



Commissioner  
*for* Environmental  
Sustainability  
Victoria



## Strategic Audit

Implementation of environmental management systems in Victorian  
Government 2017-18

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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](mailto:info.ces@ces.vic.gov.au) or visit [www.ces.vic.gov.au](http://www.ces.vic.gov.au).

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## Acknowledgements



### Traditional Owners

The Office of the Commissioner for Environmental Sustainability (OCES) 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.

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## Abbreviations

|                    |  |
|--------------------|--|
| CES                | Commissioner for Environmental Sustainability  |
| CO <sub>2</sub> -e | Carbon dioxide equivalent  |
| DEDJTR             | Victorian Department of Economic Development, Jobs, Transport and Resources <sup>1</sup> |
| DELWP              | Victorian Department of Environment, Land, Water and Planning                            |
| DET                | Victorian Department of Education and Training   |
| DHHS               | Victorian Department of Health and Human Services  |
| DJR                | Victorian Department of Justice and Regulation <sup>2</sup>                              |
| DPC                | Victorian Department of Premier and Cabinet  |
| DTF                | Victorian Department of Treasury and Finance   |
| EMS                | Environmental Management System  |
| EPA                | Environment Protection Authority Victoria  |
| FRD                | Financial Reporting Directive  |
| FTE                | Full Time Equivalent   |
| GHG                | Greenhouse Gas   |
| SV                 | Sustainability Victoria  |

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<sup>1</sup> Note that as of 1 January 2019 the Department of Economic Development, Jobs, Transport and Resources has transitioned into two new departments – the Department of Jobs, Precincts and Regions and the Department of Transport. As this report is for the 2017-18 financial year, the report will refer to the department as the Department of Economic Development, Jobs, Transport and Resources.

<sup>2</sup> Note that as of 1 January 2019 the Department of Justice and Regulation is now known as the Department of Justice and Community Safety. As this report is for the 2017-18 financial year, the report will refer to the department as the Department of Justice and Regulation.



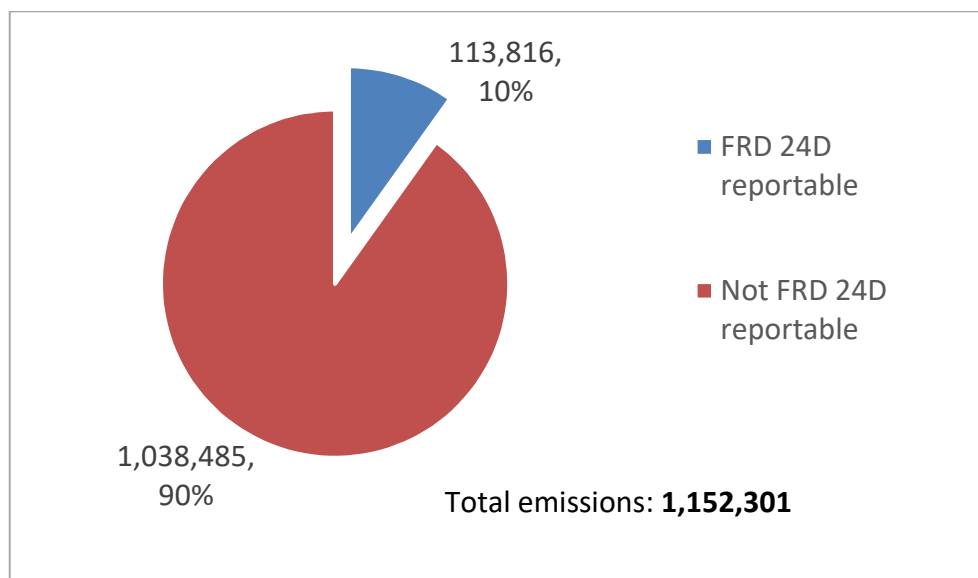
Dr Gillian Sparkes

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 in accordance with section 8(b) the *Commissioner for Environmental Sustainability Act 2003*. This 2017-18 financial year audit 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) 24D. The directive applies minimum criteria for government to report its office-based emissions.

FRD 24D is a new reporting directive for 2017-18 and supersedes FRD 24C. It is pleasing that FRD 24C was replaced given it had not been updated since 2008 and was losing relevance, with agencies reporting environmental results far exceeding its scope as highlighted in these strategic audit reports since 2014. However, FRD 24D only provides a modest update to reporting mechanisms, with the majority of changes optional for agencies to complete. Another improvement has been updating guidance documents for those reporting in accordance with FRD 24. The issues associated with greenhouse gas (GHG) emissions reporting remain, with FRD 24D only capturing 10 percent of GHG emissions annually reported by Victorian Government agencies (see Figure 1).



**Figure 1:** GHG emissions (tonnes CO<sub>2</sub>-e) reported in agency annual reports, 2017-18

Table 1 below summarises differences in the scope of agency reporting. Further information on GHG emissions can be found in the **Results** section.

**Table 1:** Differences in agency reporting beyond the scope of FRD 24D

| Department/entity | Extent of reporting beyond the scope of FRD 24D   |
|-------------------|---|
| <b>DEDJTR</b>     | Includes depots, labs and research facilities. Emissions for all activities are grouped together resulting in an unclear FRD 24D emissions total.   |
| <b>DHHS</b>       | Includes public hospitals, housing services, hospital emergency transport and public hospital waste. Data relevant to FRD 24D data is clearly identified.   |
| <b>DELWP</b>      | Includes airbases, depots, fire towers, laboratories, office / depots, radio masts, research centres and warehouses. Data relevant to FRD 24D data is clearly identified.   |
| <b>DJR</b>        | Includes correction centres and custodial facilities. Data relevant to FRD 24D data is clearly identified.  |
| <b>DET</b>        | Includes emissions data from water consumption. Data relevant to FRD 24D data is clearly identified.  |
| <b>EPA</b>        | Includes emissions data on vehicle refrigeration, building refrigeration and air conditioning, taxi use, public transport use, boat fuel, printing and publications, catering, couriers, commuting, reticulated water and paper use. Data relevant to FRD 24D data is clearly identified. |
| <b>DPC</b>        | Includes emissions data on paper use. Data relevant to FRD 24D data is clearly identified.  |
| <b>DTF</b>        | FRD 24D reportable emissions only.  |
| <b>SV</b>         | Includes emissions data on all operational activities and staff commuting. Data relevant to FRD 24D data is clearly identified.   |

Further developments to the FRD 24D framework, or an alternative mechanism, are required to ensure effective reporting.

Establishing a centralised reporting database for Victorian Government agencies to enter their environmental management data would be a development that would enable more powerful and timely analysis as well as ensuring consistency of reporting across agencies. Creating targets for each of the reporting indicators is another recommended action as it would provide all Victorian Government agencies with impetus to reduce adverse environmental impacts.

Given that only minor changes were made to the reporting framework as part of the update to FRD 24D, this audit remains consistent with previous reports, using most of the same indicators and method of analysis.

