (last updated in 2008) and note that the minimum reporting criteria for departments and agencies requires updating to capture more contemporary information. For example, last year I highlighted the limitations of the current reporting framework for greenhouse gas (GHG) emissions. The scope of reporting on GHG emissions by government departments in annual reports exceeds that mandated by FRD 24C further indicating that the directive is only capturing a small proportion of available data. For the 2016-17 financial year only 9 percent of GHG emissions reported by mandated agencies were required under FRD 24C.

It is encouraging that agencies collect and report performance data that includes the footprint of their operations far beyond their office-based facilities and that required by FRD 24C. However, because the scope of reporting is outside that mandated by the FRD and is inconsistent across financial years and/or departments, it is difficult to monitor or comment on trends. For example, the Department of Health and Human Services (DHHS) report GHG emissions from hospital facilities well beyond the FRD reportable emissions of the department's office based activities. To emphasise this point, Figure 1 shows extent of reporting beyond FRD 24C achieved by DHHS compared with other agencies. As the Commissioner I am unable to determine whether the scope of reporting is consistent between years for any reporting outside the FRD.

In August 2017 I was delighted to receive written advice from the Hon Minister Lily D'Ambrosio MP indicating that she has written to the Minister for Finance, Hon Robin Scott MP seeking support for the departments (Department of Treasury and Finance and Department of Environment Land Water and Planning) to work on either updating FRD 24C or supplementing it with a fit for purpose FRD that will properly account for the actions being undertaken across government to reduce emissions. The Climate

Change team in DELWP are leading this work, which commenced in 2017 with a review of corporate environmental reporting. Recommendations of that review concur with the observations made in my first Strategic Audit report (2015) and include:

- Adopt the Global Reporting Initiative (GRI) as the standard corporate environmental reporting framework.
- Update FRD 24C, as it no longer reflects best practice in corporate environmental reporting.
- Investigate if GRI is fit for purpose for Victorian Government department and agency reporting requirements in its entirety, or if GRI should be used to inform a custom corporate environmental reporting framework, such as those seen in NSW and ACT.
- Investigate the potential for DELWP’s energy, waste, water and emissions data to be centralized to allow for a streamlined corporate environmental reporting process.

I am hopeful that significant improvement to the reporting framework will be made before next year’s Strategic Audit report. However, this audit remains consistent with previous reports, using the same method of analysis and using mandated data as per FRD 24C.

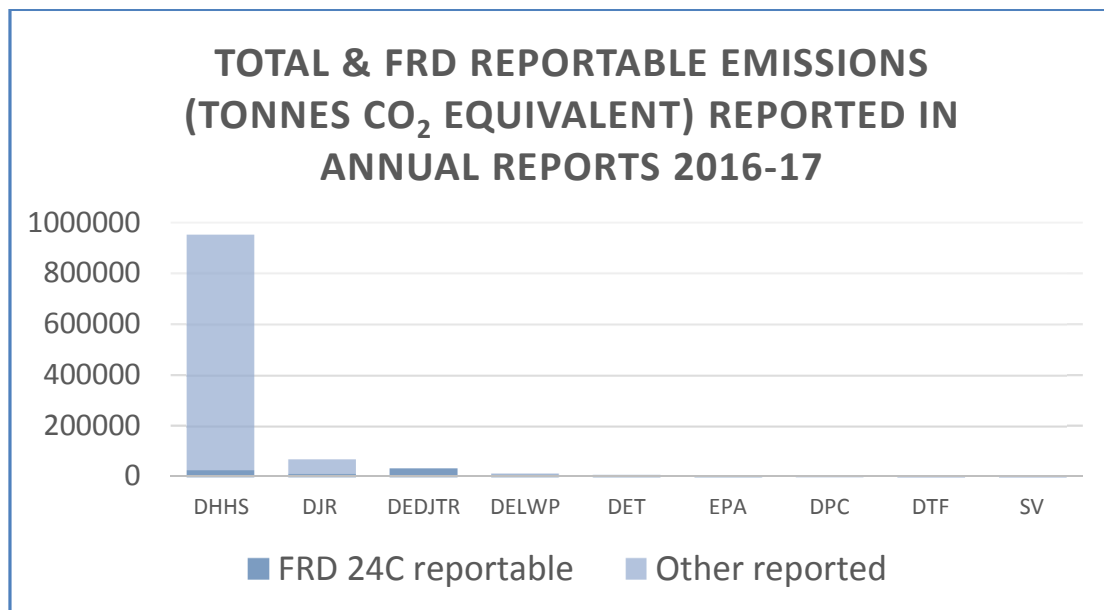


Figure 1: GHG emissions reported in agency annual reports 2016-17

Table 1 below summarises differences in the scope of agency reporting.

Table 1: Differences in the scope of agency reporting

Department/entity	
DEDJTR	Report beyond FRD 24C & cannot readily separate out FRD 24C data for 2016-17
DHHS	Report beyond FRD 24C & can separate out FRD 24C data for 2016-17
DELWP	Report beyond FRD 24C & can separate out FRD 24C data for 2016-17
DJR	Report beyond FRD 24C & can separate out FRD 24C data for 2016-17
DET	Report FRD reportable emissions only
EPA	Report FRD reportable emissions only
DPC	Report FRD reportable emissions only
DTF	Report FRD reportable emissions only
SV	Report FRD reportable emissions only

Further information on GHG emissions can be found in the **Results** section.

Many agencies have achieved significant progress through consistent implementation of targeted programs. Amongst many examples, the Department of Justice's largest tenancy, 121 Exhibition Street Melbourne has achieved a National Australian Built Environment Rating System (NABERS) energy rating of 4.5 out of 5 stars. In addition, compostable material going to landfill dropped 29 per cent by weight over two years. The Department of Health and Human Services is commencing the installation of 184 solar panels at 50 Lonsdale St Melbourne, generating approximately 50 kilowatts of electricity per year. and the department has also implemented new general housing design guidelines that stipulate efficient all-electric dwellings (with heat pumps), and minimum seven star Nationwide House Energy Rating Scheme (NatHERS) rating with solar panels, where feasible, for all new Director of Housing general housing properties.

The **performance at a glance** summary section of this report shows agency performance for 17 indicators as compared with 2015-16. Nine of the 17 indicators were either improved or maintained.

The significant areas of improvement from last year include total GHG emissions, office and passenger vehicles emissions, the proportion of green energy used, quantity of waste generated, and water use per full time equivalent (FTE) staff member.

Comparison with base year - eleven of the 17 indicators either showed improved or maintained results since 2009-10.

Pleasingly, total waste produced decreased by 35percent from the base year 2009-10, and the waste produced per FTE is down 30 percent. Victorian Government agencies are producing significantly less waste overall, less waste per person but are recycling less effectively. The proportion of 100 percent recycled paper used has increased to over 80 percent through a State purchase contract. The improved availability of locally manufactured, recycled paper has contributed to this increase (figure 18).

Of note is the return to purchasing green energy after a continuous decline since 2010-11. Four percent of energy was green energy in 2016-17.

Outside the scope of this report I am aware of initiatives to increase renewable energy use. For example, Melbourne's trams will form an important contribution to the TAKE2 emissions reduction pledge program (discussed below). Government will voluntarily surrender a quantity of renewable energy certificates matching the total electricity usage of Melbourne's tram network. This will lead to reductions of approximately 80,000 tonnes of GHG each year.

The areas where performance has significantly deteriorated since 2009-10 are emissions from office based activities, waste emissions, waste recycling rate, total energy use, and proportion of green energy used. Of these, office emissions, waste emissions, and total energy use are the result of the size of government office based operations- staff number and office area, rather than a deterioration in efficiency.

The Victorian Government has continued improving the environmental performance of its passenger vehicle fleet.

As reported in this audit, no electric vehicles have been included in the fleet since 2014-15. An interdepartmental Electric Vehicle (EV) working group has now been established and is being led by DEDJTR. In addition, Parliament has established a committee to consider and report on the benefits of EVs by 29 March 2018.

A new vehicle selection policy was established in October 2017 due to the end of Australian vehicle manufacturing. The Standard Motor Vehicle Policy (SMVP) has been amended and the requirement to purchase Australian manufactured vehicles has been replaced with the requirement to purchase vehicles from an approved vehicle list (AVL). The vehicles on the AVL have been selected on safety, value for money and environmental performance. Four cylinder vehicles have been mandated, and the exemption for wagons has been removed as there is a range of 4-cylinder wagons available on the AVL.

I would like to thank Dr Vanessa Johnston of Monash University for providing informed comment on the drivers for transitioning to low carbon transport. I am reassured by Dr Johnston's optimism that, "By using a combination of measures, building on those already implemented to date, the Victorian Government can continue existing trends to improve the environmental performance of its vehicle fleet."

TAKE2 first anniversary update

I have taken the opportunity in this report to include the implementation statistics for the first year of the TAKE2 program. TAKE2 is Victoria's collective climate change pledge initiative to reach net zero emissions by 2050, and keep the global temperature rise to under two degrees. The pledging model is established by the *Climate Change Act 2017* and aims to support emissions reduction across government operations and across the economy.

The data provided by Sustainability Victoria (SV) shows that the interest and uptake to the program has been remarkable. The reach of TAKE2 now extends to more than 75,000 individual actions through pledges; TAKE2 local governments cover more than 64 percent of Victoria's population; TAKE2 businesses employ more than 342,000 staff across Australia; TAKE2 community organisations represent more than 187,000 members; and the combined annual turnover of all TAKE2 members represents at least \$247 billion across Australia. Such a high level of involvement in the TAKE2 program is encouraging and can only help reduce not just Victoria's but Australia's GHG emissions.

Evaluating the impact of TAKE2 on GHG emission reductions is critical. Sustainability Victoria advise that a monitoring and evaluation framework is currently under development and due in 2018.

I would like to take this opportunity to again thank the departmental environmental coordinators for their important contribution to the development of this report

I am honoured to be Victoria's Commissioner for Environmental Sustainability and to report on the progress of the public sector to improve its environmental footprint. I am also encouraged by the commitment of the Victorian Government departmental leaders to their GHG reduction pledges and consequently, their departments actively participating in climate action.

Finally, I am encouraged, and look forward to, the ongoing leadership of DELWP during 2018 to improve the efficacy of the mandatory environmental reporting framework, FRD 24C.








Dr Gillian Sparkes

Commissioner for Environmental Sustainability




January 2018

Performance at a glance

Table 2: Indicator trends compared with the base year of 2009-10 and the previous year 2015-16.