There is an opportunity for Victorian Government departments to align the FRD reporting framework to the United Nations Sustainable Development Goals (SDGs). The SDGs took effect on 1 January 2016 and provide business, government and civil society with a compelling framework for future growth that aims to be socially fair, environmentally sustainable and economically prosperous. There are 17 SDGs that provide a comprehensive and integrated framework of 169 targets and 230 indicators to support planning and reporting through to 2030. For example, two SDG Targets that are logical starting points for integration with FRD 24D are SDG Target 7.2 (By 2030, increase substantially the share of renewable energy in the global energy mix) and SDG Target 7.3 (By 2030, double the global rate of improvement in energy efficiency).

Many Victorian Government agencies have achieved significant progress through consistent implementation of targeted programs. In this report we have chosen to highlight the work done by DJR to reduce their annual vehicle fleet GHG emissions using a range of measures that include introducing a sliding scale fleet surcharge that puts a higher costing on greater GHG emitting vehicles.

The ***performance at a glance*** summary section of this report, including Table 2, compares Victorian Government agency performance between 2016-17 and 2017-18 for 17 indicators. Six of the 17 indicators improved between years, with one indicator (water use per FTE) improving by more than 10%.

Areas of modest improvements included a reduction in paper use per FTE, as well as decreases in transport (vehicle and air) emissions. Four of the 17 indicators recorded a deterioration of greater than 10% between 2016-17 and 2017-18, these were waste GHG emissions, air travel distance, energy use per unit of office area and total waste produced.

The available data for staff commuting shows a general pattern of more sustainable transport commuting by staff working in the CBD than other metropolitan and regional areas.

***Comparison with base year*** - nine of the 17 indicators have improved performance since 2009-10.

Victorian Government agencies are producing significantly less waste overall with less waste per person but are recycling less effectively. Also of note are the ongoing reductions in transport GHG emissions from both motor vehicles and air travel.



The areas where performance has significantly deteriorated since 2009-10 are waste GHG emissions (although waste emissions represent less than 1% of GHG emissions by Victorian Government agencies), the proportion of electricity purchased as GreenPower, total energy use, office-based GHG emissions, energy use per unit of office area and waste recycling rate. Some of these deteriorations are the result of an increase in government office-based operations (for example, increasing staff number and office area) rather than a deterioration in efficiency.

The 2016-17 report included the first financial year of data since Sustainability Victoria (SV) launched the TAKE2 pledge program in June 2016. This report notes that Victorian citizens and organisations are continuing to participate in the TAKE2 initiative. It is essential that SV measures and reports the effectiveness of the TAKE2 program so it can be evaluated and optimised.

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

It is an honour to serve as Victoria's Commissioner for Environmental Sustainability and to report on the progress of the Victorian public sector to improve its environmental footprint. I hope that the findings and recommendations are utilised in ways that benefit the public sector as I continue to advocate for further improvements to the environmental reporting framework, FRD 24D.



**Dr Gillian Sparkes**

Commissioner for Environmental Sustainability

January 2019

## Performance at a glance

**Table 2:** 2017-18 indicator values and trends compared with the baseline financial year of 2009-10 and the previous 2016-17 financial year.

| Indicator                           | Unit                           | Value in 2017-18 | % change from 2016-17 to 2017-18 | % change from 2009-10 to 2017-18 |
|-------------------------------------|--------------------------------|------------------|----------------------------------|----------------------------------|
| <b>Greenhouse gas emissions</b>     |                                |                  |                                  |                                  |
| Total greenhouse gas emissions      | tonnes CO <sub>2</sub> -e      | 113,816          | 4%                               | 7%                               |
| Office emissions                    | tonnes CO <sub>2</sub> -e      | 87,690           | 6%                               | 31%                              |
| Transport emissions vehicles        | tonnes CO <sub>2</sub> -e      | 20,074           | -3%                              | -20%                             |
| Transport emissions air travel      | tonnes CO <sub>2</sub> -e      | 5,279            | -9%                              | -62%                             |
| Waste emissions                     | tonnes CO <sub>2</sub> -e      | 773              | 39%                              | 96%                              |
| <b>Energy</b>                       |                                |                  |                                  |                                  |
| Total energy use                    | megajoules                     | 388,608,522      | 10%                              | 36%                              |
| Electricity purchased as GreenPower | %                              | 3.9%             | -5%                              | -84%                             |
| Energy use per unit of office area  | megajoules/metres <sup>2</sup> | 543              | 19%                              | 30%                              |
| <b>Transport</b>                    |                                |                  |                                  |                                  |
| Passenger vehicle use               | kilometres                     | 85,952,525       | -1%                              | -17%                             |
| Air travel                          | kilometres                     | 24,665,941       | 21%                              | -23%                             |
| <b>Waste</b>                        |                                |                  |                                  |                                  |
| Total waste produced                | kilograms                      | 1,495,664        | 19%                              | -23%                             |
| Waste recycling rate                | %                              | 73.9%            | 3%                               | -11%                             |
| Waste per FTE                       | kilograms/FTE                  | 68.8             | 4%                               | -27%                             |
| <b>Paper use</b>                    |                                |                  |                                  |                                  |
| Total paper use                     | reams                          | 334,591          | 6%                               | -15%                             |
| Paper use per FTE                   | reams/FTE                      | 11.0             | -8%                              | -23%                             |
| <b>Water use</b>                    |                                |                  |                                  |                                  |
| Total water use                     | kilolitres                     | 214,041          | 9%                               | 5%                               |
| Water use per FTE                   | kilolitres/FTE                 | 8.5              | -12%                             | -15%                             |

|   |                                   |   |
|---|-----------------------------------|---|
| Improving<br>(Improvement by more than 10%) | Stable<br>(Change by 10% or less) | Deteriorating<br>(Deterioration by more than 10%) |
|---|-----------------------------------|---|

## Performance summary 2017-18

The performance of mandated Victorian Government agencies for 9 of 17 indicators has improved since baseline data was collected in 2009-10. Significant changes (that is, changes by more than 10%) are summarised below.

- Significant long-term improvements include:
  - Passenger vehicle and air travel GHG emissions have decreased by 20% and 62% respectively due to a reduction in distance travelled and lower emitting vehicles and aircraft
  - Total waste produced has reduced by 23% and the amount of waste generated per FTE is 27% less
  - Total paper use and use per FTE are down 15% and 23% respectively since 2009-10
  - Water use per FTE is down 15% since 2009-10.
- Significant long-term deteriorations include:
  - Office-based GHG emissions have increased by 31% from 2009-10 to 2017-18 (linked to greater floor area being used to accommodate increasing FTE) and now account for 77% of total GHG
  - Total energy use is up by 36% since 2009-10, with energy use per unit of office area up by 30% over this same period
  - Green energy remains a very low proportion of electricity purchased as compared to 2009-10 (a drop of 84%)
  - The waste recycling rate has fallen by 11% since 2009-10.

Since the last reportable year (2016-17), improvements have been observed for 6 indicators, while the other 11 indicators show deteriorations.

- Significant improvements since 2016-17 include:
  - Water use per FTE has reduced by 12%.
- Significant deteriorations since 2016-17 include:
  - Waste GHG emissions increased by 39%
  - Energy use per unit of office area increased by 19%
  - Air travel distance increased by 21%
  - Total waste produced increased by 19%.