Indicator	% change vs base yr* 2009-10 to 2016-17		% change in past yr* 2015-16 to 2016-17	
Total greenhouse gas emissions (tonnes CO ₂ equivalent)	0		-8	
Office emissions (tonnes CO ₂ equivalent)	+18		-11	
Transport emissions vehicles (tonnes CO ₂ equivalent)	-17		-5	
Transport emissions air travel (tonnes CO ₂ equivalent)	-59		+13	
Waste emissions (tonnes CO ₂ equivalent)	+43		+9	
Total energy use (megajoules)	+12		-2	
Greenenergy office (megajoules)	-83		+1526	
Energy intensity office (megajoules/m ²)	+1		0	
Transport-passenger vehicle use (kms)	-8		+6	
Transport-air travel (kms)	-36		+7	
Total waste produced (tonnes)	-35		-3	
Waste recycling rate (%recycled by tonnes)	-13		-3	
Waste per FTE (kg/FTE)	-30		-5	
Total paper use (reams)	-19		+5	
Paper use per FTE (reams/ FTE)	-16		+1	
Total water use (litres)	-4		+3	
Water use per FTE (litres/FTE)	-3		-7	

* % rounded to whole number

Improvement		No significant change		Deterioration	
-------------	---	-----------------------	---	---------------	---

Performance summary 2016-17

The performance of mandated government agencies for 11 of 17 indicators improved and one remained unchanged (total GHG emissions) in the eight years since the base year of 2009-10.

- The long-term changes of significance include;
 - improvements in passenger vehicle (fewer kms travelled and lower emitting vehicles) and air travel (fewer kms travelled) GHG emissions which have been offset by an increase from office based emissions (linked to increased floor area to accommodate an increase in FTE),
 - green energy remains a very low proportion of power purchased when compared to 2009-10 (a drop of 83%),
 - waste generated per FTE is 30% lower however the waste recycling rate has deteriorated by 13% since 2009-10,
 - total paper use and use per FTE are 19% and 16% down on 2009-10, and
 - water and water use per FTE are marginally down on 2009-10, 4% and 3% respectively.

Since the last reportable year 2015-16, 9 of 17 indicators improved and one remained unchanged.

- Significant changes on last year include;
 - total, office and passenger vehicles emissions improved (8%, 11% and 5%) while both air travel kms and emissions from waste deteriorated (7% and 3%),
 - the proportion of green energy used has reversed the long term downward trend achieving 4% compared to 0.2% last year,
 - vehicle and air travel kms increased (6% and 7%),
 - waste generated per FTE improved (3%) but the recycling rate continued to deteriorate (3%),
 - paper use and paper used per FTE increased marginally (5% and 1%), and
 - water use increased marginally (3%) while water use per FTE improved (7%).

Method

Background

Since 2003, Victorian Government departments,¹ the EPA and SV – referred to collectively as ‘entities’ – have been required to implement environmental management systems (EMS). This requirement was introduced with an office-based focus, modelled on the ISO 14001 standard² and enabled by the FRD 24C.³ Section 18 of the *Commissioner for Environmental Sustainability Act 2003*⁴ (CES Act) requires that not later than 31 January each year, the Commissioner for Environmental Sustainability (the Commissioner) must report to the Minister for Energy, Environment and Climate Change on ‘the implementation of environmental management systems by agencies and public authorities’. Agencies are determined by the Victorian Government, as set out in section 18 (2) a of the CES Act.

This Strategic Audit presents environmental performance and analysis for the 2016-17 period, as provided to the Commissioner or obtained from annual reports, in general accordance with FRD 24C⁵ and consistent with section 18 of the CES Act.

The Victorian Government’s FRD 24C sets minimum reporting requirements for office-based activities with environmental impacts, including:

¹ Applies to all entities as defined in part (a) of the definition of ‘department’ under section 3 of the *Financial Management Act 1994* (FMA) and to the environmental agencies (EPA and SV) referred to in FRD 24C as ‘entities’. Other public-sector entities are encouraged to adopt the requirements of this FRD to their annual reports.

² ISO 14001 is the recognised international voluntary standard that sets generic requirements for preparing an EMS. An organisation must prepare an EMS that identifies and controls the environmental impact of its services and products, continually improves its environmental performance and implements a systematic approach to setting, achieving and monitoring progress towards meeting environmental objectives and targets.

³ Victorian Department of Treasury and Finance, *FRD 24C Reporting of office-based environmental data by government entities*, Melbourne, 2007. Available at: <http://www.dtf.vic.gov.au/Publications/Government-Financial-Management-publications/Financial-reporting-policy/Financial-reporting-directions-and-guidance>.

⁴ *Commissioner for Environmental Sustainability Act 2003*. Available at: <http://www.ces.vic.gov.au/sites/default/files/publication-documents/CES%20Act%202003.pdf>

⁵ Includes Department of Education and Training; Department of Premier and Cabinet, Department of Justice and Regulation, Department of Treasury and Finance, Department of Environment, Land, Water and Planning, Department of Health and Human Services and Department of Economic Development, Jobs, Transport and Resources; Environment Protection Authority Victoria and Sustainability Victoria.

- **GHG emissions** – those associated with building energy use, vehicle fleet use, air travel and waste production (any offsets purchased are also reported)
- **energy use** – stationary energy: building consumption such as electricity (including GreenPower), natural gas, liquefied petroleum gas, heating oil, diesel and solid fuel
- **transportation** – vehicle fleet energy use and air travel
- **waste production** – waste to landfill, waste sent for recycling and composted waste
- **paper use** – paper used for printing and photocopying
- **water consumption** – domestic water use, rainwater and reused water
- **procurement** – a discussion of whether and how procurement activities are environmentally responsible.

The FRD 24C requires nominated agencies to measure and report both relative resource use (efficiency or intensity indicators such as *energy consumption per floor area or per number of FTE employees, or greenhouse gas emissions per kilometres travelled*), as well as total resource use or ‘absolute’ consumption such as *total energy use or total greenhouse gas emissions*.

Data integrity

All figures provided to the Commissioner are verified in annual reports where available. As in previous years, and in some cases, agencies revised previous year’s data (that is, compared with that presented in the Commissioner’s 2015-16 Strategic Audit) in line with the final billing cycle data and/or data corrections. This Strategic Audit reflects the latest data consistent with the latest annual annual reports.

Result summaries and text generally refer to figures rounded to a whole number. Charts and other data visualisation may include results shown to one decimal place.

Limitations of the report

Following the Victorian state election in November 2014, and the appointment of a new government, several machinery-of-government changes were made to the Victorian Public Sector commencing 1 January 2015. These are in addition to several significant changes to the machinery-of-government and make-up of reporting entities since the introduction of the CES Act in 2003 and the phased introduction of FRD 24C from 2007.

The net effect of these changes, introduced to meet the policy objectives of successive governments, is that it is difficult to consistently track and compare EMS data for a given department or entity.

As with previous Strategic Audits, this report uses data from across the mandated departments and entities as provided to the Commissioner and/or published in annual reports.

For this report, the relative performance over the past 24 months (that is, from 2014-15 to 2016-17) is considered more consistent because department configuration remained relatively stable since the machinery-of-government changes of 1 January 2015.

Some departments now have better processes to separate out FRD 24C mandated data. Audit report data has been kept consistent with previous years within the year on year comparison charts and commentary. The reader should note that, based on historical reporting and for consistency, data for DELWP and DEDJTR is inclusive of their total reported emissions whereas DHHS and DJR is not.

The Commissioner recognises the need for reporting consistency across agencies by having a mandated direction that includes all Victorian Government agencies, their facilities and their FTE staff numbers. This change would provide a more complete picture, rigorous enough to measure meaningful performance trends over time.

Intensity measures are important for monitoring the environmental performance of agencies given government staff numbers (FTE) and office space can materially increase and decrease over time.

The Commissioner supports and commends all measures agencies take to improve the accuracy and understanding of the impact of changes in FTE, office floor area and methods of measurement as they relate to the environmental performance of the entities.

Results

Greenhouse gas emissions

Energy use in office buildings was the largest contributor to office based GHG emissions, accounting for 75% of emissions in 2016-17 (Figure 2). Emissions from vehicle use and air travel accounted for 19% and 5% respectively and office-based waste accounted for less than 1% of total emissions. Allowing for rounding the proportions are the same as in 2015-16.

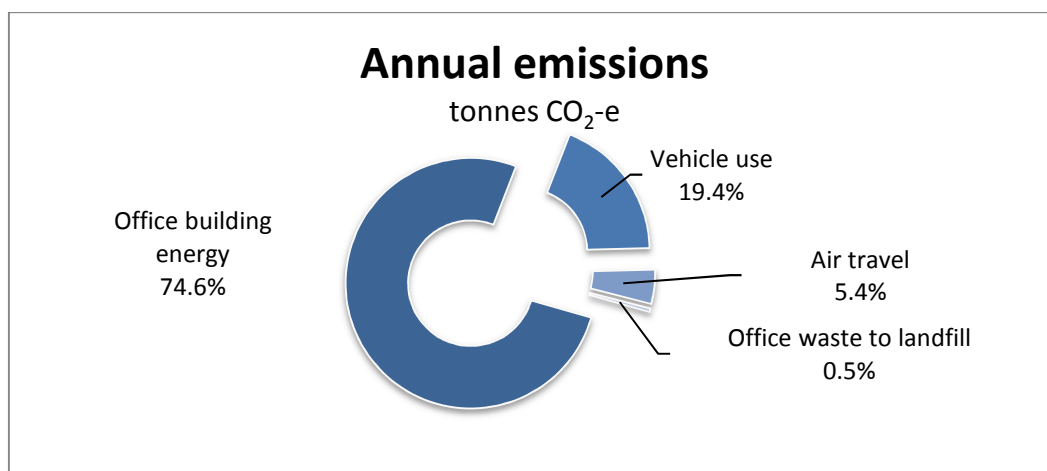


Figure 2: Proportion of GHG emissions by source¹

Table 3: Percent change in greenhouse gas emissions by source

Indicator	% change vs base yr* 2009-10 to 2016-17	% change vs past yr* 2015-16 to 2016-17
Total greenhouse gas emissions (tonnes CO ₂ equivalent)	0	-8
Office emissions (tonnes CO ₂ equivalent)	+18	-11
Transport emissions vehicles (tonnes CO ₂ equivalent)	-17	-5
Transport emissions air travel (tonnes CO ₂ equivalent)	-59	+13
Waste emissions (tonnes CO ₂ equivalent)	+43	+9

¹ The multiplier used to calculate air travel emissions was revised in 2011-12. Consequently, emissions before 2011-12 appear to be overestimated. DEDJTR and DELWP emissions data used in the aggregate emissions data includes non FRD 24C reportable data and DHHS and DJR does not include non FRD 24C data for historic comparison purposes.

Based on using the same methodology as has been applied in the past reports, there has been no change in the total reported GHG emissions from Victorian Government mandated agencies when compared to 2009-10 (Figure 3). Total emissions decreased by 8% since the past reportable year.

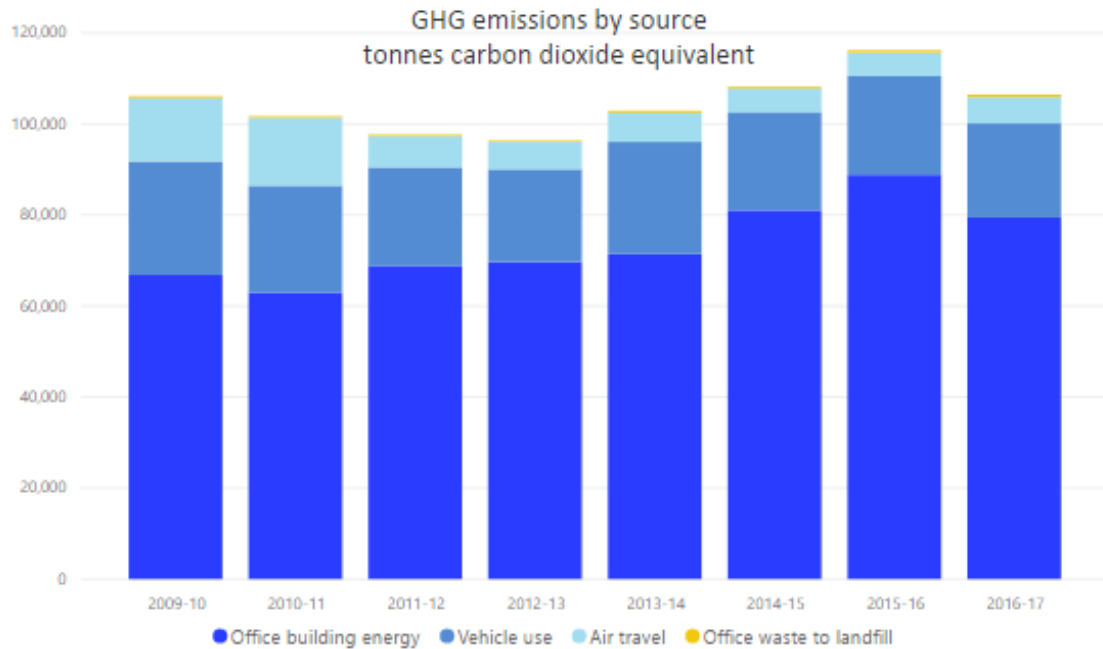


Figure 3: GHG emissions by source¹ since 2009-10

Figure 4 presents the percentage change against the base year of 2009-10 for each emission source (office energy, vehicles, air travel, office waste) below. Similarly, figure 5 presents the percentage change in the past year.

¹ The multiplier used to calculate air travel emissions was revised in 2011-12. Consequently, emissions before 2011-12 appear to be overestimated.

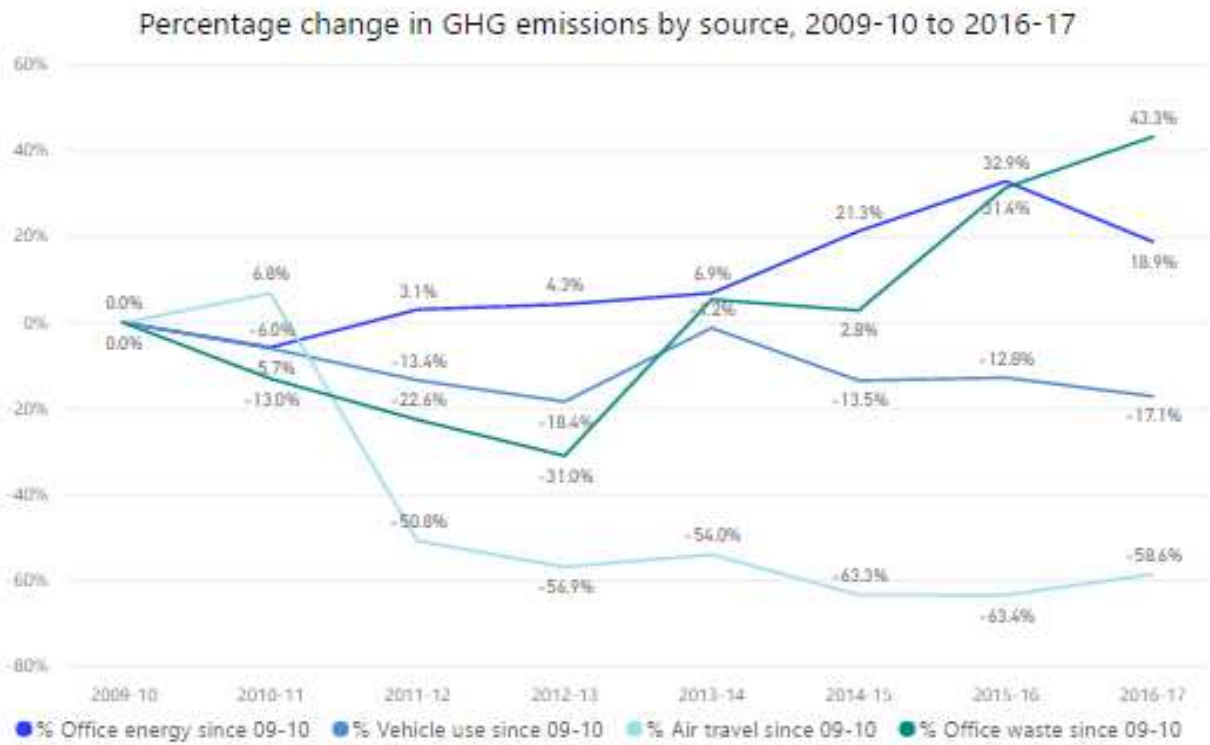


Figure 4: Percentage change in greenhouse gas emissions by source, 2009-10 to 2016-17

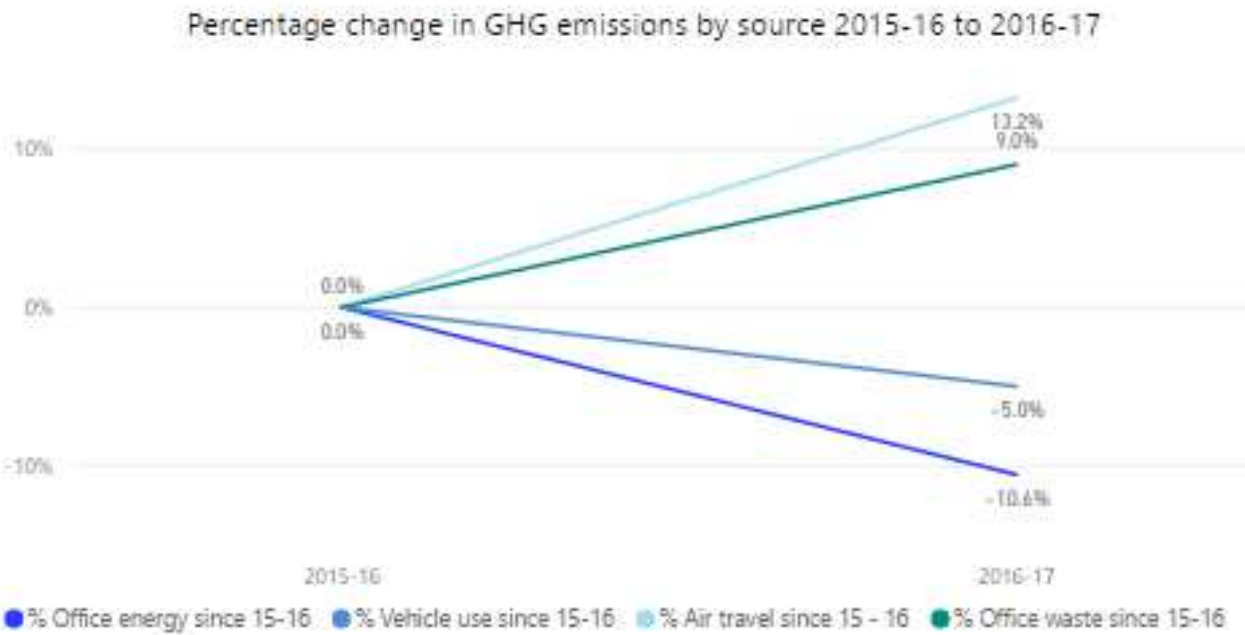


Figure 5: Percentage change in greenhouse gas emissions by source, 2015-16 to 2016-17

By agency, DHHS has the highest office emissions. Figure 6 below indicates that DEDJTR is higher however DEDJTR was not readily able to segregate FRD 24C data for this report.