## Method

### Background

Since 2003, Victorian Government departments,<sup>3</sup> 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 standard<sup>4</sup> and enabled by the FRD 24C. In May 2018, FRD 24D was introduced as an update and replacement for FRD 24C, with the reporting period for FRD 24D commencing 1 July 2017.<sup>5</sup>

Section 18 of the *Commissioner for Environmental Sustainability Act 2003*<sup>6</sup> (CES Act) requires that no 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 2017-18 period, as provided to the Commissioner or obtained from annual reports, in general accordance with FRD 24D<sup>7</sup> and consistent with section 18 of the CES Act.

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

- **GHG emissions** – those associated with building energy use, vehicle fleet use, air travel and waste production (any offsets purchased are also reported)

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<sup>3</sup> 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 24D as ‘entities’. Other public-sector entities are encouraged to adopt the requirements of this FRD to their annual reports.

<sup>4</sup> 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.

<sup>5</sup> Victorian Department of Treasury and Finance, *FRD 24D Reporting of office-based environmental data by government entities*, Melbourne, 2018. Available at: <http://www.dtf.vic.gov.au/Publications/Government-Financial-Management-publications/Financial-reporting-policy/Financial-reporting-directions-and-guidance>.

<sup>6</sup> *Commissioner for Environmental Sustainability Act 2003*. Available at: <http://www.ces.vic.gov.au/sites/default/files/publication-documents/CES%20Act%202003.pdf>

<sup>7</sup> 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.

- **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 or recycling and composted waste
- **paper use** – paper used for printing and photocopying
- **water consumption** – domestic water use, rainwater and reused water
- **procurement** – a discussion as to whether, and how, procurement activities are environmentally responsible.

The FRD 24D requires nominated agencies to measure and report 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 data from previous years (that is, compared with that presented in the Commissioner’s 2016-17 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 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, the phased introduction of FRD 24C from 2007 and the recent commencement of FRD 24D during 2017-18.

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 Victorian department or entity.

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

For this report, the relative performance over the past 36 months (that is, from 2015-16 to 2017-18) is considered more consistent because department configuration remained relatively stable since the machinery-of-government changes of 1 January 2015.

Audit report data has been kept consistent with previous years for year on year comparison charts and commentary.

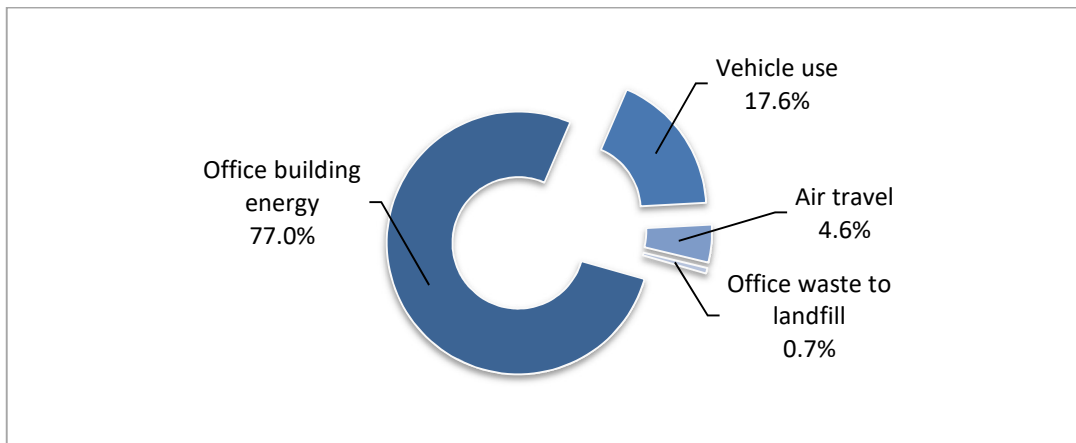
Intensity measures are important for monitoring the environmental performance of Victorian Government agencies given staff numbers (FTE) and office space can materially increase and decrease over time.

The Commissioner supports and commends all measures Victorian Government 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 their entities.

## Results

### Greenhouse gas emissions

Energy use in Victorian Government office buildings was the largest contributor to Victorian Government agency GHG emissions, accounting for 77% of emissions in 2017-18 (Figure 2). Emissions from vehicle use and air travel accounted for 18% and 5% respectively, while office-based waste comprised less than 1% of total emissions. The proportions are similar to those reported in 2016-17.

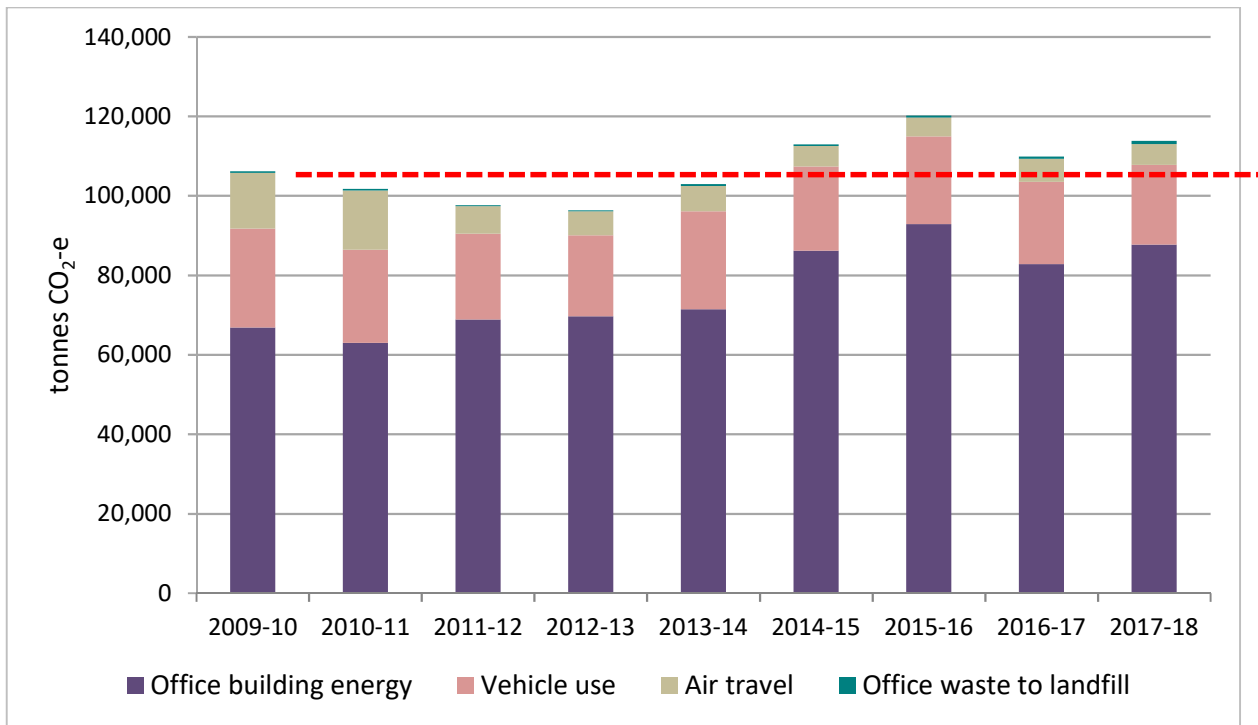


**Figure 2:** Proportion of GHG emissions (tonnes CO<sub>2</sub>-e by source), 2017-18.

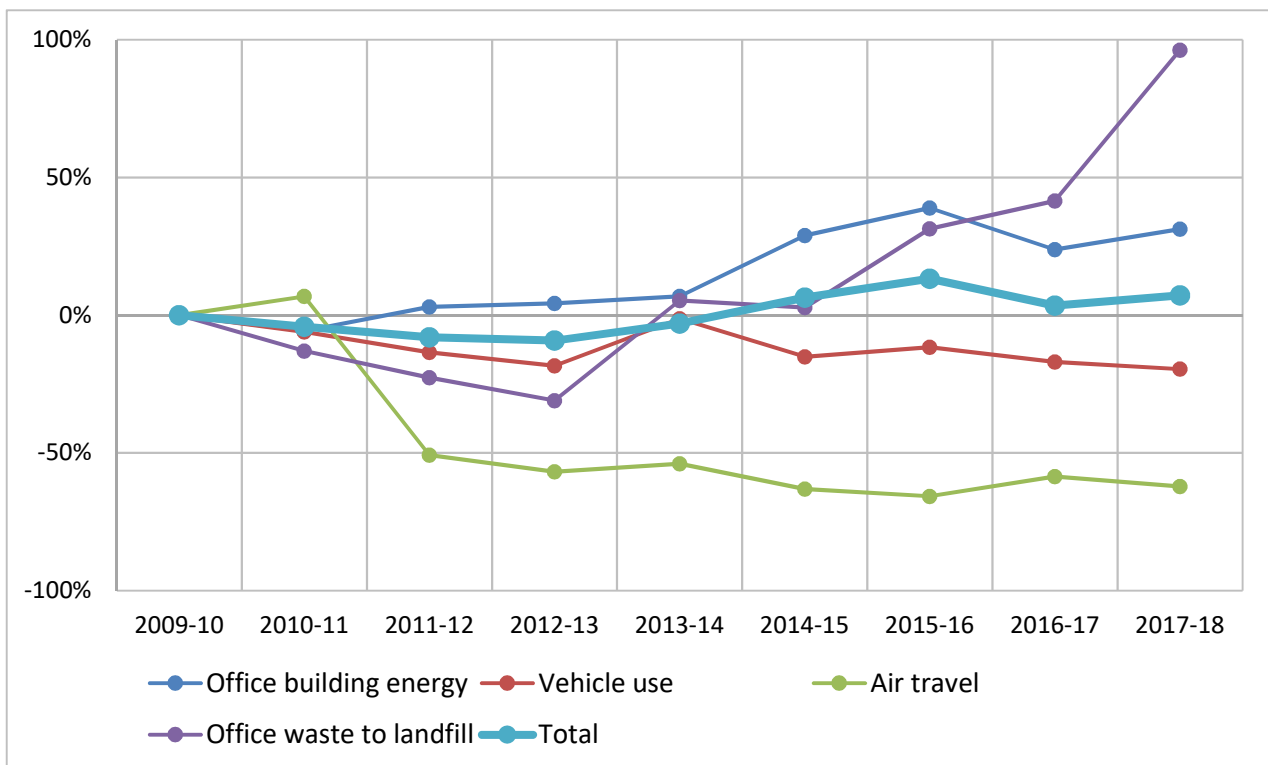
**Table 3:** Percent change in GHG emissions by source for Victorian Government agencies.

| Indicator   | Value for 2017-18 | % change vs base year | % change in past year |
|---|-------------------|-----------------------|-----------------------|
|   |                   | 2009-10 to 2017-18    | 2016-17 to 2017-18    |
| Total greenhouse gas emissions<br>(tonnes CO <sub>2</sub> -e) | 113,816           | +7                    | +4                    |
| Office emissions<br>(tonnes CO <sub>2</sub> -e)               | 87,690            | +31                   | +6                    |
| Transport emissions vehicles<br>(tonnes CO <sub>2</sub> -e)   | 20,074            | -20                   | -3                    |
| Transport emissions air travel<br>(tonnes CO <sub>2</sub> -e) | 5,279             | -62                   | -9                    |
| Waste emissions<br>(tonnes CO <sub>2</sub> -e)                | 773               | +96                   | +39                   |

Using the same methodology as has been applied in the past reports, there has been a 9% increase in the total reported GHG emissions from Victorian Government agencies when compared to 2009-10 (Figure 3). Total emissions increased by 4% since 2016-17.



**Figure 3:** GHG emissions by source from 2009-10 to 2017-18.<sup>8</sup>

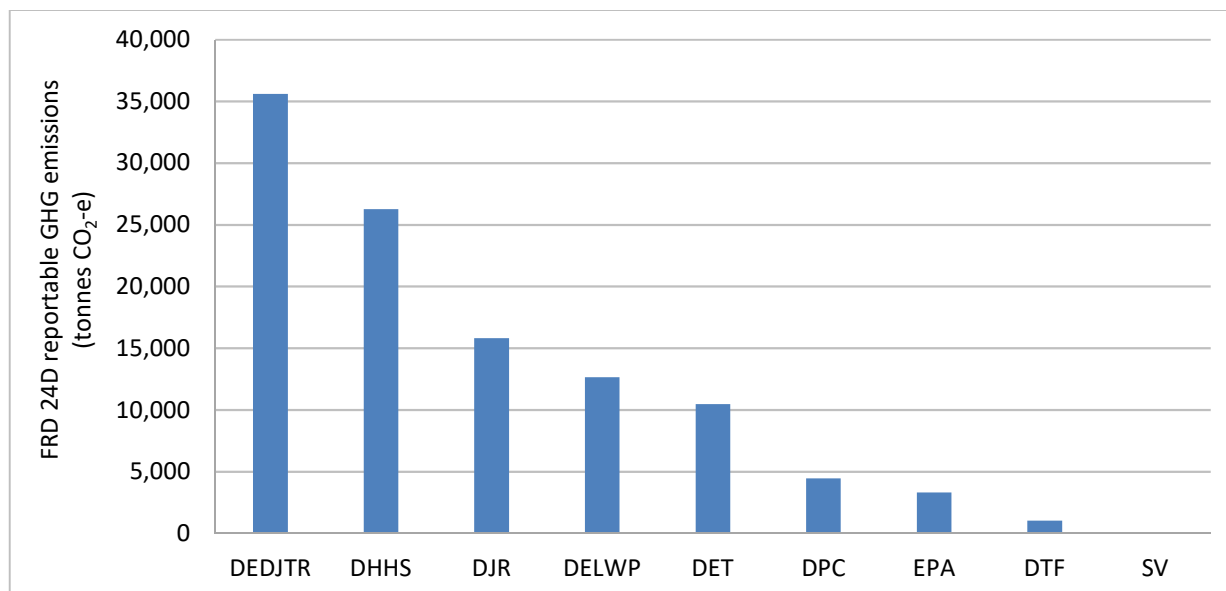


**Figure 4:** Percentage change (relative to 2009-10 levels) in GHG emissions by source from 2009-10 to 2017-18.

<sup>8</sup> The multiplier used to calculate air travel emissions was revised in 2011-12. Consequently, emissions before 2011-12 are likely to be overestimated.



Of the Victorian Government agencies that are able to separate out FRD 24D data, DHHS has the highest office emissions. Figure 5 below indicates that DEDJTR reports a greater amount of GHG emissions, however DEDJTRs data includes activities beyond the scope of FRD 24D that cannot be separated from the overall emissions value.