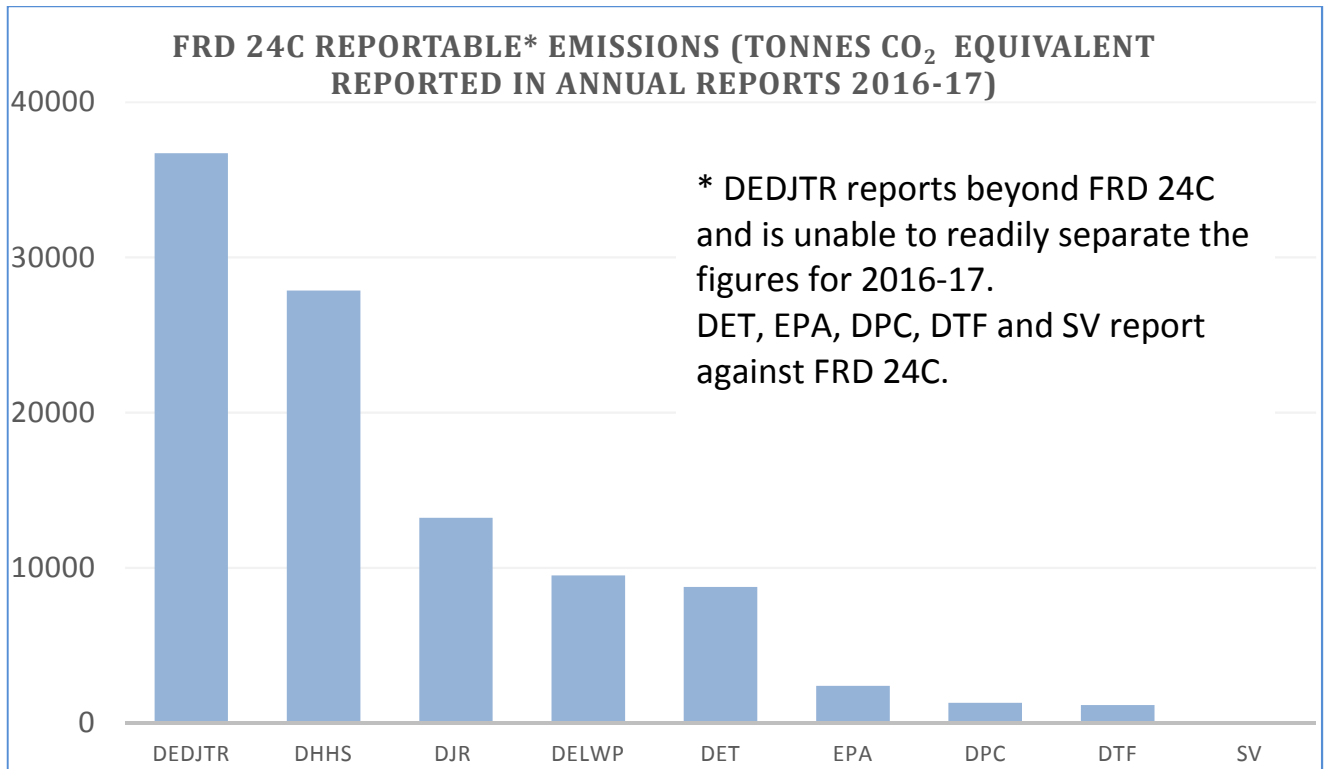


Figure 6: FRD 24C reportable emissions (tonnes CO₂ equivalent reported in annual reports 2016-17

Energy use

Office

Table 3: Percent change in office energy use

Indicator	% change vs base yr* 2009-10 to 2016-17	% change in past yr* 2015-16 to 2016-17
Total energy use (megajoules)	+12	-2
Green energy use office (megajoules)	-83	+1526
Energy intensity office (megajoules/m ²)	+1	0

Energy use in office buildings includes heating, ventilation, air conditioning, water heating, appliances, lighting and installed equipment such as computers. The most common energy sources contributing to this data are electricity and natural gas.

Despite total energy used increasing by 12% from the base year (2009-10) there was a fall of 2% in the past 12 months and energy usage per square metre of office space remained static.

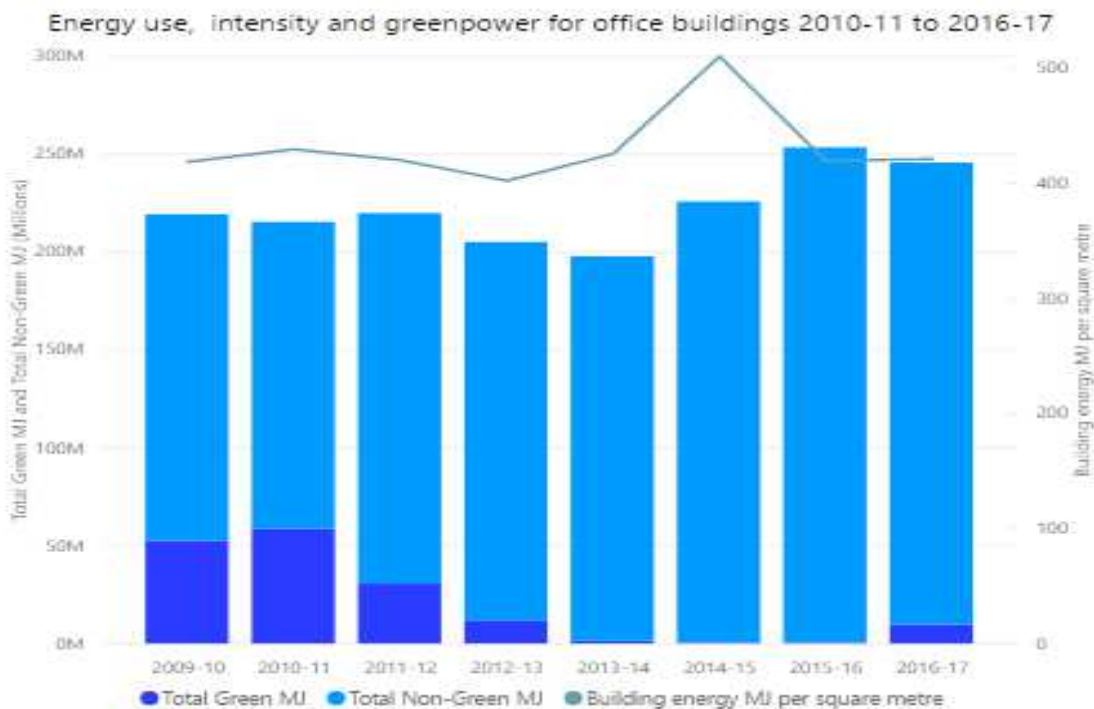


Figure 7: Energy use, intensity and GreenPower purchased for office buildings, 2009-10 to 2016-17¹

¹ The figure includes DELWP's large ongoing research component at many of its sites (accounting for a significant portion of overall energy consumption) and EPA's electricity and gas use in all offices, electricity consumed by its laboratories and air monitoring stations, and a portion of base building consumption for shared buildings.

GreenPower

A portion of electricity purchased by Victorian Government agencies includes renewable sources or GreenPower. GreenPower generates less pollution than power from fossil fuels and contributes no net increase in GHG emissions, so the higher the proportion of green energy purchased, the lower the GHG emissions for the same quantity of energy consumed.

Electricity purchased as GreenPower reduced from a high of 27% in 2010-11, exceeding the 25% whole-of-government target set for 2010-11 (figure 8).¹ The rate was 0.2% last year rising to 4% in 2016-17.

Change in electricity purchased as GreenPower 2010-11 to 2016-17

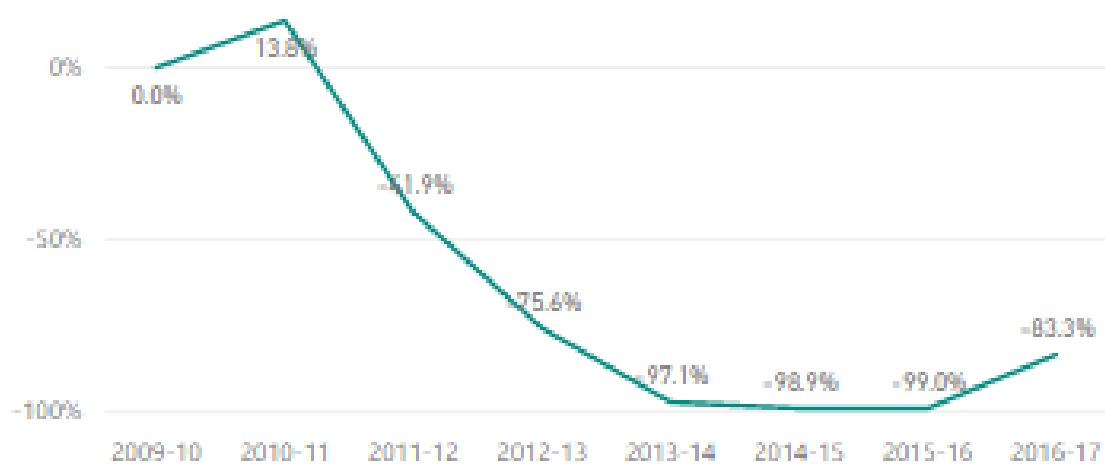


Figure 8: % change in electricity purchased as GreenPower, 2009-10 base year to 2016-17

It is an acknowledged limitation of this report that initiatives such as the government voluntarily surrendering a quantity of renewable energy certificates matching the total electricity usage of Melbourne's tram network leading to reductions of approximately 80,000 tonnes of greenhouse gas emissions each year is not captured in this data.

¹ Guidance for FRD 24C Reporting 2008.

Transport energy and usage

To remain consistent with FRD 24C, transportation usage is reported by GHG emissions (refer to GHG section for passenger vehicles and air travel emissions), energy consumption (vehicles), vehicle fleet composition, vehicle travel distance and air travel distance. The data for travel distance is required to determine emissions and is a useful metric to track overall usage patterns over time. This section reports on the vehicle fleet energy consumption, passenger fleet composition, vehicle travel distance and air travel distance.

Table 21: Percent change in transport indicators

Indicator	% change vs base yr* 2009-10 to 2016-17	% change in past yr* 2015-16 to 2016-17
Passenger vehicle energy consumption (MJ)	-18	-6
Land travel distance (passenger fleet vehicles) (kms)	-8	+6
Air travel distance (kms)	-36	+7

(i) Passenger fleet energy and usage

Passenger vehicle energy consumption reduced by 18% since 2009-10 to 2016-17 and 6% since last year. While the passenger vehicle energy consumption dropped by 6% over the past 12 months, the land distance travelled increased by 6%, supporting an improved vehicle energy efficiency across this segment of the Victorian Government fleet.

Victorian Government passenger vehicle use (measured in kilometres) reduced by 8% when compared with 2009-10. Variations from year to year can be influenced by actual numbers of vehicles in the fleet and/or more efficient travel. The vehicle distance travelled increased by 6% from 2015-16 to 2016-17 while the fleet size increased by less than 1% supporting the continued improvement trend in fuel vehicle efficiency.

Changes in reporting processes make comparisons over time difficult. For example, in 2013-14, the then Victorian Department of Environment and Primary Industries expanded reporting to include all operational vehicles (passenger, two- and four-wheel drive utilities) accounting for an increase in that year. In addition to more vehicles being captured in the 2013-14 data, four-wheel drive utilities account for a significant proportion of vehicle kilometres and contribute comparatively higher CO₂ emissions. Similarly, from the 2014-15 period, the DJR passenger fleet data excluded judiciary vehicles, after Courts Services Victoria was created on 1 July 2014.