**Figure 5:** FRD 24D reportable GHG emissions, 2017-18. Note that DEDJTR reports emissions beyond the scope of FRD 24D and these emissions cannot be readily separated into emissions that are reportable according to FRD 24D and those that are not.

FRD 24D requires that agencies report the quantity of GHG emission offsets that were purchased (in tonnes CO<sub>2</sub>-e) each financial year. Some Victorian Government agencies do not explicitly report the quantity of their purchased offsets or do not mention offsets at all, therefore it is not possible to provide a quantitative analysis of GHG emission offsets. However, it is worth noting that EPA voluntarily purchases carbon offsets to achieve net zero emissions each year, while SV use 100 per cent GreenPower for all office light and power needs and carbon offsets for all operational emissions.

## Energy use

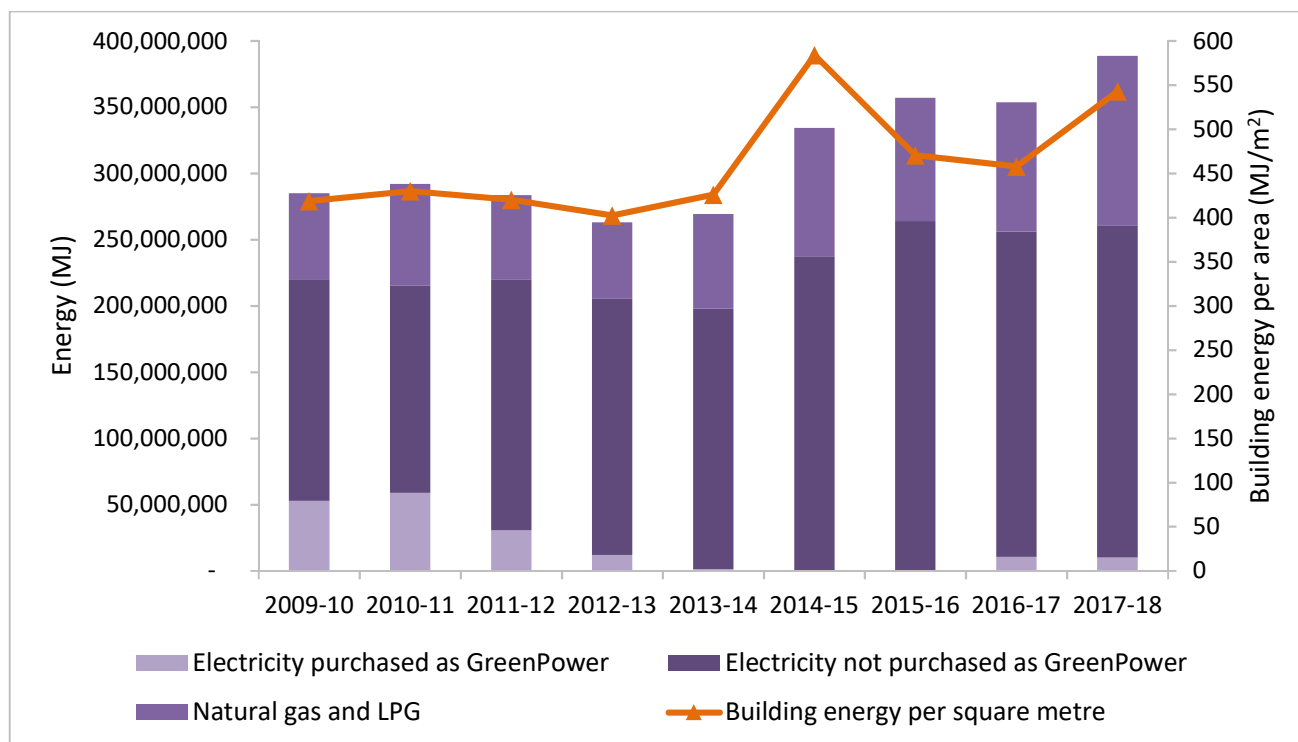
### Office

**Table 4:** Percent change in Victorian Government agency office energy use.

| Indicator  | Value for 2017-18 | % change vs base year | % change in past year |
|--|-------------------|-----------------------|-----------------------|
|  |                   | 2009-10 to 2017-18    | 2016-17 to 2017-18    |
| Total energy use<br>(megajoules)   | 388,608,522       | +36                   | +10                   |
| Percentage of<br>electricity purchased<br>as GreenPower<br>(%)             | 3.9               | -84                   | -5                    |
| Energy use per unit of<br>office area<br>(megajoules/metres <sup>2</sup> ) | 543               | +30                   | +19                   |
| Energy use per FTE<br>(megajoules/FTE)                                     | 9,151             | -27                   | -12                   |

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.

Total energy use has increased by 36% from the base year (2009-10) and there was a 10% increase in the past year. The total building energy in 2017-18 was 388,608,522 MJ, which is the highest total recorded over the reporting period (since 2009-10). Energy usage per square metre of office has similarly increased substantially (by 30%) since 2009-10 as well as by 19% during 2017-18 to a value of 543 MJ/m<sup>2</sup>. The peak office energy use intensity occurred in 2014-15 and was 584 MJ/m<sup>2</sup>.



**Figure 6:** Energy use, intensity and GreenPower purchased for office buildings from 2009-10 to 2017-18.<sup>9</sup>

Energy use per FTE is required to be reported by Victorian Government agencies but has not been reported in previous Strategic Audit reports, with energy use per unit of office area preferred as an indicator of energy use. However, the results for these indicators diverged during 2017-18 with energy use per unit of office area increasing by 19% during 2017-18 while energy use per FTE decreased by 12%. This difference is likely to be due to an increasing density of FTE per unit of office area.