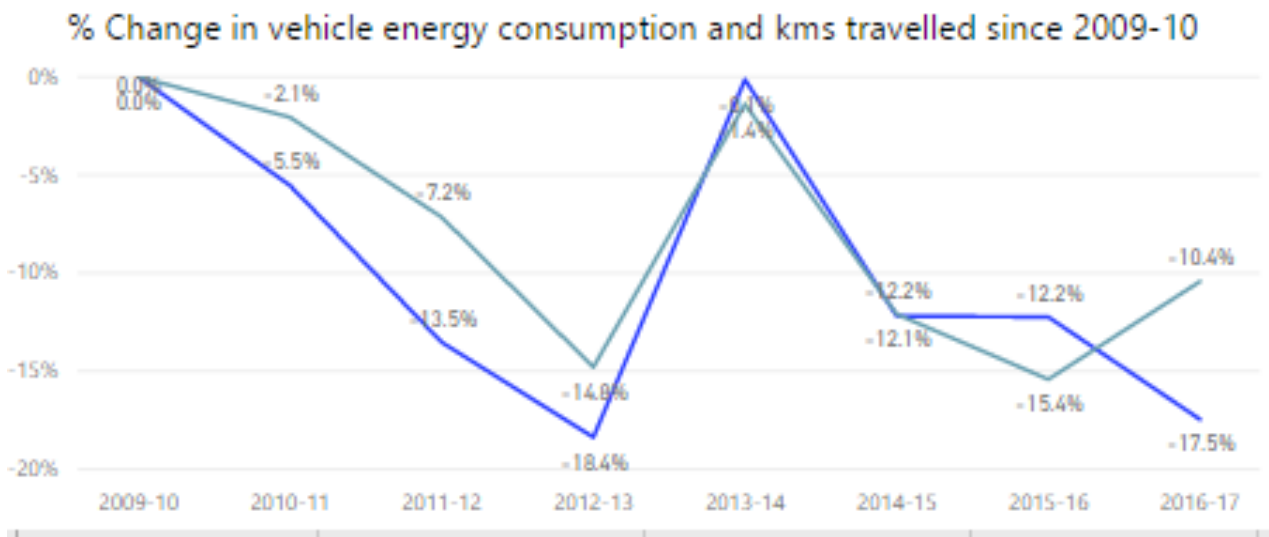


Figure 9: Per cent change in energy consumption and kms travelled since 2009-10

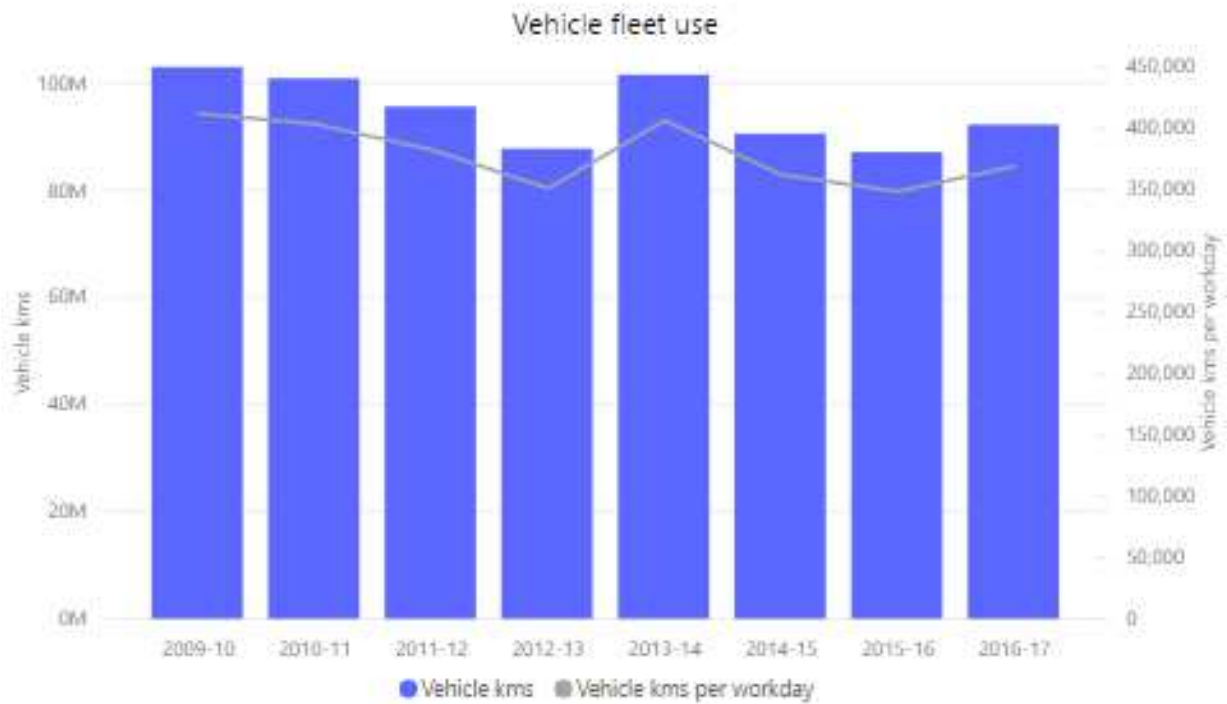


Figure 10: Vehicle fleet use, 2009-10 to 2016-17

(ii) Passenger fleet composition

The number of vehicles increased by 18 (from 2467 2015-16 to 2485 2016-17). A trend to decrease six-cylinder petrol vehicles continued with hybrids and diesel vehicles increasing on last year. There have been no LPG dual fuel vehicles in the fleet since 2014-15. There have been no electric cars in in the passenger fleet in the last two years.

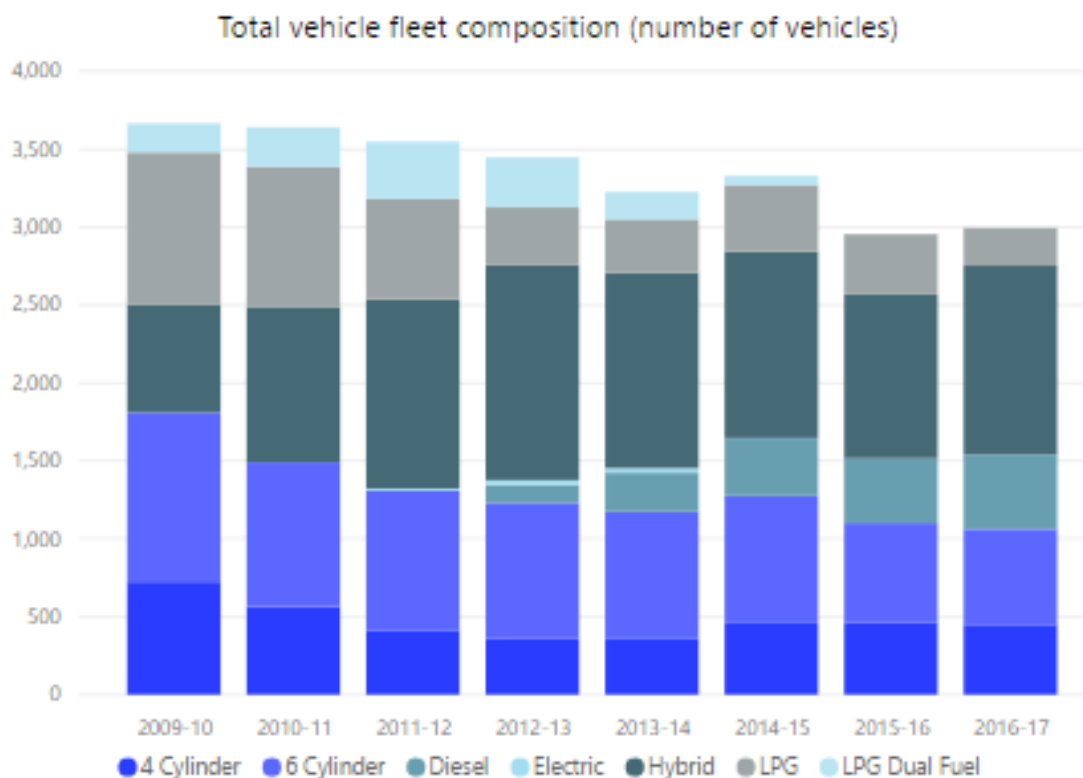


Figure 11: Total passenger fleet composition (number of vehicles)

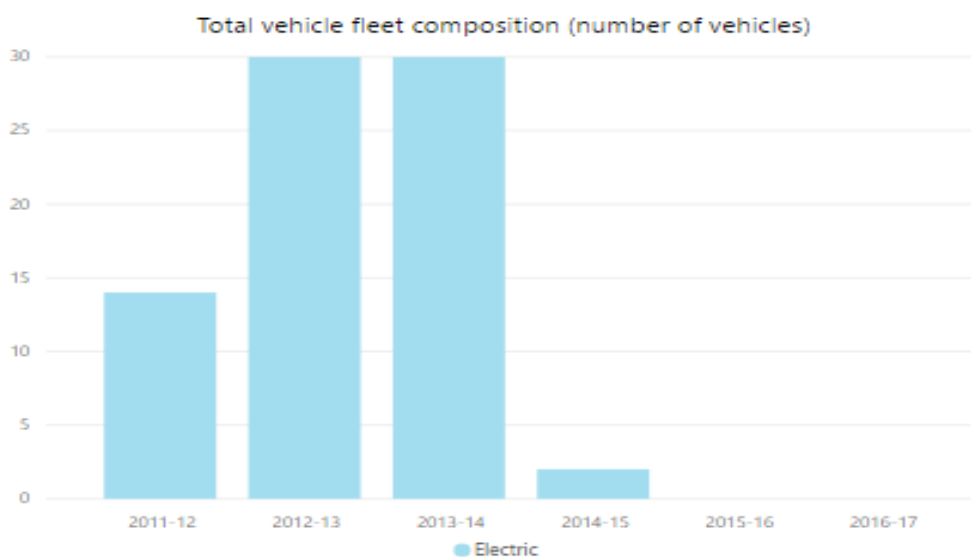


Figure 12: Passenger fleet composition (number of electric vehicles)

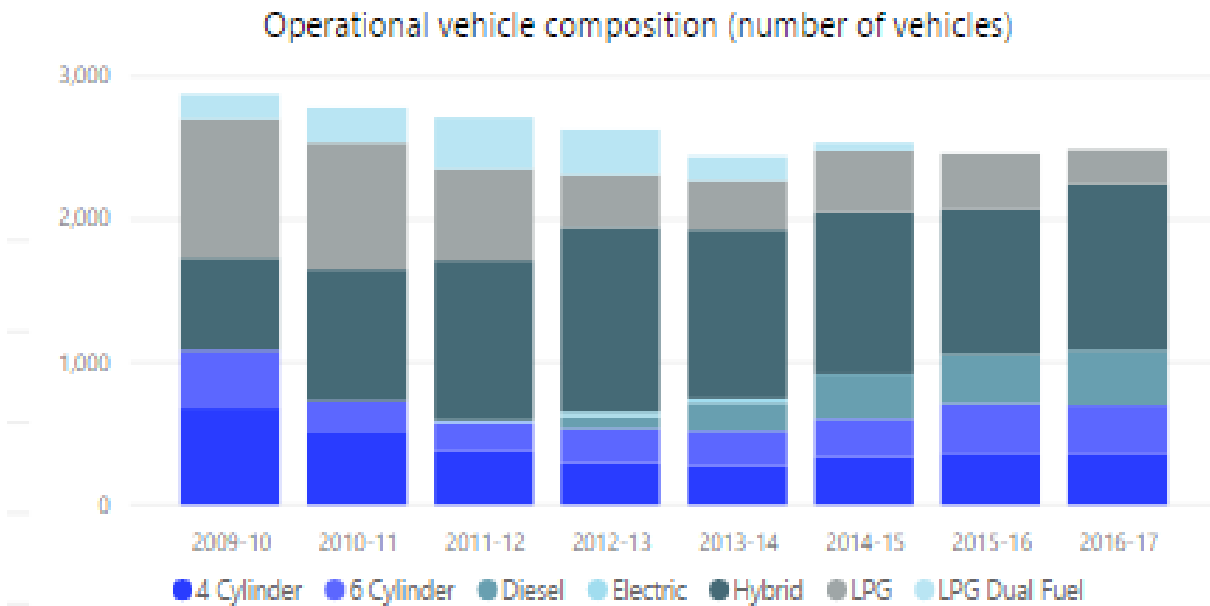


Figure 13: Operational vehicle composition (number of vehicles)

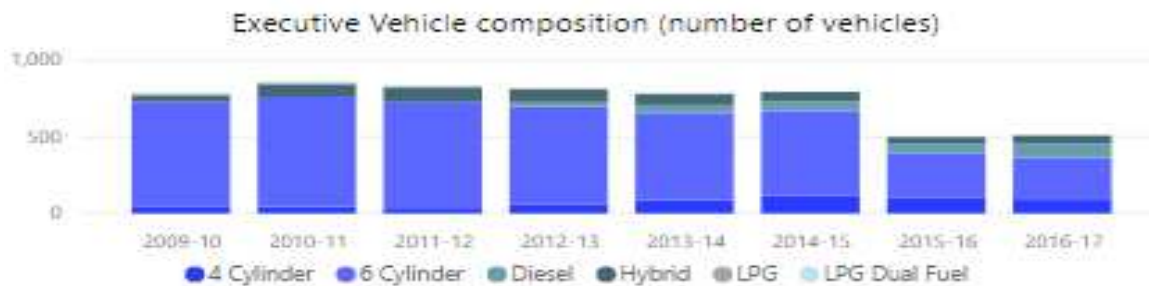


Figure 14: Victorian Government passenger vehicle fleet composition (operational and executive vehicles), 2009-10 to 2016-17

The net shift to more fuel-efficient passenger vehicles has resulted in a reduction of the vehicle emission rate (based on manufacturer’s stated performance) from 215 g CO₂/km in 2009-10 to 168 g CO₂/km in 2016-17. This notwithstanding, a higher actual emission intensity of 224 g CO₂/km was reported for the Victorian government fleet in 2016-17. This is likely to be due to manufacturers specifications being derived from standardised testing scenarios. The actual overall emissions of a vehicle fleet will be impacted by vehicle selection choices, and importantly, trip length and/or the driving location and conditions. The impact of city as opposed to country driving is high.

The Victorian Government has continued improving the environmental performance of its fleet and these improvements should be reflected in next year’s data.

A new vehicle selection policy was established in October 2017 due to the end of Australian vehicle manufacturing. The Standard Motor Vehicle Policy (SMVP) has been amended and the requirement to purchase Australian manufactured vehicles has been replaced with the requirement to purchase vehicles from an approved vehicle list (AVL). The vehicles on the AVL have been selected on safety, value for money and environmental performance.

Previously, the range of Australian manufactured vehicles was limited to one small, one medium and two large passenger vehicles, and one large SUV. Under the new policy, the range of available vehicles has been expanded to include small, medium and large passenger vehicles, and small, medium and large sports utility vehicles (SUVs).

To encourage the take up of more fuel-efficient vehicles, the AVL includes all hybrid vehicles available from contracted vehicle manufacturers. In addition to the hybrid Camry (medium passenger), the AVL includes the hybrid Corolla (small passenger), the Mitsubishi Outlander PHEV (Medium SUV), and the Nissan Pathfinder Hybrid (Large SUV). The Toyota Corolla Hybrid provides the lowest whole of life cost, and the lowest CO2 emissions.

A supplementary AVL was released in June 2016 to provide replacement vehicles for Ford Territory and Holden Cruze, and there has been a shift from the 6-cylinder Ford Territory to smaller more efficient SUVs like the RAV4. Currently there are 77 4-cylinder RAV4s in the fleet. This trend is expected to apply across all market segments with a shift from large vehicles to medium, and from medium vehicles to small. The predicted downsizing of the fleet will be driven by the increased range of popular imported vehicles. The move to smaller vehicles is expected to further reduce emissions and generate cost savings.

Four cylinder vehicles have been mandated, and the exemption for wagons has been removed as there is a range of 4-cylinder wagons available on the AVL.

An interdepartmental Electric Vehicle (EV) working group has been established and is being led by DEDJTR. In addition, Parliament has established a committee to consider and report on the benefits of EVs.

This year we offer an informed commentary on drivers, both challenges and opportunities, in the transition toward low carbon transport.

Drivers in transition towards low or zero carbon transport: challenges and opportunities

Dr Vanessa Johnston, Monash University

Improving energy efficiency and reducing greenhouse gas emissions from road transport is a challenging, but necessary task, in light of Australia's domestic and international objectives to mitigate climate change. The actions taken by the Victorian Government to improve the environmental performance of its vehicle fleet in recent years provide examples of the opportunities and challenges associated with achieving these goals in an Australian context. These actions also substantiate emerging trends about how to transition towards low and zero carbon transportation at domestic and international levels.

Internationally, road transport is recognised as a key source of greenhouse gas emissions, and was a theme explored extensively at the 23rd Conference of Parties to the United Nations Framework Convention on Climate Change held in Germany in November 2017.¹ More specifically, the Paris Process on Mobility and Climate set up under the Paris Agreement provides renewed opportunities for state and non-state actors to discuss transport in connection with climate change and sustainable development objectives. This process establishes key pillars to “avoid, shift, and improve” the global transport task: avoiding unnecessary transport, shifting towards low-carbon or zero carbon transport modes, and using new and existing technologies to improve the environmental performance of vehicles and transport fuels.²

Clearly, there is no one technology or regulation, which can solve the complex and interdependent problems that transport poses for our environment. Accordingly, it is a matter of looking at the transport task holistically, and taking numerous targeted and complementary actions to reduce the environmental impact of transport; as appropriate for the relevant country, region, or municipality, and considering industry, community, and revenue needs. Ideally, these actions should be implemented across the lifespan of road transport activities: at the time of vehicle purchase, throughout ownership, and at the time of use.

¹ Partnership on Sustainable Low Carbon Transport, ‘COP23: Transport building momentum to raise ambition and define implementation pathways’ (Final Report, November 2017)

² Paris Process on Mobility and Climate, ‘A global macro-roadmap outlining an actionable vision towards decarbonised, resilient transport’ (Report, November 2017) 6.

The nature and scope of reported actions that the Victorian Government has taken to improve its vehicle fleet accord with these trends to consider a wide range of measures that target different issues in the relevant transport task. Adopting some of the recommendations made by ClimateWorks in 2016,¹ the Victorian Government's vehicle procurement policies now favour smaller 4-cylinder vehicles, enable fleet users to select from a larger variety of low-emissions vehicles, and remove restrictions that favoured purchase of Australian-manufactured vehicles. By these actions, the Victorian Government is leading by example; showing how environmental performance considerations are integrated for a large fleet of more than 2,500 vehicles, encouraging the selection of hybrid models at all levels, and supporting future trials of electric vehicles. In the context of Government policy to retire vehicles after 3 years or 60,000km, higher numbers of low-emissions vehicles also benefit private consumers: increasing the proportion of low-emissions vehicles entering second-hand markets at the end of fleet use.

At the same time, the range of actions taken to improve the Government's vehicle fleet are indicative of the constraints faced by many entities in relation to road transport. Despite having extensive influence over vehicle selection through fleet procurement policies, it is challenging to convince consumers to select vehicles based on environmental performance within set parameters, and to remain continually aware of these issues throughout ownership and at the point of vehicle use. This extends to adopting policies that promote avoidance of road transport altogether, if appropriate, in favour of e-mobility alternatives such as walking, cycling, and public transport, for local travel. In this context, regulatory changes such as standards for vehicle emissions and fuels, vehicle taxes and charges, and education and information disclosure measures, can reinforce and promote the voluntary action taken by public and private entities to improve road transport. By using a combination of measures, building on those already implemented to date, the Victorian Government can continue existing trends to improve the environmental performance of its vehicle fleet.

¹ ClimateWorks, 'Improving the fuel efficiency of the Victorian Government's passenger vehicle fleet' (Report, February 2016).

(iii) Air travel

Air travel information is obtained from the whole-of-government travel services contract, and covers domestic and international flights.

Victorian Government agencies air travel distance in 2016-17 was 37% below that in 2009-10 and 7% more than in 2015-16.



Figure 15: Total air travel by kilometres from 2009-10 to 2016-17

Waste

Table 6: Percent change in waste indicators

Indicator	% change vs base yr* 2009-10 to 2016-17	% change in past yr* 2015-16 to 2016-17
Total waste produced (tonnes)	-35	-3
Waste recycling rate (%recycled by tonnes)	-13	-3
Waste per FTE (kg/FTE)	-30	-5

Waste in Victorian Government offices is separated and measured as different waste streams, which includes:

- waste to landfill
- waste (including paper) sent for recycling, and
- composted organic waste.