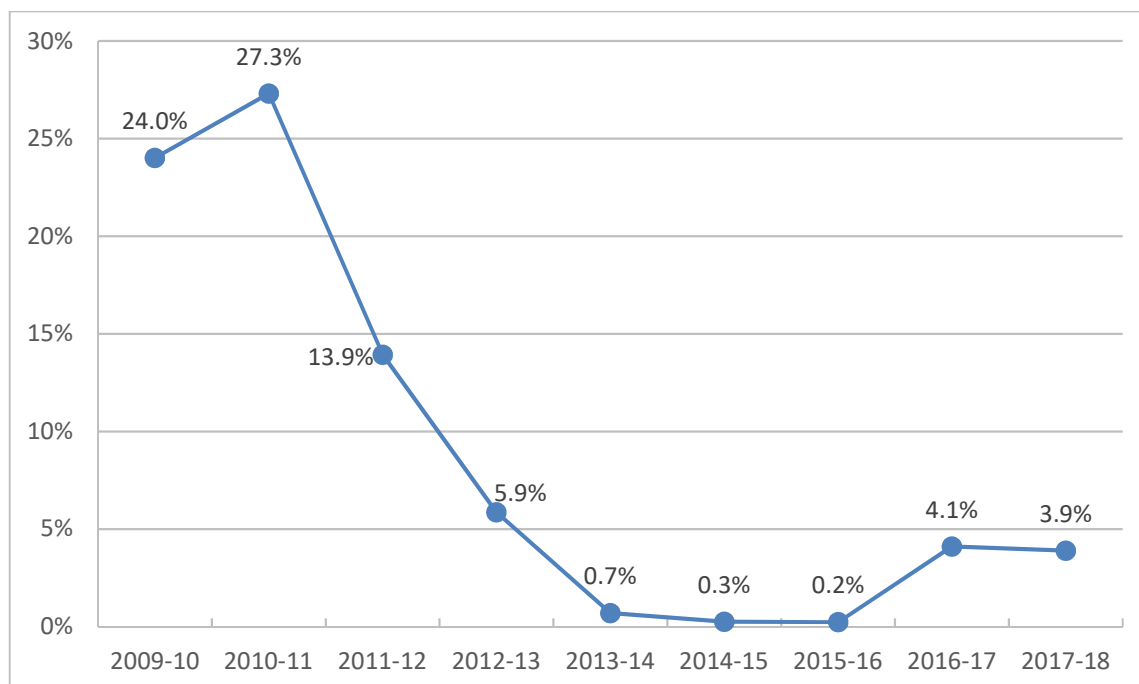
## GreenPower

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. Higher proportions of green energy purchased result in lower GHG emissions for the same quantity of energy consumed.

Electricity purchased as GreenPower has reduced from a peak of 27% in 2010-11 to 4% in 2017-18 (Figure 7).<sup>10</sup>

<sup>9</sup> 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.

<sup>10</sup> While GreenPower purchasing has reduced for FRD 24D reportable operations, the Victorian Government has a program for GreenPower generation and procuring renewable energy sources outside of FRD 24D reportable operations. An example of this is the initiative to offset the electricity for Melbourne's tram network with solar power that began in November 2018.



**Figure 7:** Percentage of electricity purchased as GreenPower from 2009-10 to 2017-18.

## Transport energy and usage

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.

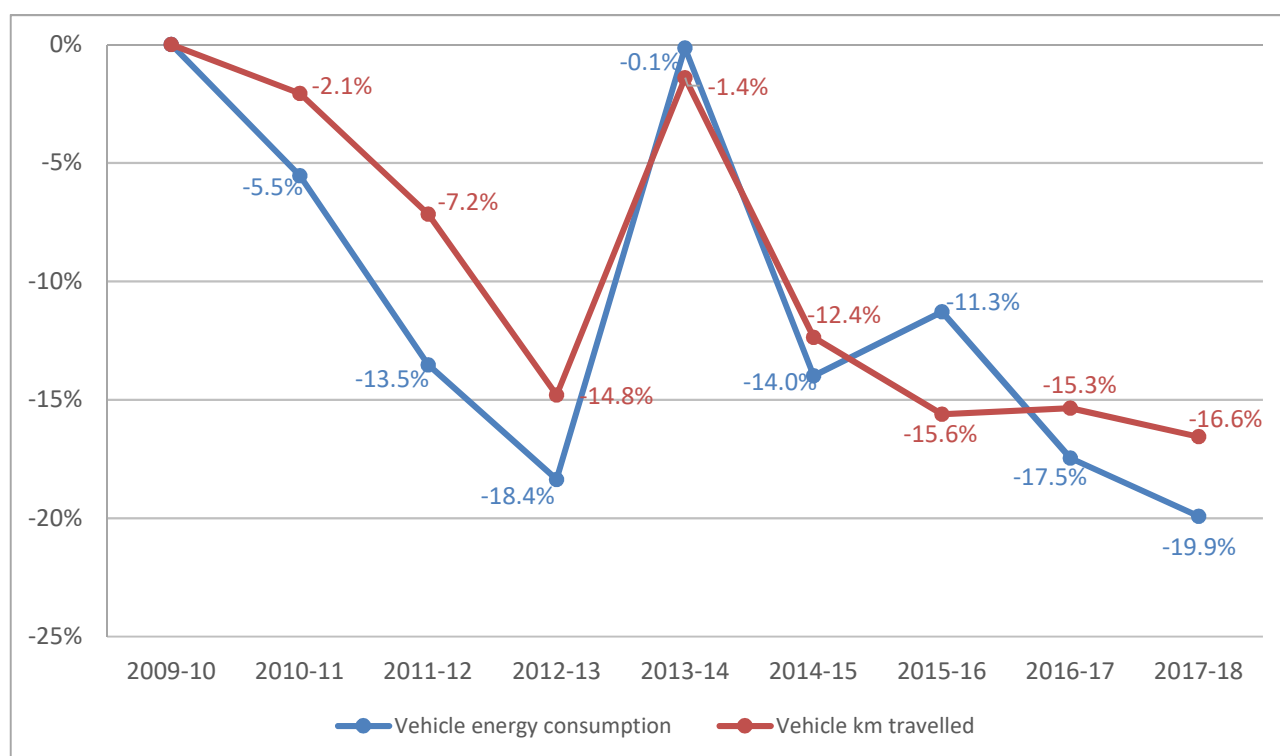
**Table 5: Percent change in transport indicators for Victorian Government agencies.**

| Indicator  | Value for 2017-18 | % change vs base year |                    |
|--|-------------------|-----------------------|--------------------|
|  |                   | 2009-10 to 2017-18    | 2016-17 to 2017-18 |
| Passenger vehicle energy consumption<br>(megajoules)               | 284,573,705       | -20                   | -3                 |
| Land travel distance<br>(passenger fleet vehicles)<br>(kilometres) | 85,952,525        | -17                   | -1                 |
| Air travel distance<br>(kilometres)                                | 24,665,941        | -23                   | +21                |

### *(i) Passenger fleet energy and usage*

Passenger fleet energy consumption reduced by 20% from 2009-10 to 2017-18 and by 3% during 2017-18.

Victorian Government passenger vehicle use (measured in kilometres) has reduced by 17% 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. Figure 8 shows the strong link between vehicle energy consumption and usage, with consumption decreasing by a slightly larger proportion than usage since 2009-10, indicating some energy efficiency improvements.