Importantly, variations in reported data strongly reflect changes in waste audit methodology, which make year-on-year comparisons difficult.

The waste recycling rate (percentage recycled by weight) deteriorated by 13% since the base year of 2009-10 and by 3% in the past year. Pleasingly however, total waste produced this last year decreased by 35% from the base year 2009-10, and the waste produced per FTE is 30% down. Victorian Government agencies are producing significantly less waste overall, less waste per person but are recycling less effectively.

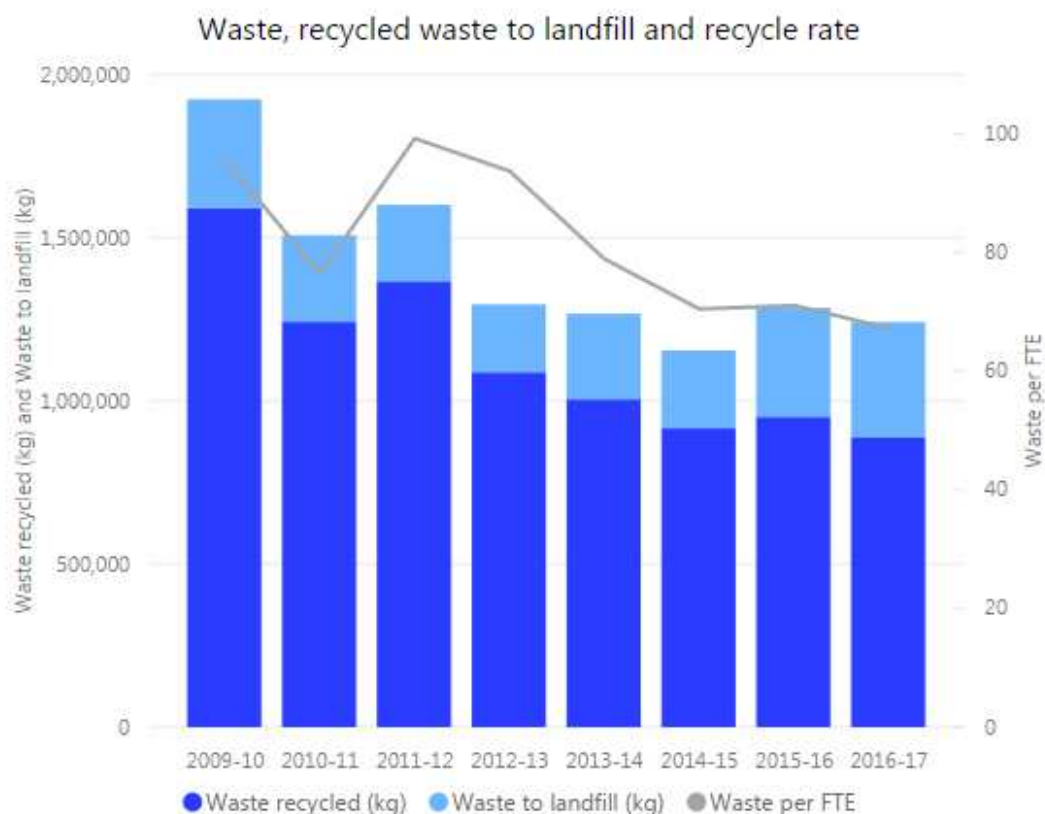


Figure 16: Waste recycled, waste to landfill and recycling rate, 2009-10 to 2016-17¹

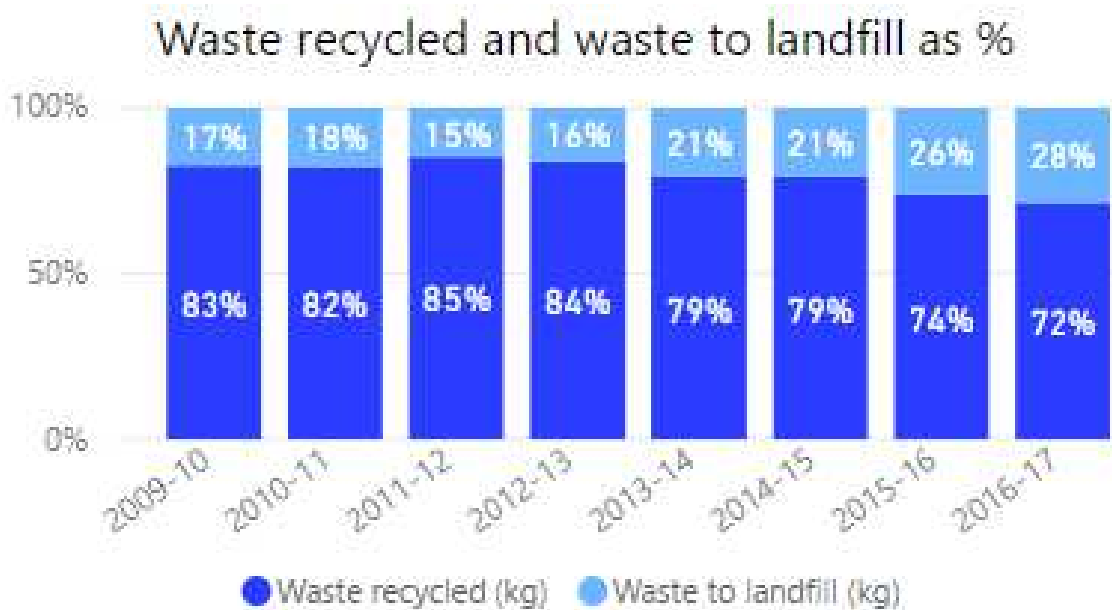


Figure 17: Percentage change in waste categories, 2009-10 to 2016-17

¹ 2012-13 excludes SV data. The then Department of Environment and Primary Industries reported an increase in waste going to landfill, leading to an increase in associated greenhouse gas emissions in 2013-14. This was due to separated organics at some sites going to landfill instead of composting.

Paper use

Table 7: Percent change in paper indicators

Indicator	% change vs base yr* 2009-10 to 2016-17	% change in past yr* 2015-16 to 2016-17
Total paper use (reams)	-19	+5
Paper use per FTE (reams/ FTE)	-16	+1

Victorian Government agencies used 19% less paper in 2016-17 than in 2009-10, but paper consumption rose by 5% in the latest year. The average quantity of paper used per FTE was maintained at just under 12 reams per FTE for the past three years (figure 18). Paper use per FTE across the agencies ranged from 4.4 (SV) to 17.0 (DJR) reams per FTE.

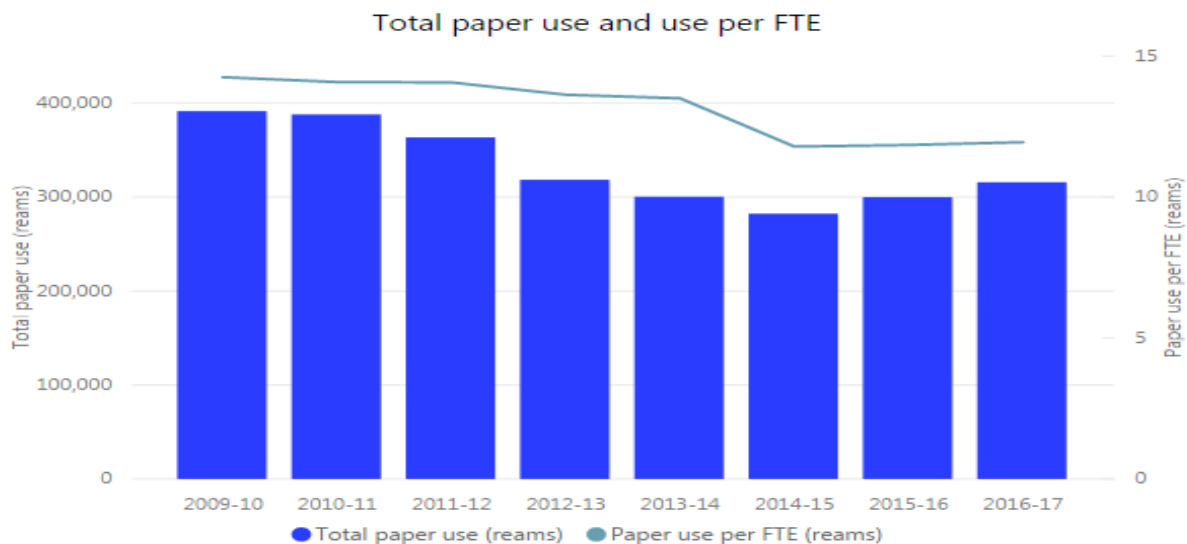


Figure 18: Paper use and use per FTE 2009-10 to 2016-17

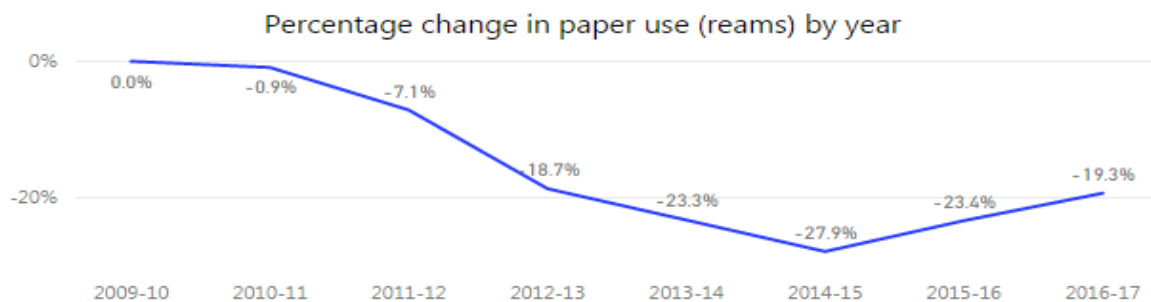


Figure 19: Percentage change in paper use, 2009-10 to 2016-17

Government agencies purchase products, including paper, from the new mandatory whole-of-Victorian Government supplier. Each product must meet at least one of the following criteria:

- contains recycled content
- is recyclable
- is either biodegradable, or
- contains less packaging than comparable products.

The State Purchase Contract (SPC) for stationery and workplace consumables was established following an open tender process undertaken by DTF. The SPC commenced on 11 October 2015 for three years, and expires on 10 October 2018 with two one-year extension options. The SPC secures sole supplier arrangements with a company that offers a range of stationery and workplace consumables.

The proportion of 100% recycled paper has increased to over 80% through the SPC. The availability of locally manufactured, recycled paper has contributed to this increase (figure 20).

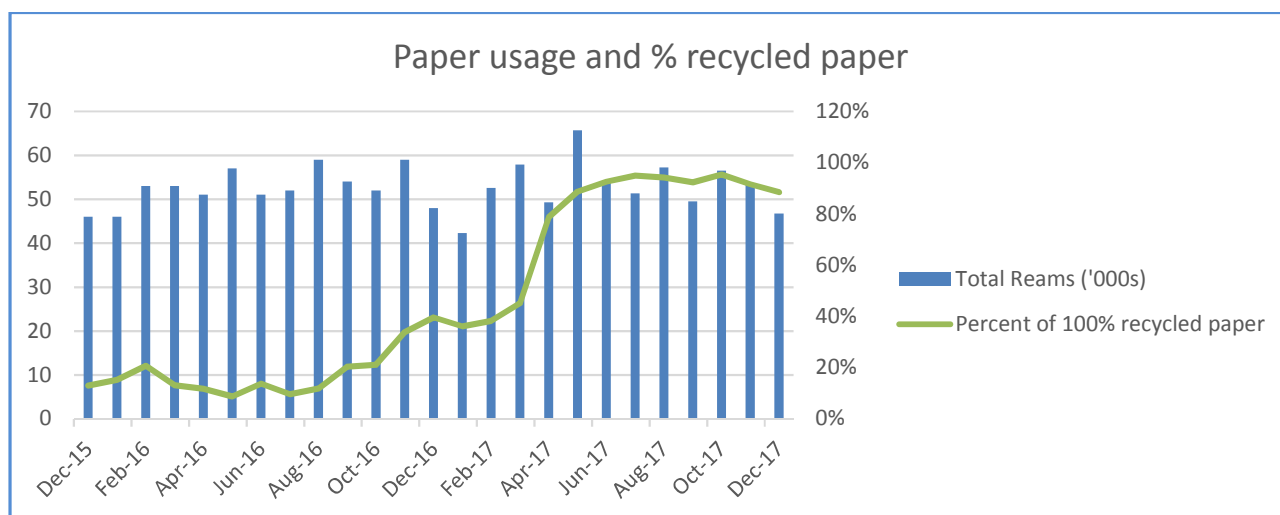


Figure 20: Percentage of 100% recycled paper use, December 2015 to December 2017¹

¹ Data supplied by DTF.

Water use

Table 7: Percent change in water indicators

Indicator	% change vs base yr* 2009-10 to 2016-17	% change in past yr* 2015-16 to 2016-17
Total water use (litres)	-4	+3
Water use per FTE (litres/FTE)	-3	-7

Office-based water use data includes water consumption for drinking, washing, cleaning and toilet flushing, and base building requirements such as heating and cooling systems.

Victorian Government agencies have continued to implement a range of initiatives to reduce potable water use in office-based accommodation. Initiatives range from flow restrictors on taps, harvesting and reusing water from roofs, to installing water meters and real-time water tracking enabling better understanding of where water is wasted.

Results for the year from 2015-16 to 2016-17 show an increase in total water use (+4%) since last year and a reduction in the amount used per FTE (-7%) (Table 8).

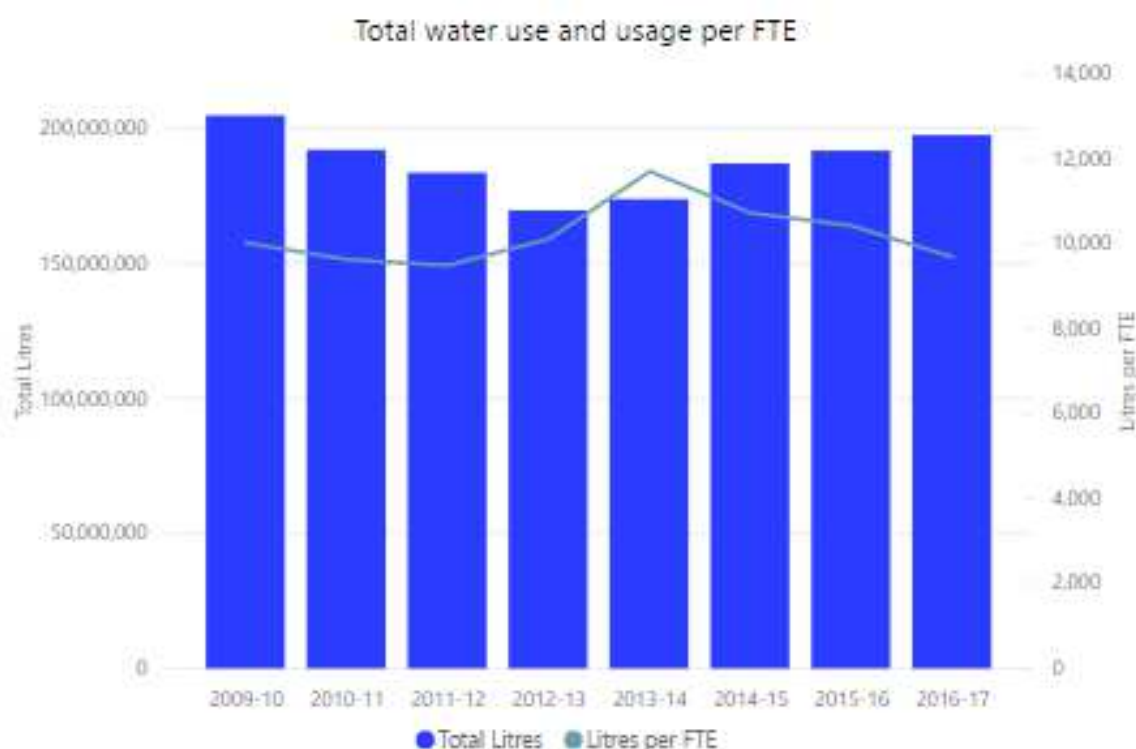


Figure 21: Total water use and water use per FTE, 2009-10 to 2016-17

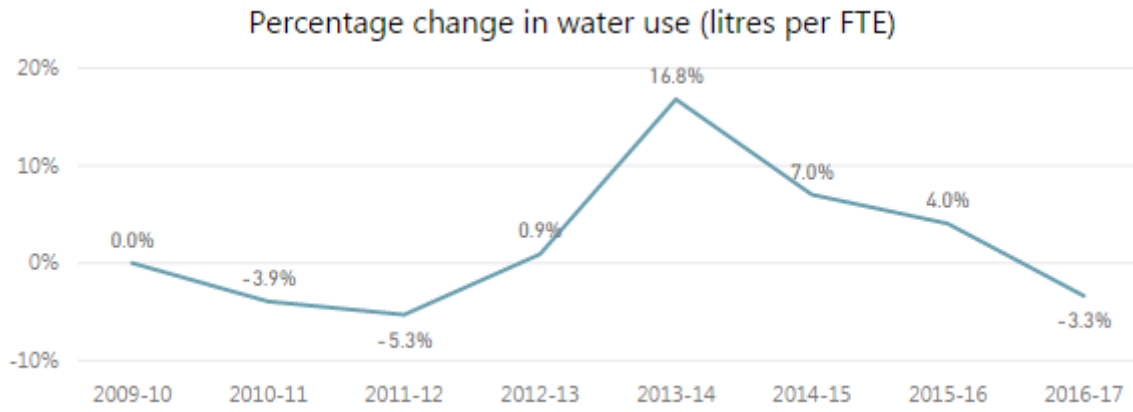


Figure 22: Percentage change in water use, 2009-10 to 2016-17

Last year we included a description of the TAKE2 pledge program and case studies provided by Sustainability Victoria. This year we note that the state of Victoria has responded enthusiastically to this initiative.

TAKE2 takes off by Sustainability Victoria

Since the launch of TAKE2 in June 2016, pledges have been pouring in, helping the Victorian government on the journey to meet its target.

In the 2017 EMS Strategic Audit report, we included case studies relating to the first year of the unique TAKE2 pledge program, a Victorian Government commitment to fight climate change. The program is Australia's only government-led voluntary climate change pledge program.

Under the program participants are asked to make and maintain behavioural changes to keep the state on track to reach net zero emissions by 2050.

TAKE2 includes tailored pledges depending on each situation, which include:

- The operational pledge requiring all Victorian Government departments to cut their carbon emissions by taking specific actions in areas like transport and procurement of goods and services. These departmental pledges will contribute to a whole-of-government pledge.
- The sector pledging to ensure Victorian Government policies and programs will drive emissions reductions across key sectors of the state.
- The voluntary pledge helps local governments, businesses, community organisations, educational organisations, individuals and families pledge to specific emissions reductions.

Over 800 organisations are now registered with the program along with an impressive number of individuals who have taken the initiative. The detailed breakdown is:

Sector	Number
Individuals	8075
Business	514
Community	177
Education	82
Government organisations	60
Local Governments	36

The reach of the program represents:

- More than 75,000 individual TAKE2 pledges (actions)
- TAKE2 local governments covering more than 64% of Victoria's population.

- TAKE2 businesses employees number more than 342,000 across Australia with over 16.5 million customers.
- TAKE2 community organisations have more than 187,000 members.
- The combined annual turnover of all TAKE2 members represents at least \$247 billion across Australia.

A Year One Review of the program was undertaken by Sustainability Victoria between June and September 2017, surveying the founding partners of the TAKE2 program. From approximately 70 responses highlights of this review found that: 48% of organisations said that TAKE2 had helped encourage additional action on climate change within their organisation, 43% of organisations said that TAKE2 helped in having their work recognised and 32% of organisations said that TAKE2 helped keep them informed of state government policy.

Published by the Commissioner for Environmental Sustainability

Level 36, 2 Lonsdale Street

Melbourne Victoria 3000

T 03 9948 2829

www.ces.vic.gov.au

Accessibility

If you would like to receive this publication in an accessible format, please contact the Office of the Commissioner for Environmental Sustainability on email info.ces@ces.vic.gov.au or call +61 3 9948 2829.

©The State of Victoria, Commissioner for Environmental Sustainability 2018. This publication is copyright.

No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*. For further information contact the Office of the Commissioner for Environmental Sustainability, phone +61 3 9948 2829 or visit www.ces.vic.gov.au.