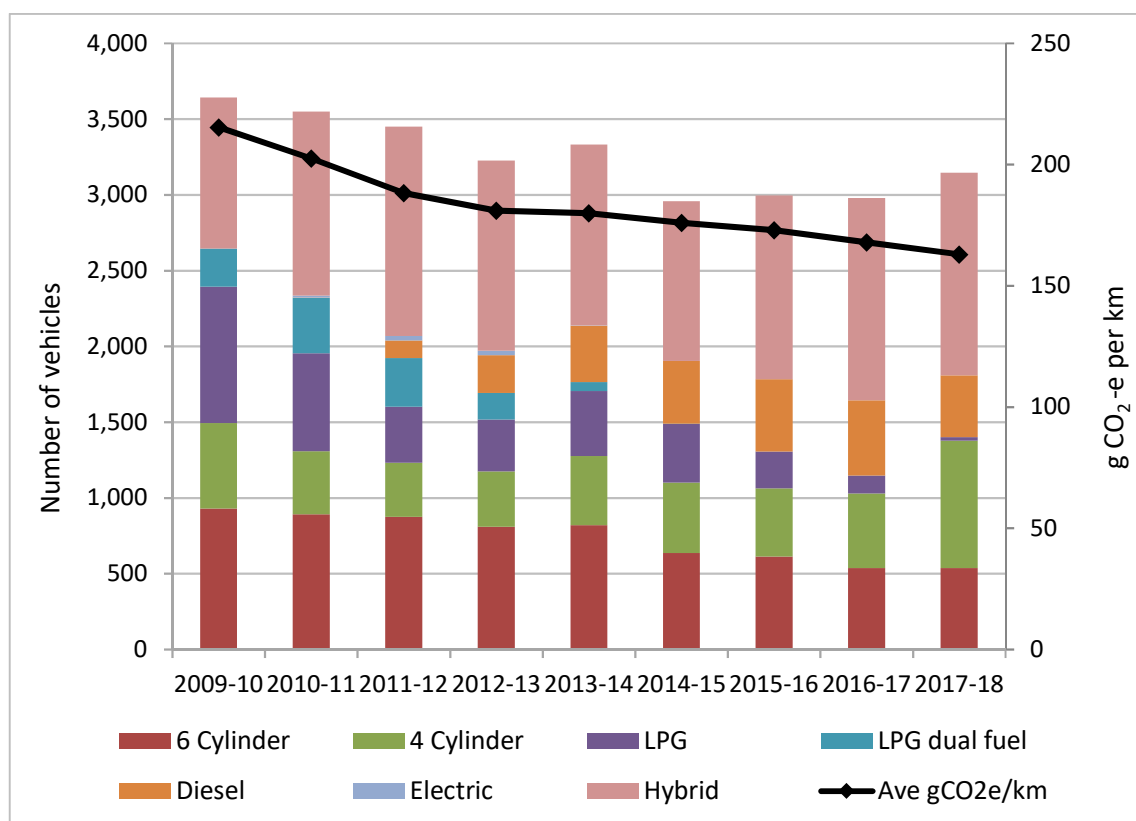


**Figure 8:** Percentage change (relative to 2009-10) in passenger fleet energy consumption and vehicle kilometres travelled from 2009-10 to 2017-18.

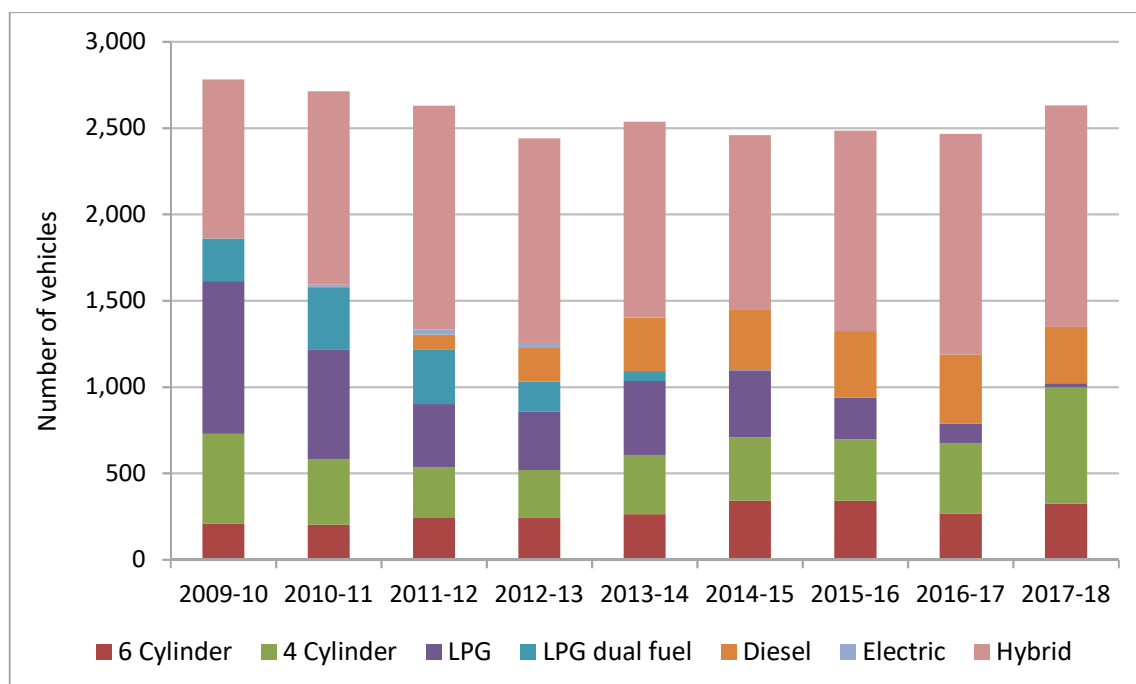
### *(ii) Passenger fleet composition*

The number of operational and executive vehicles increased by 167 (from 2,979 in 2016-17 to 3,146 in 2017-18). The composition of the fleet changed considerably during 2017-18, with the number of four-cylinder vehicles increasing by 70% (from 494 in 2016-17 to 840 in 2017-18) and the number of LPG and diesel vehicles reducing by almost 100 each. A trend to decrease six-cylinder petrol fleet vehicles has been observed with the number of those vehicles dropping from 929 in 2009-10 to 536 in 2016-17, however this trend stabilised in 2017-18. There have been no LPG dual fuel vehicles in the fleet since 2014-15 and no electric cars in the fleet since 2013-14, although hybrid vehicles make up 43% of the fleet. Figure 9 shows the

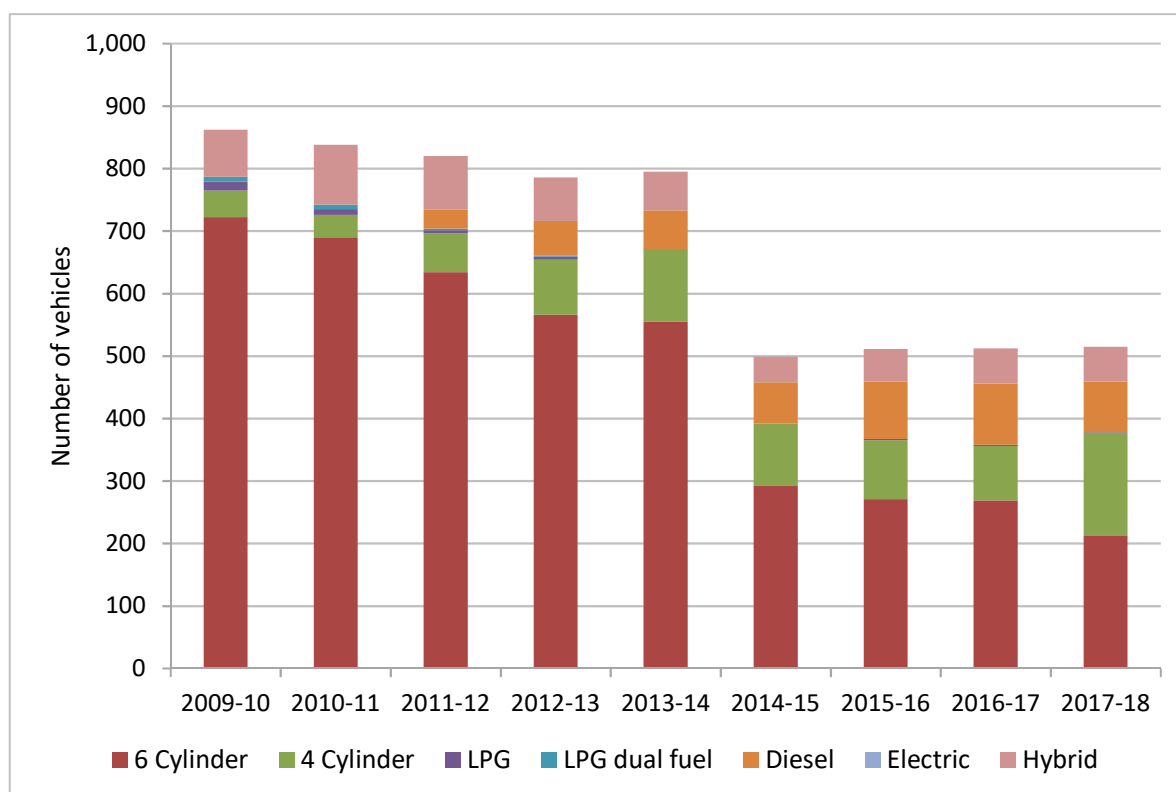
composition of the fleet since 2009-10 as well as the consistent declining trend in the average fleet GHG emission rate.



**Figure 9:** Total Victorian Government (operational and executive vehicles) passenger fleet composition (number of vehicles) and average fleet GHG emission rate (g CO<sub>2</sub>-e per km) from 2009-10 to 2017-18.



**Figure 10:** Victorian Government operational vehicle composition (number of vehicles) from 2009-10 to 2017-18.



**Figure 11:** Victorian Government executive vehicle composition (number of vehicles) from 2009-10 to 2017-18.

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 CO<sub>2</sub>-e per km in 2009-10 to 168 CO<sub>2</sub>-e per km in 2017-18. This notwithstanding, a higher actual emission intensity of 234 g CO<sub>2</sub>-e per km was reported for the Victorian Government fleet in 2017-18. This is likely to be due to manufacturer 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 driving as opposed to country driving is high, with a greater amount of emissions per kilometre from city driving.

### *(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 2017-18 was 23% below that in 2009-10, but 21% more than in 2016-17.



**Figure 12:** Total air travel (kilometres) by Victorian Government agencies from 2009-10 to 2017-18.

#### *(iv) Usage of sustainable transport to commute to work*

Victorian Government agencies are required to report the percentage of employees using sustainable transport (public transport, cycling, walking or car pooling) to get to and from work, by locality type.

There is variability between agencies in the way this indicator is reported. Some agencies just provide an overall value for sustainable commuting usage, some provide values by staff location (that is, CBD, metro, regional) without providing an overall value, and some provide both overall and location-specific values. Data can also be reported differently by individual agencies from year to year – for example, EPA Victoria reported an overall value on the percentage of staff using sustainable transport to get to and from work in 2016-17 and 2017-18, while not reporting values by location. However, values by location were provided in 2014-15. This type of inconsistent reporting precludes detailed analysis of trends and the ability to provide an overall sustainable transport commuting percentage across all agencies.

The available data for staff commuting shows a general pattern of more sustainable transport commuting by staff working in the CBD than other metropolitan and regional areas. Most Victorian Government agencies report that more than 90% of staff use sustainable transport to commute to work locations in the CBD, with typically 20-50% of staff in offices in other parts of metropolitan Melbourne commuting via sustainable transport, while the percentage of staff using sustainable transport to commute to work is generally least in regional offices.



## Waste

**Table 6:** Percent change in waste indicators for Victorian Government agencies.

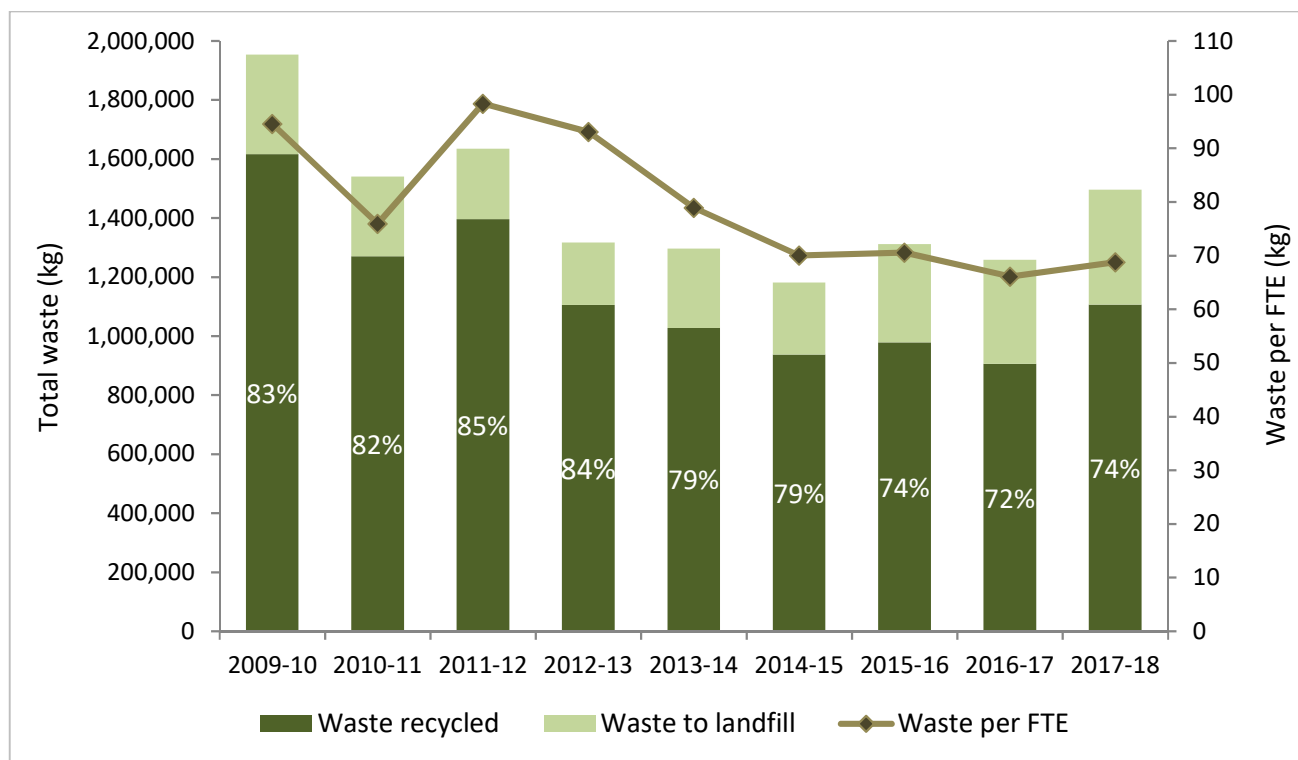
| Indicator                           | Value for 2017-18 | % change vs base year<br>2009-10 to 2017-18 | % change in past year<br>2016-17 to 2017-18 |
|-------------------------------------|-------------------|---|---|
| Total waste produced<br>(kilograms) | 1,495,664         | -23   | +19   |
| Waste recycling rate<br>(%)         | 73.9              | -11   | +3  |
| Waste per FTE<br>(kilograms/FTE)    | 214,041           | -27   | +4  |

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

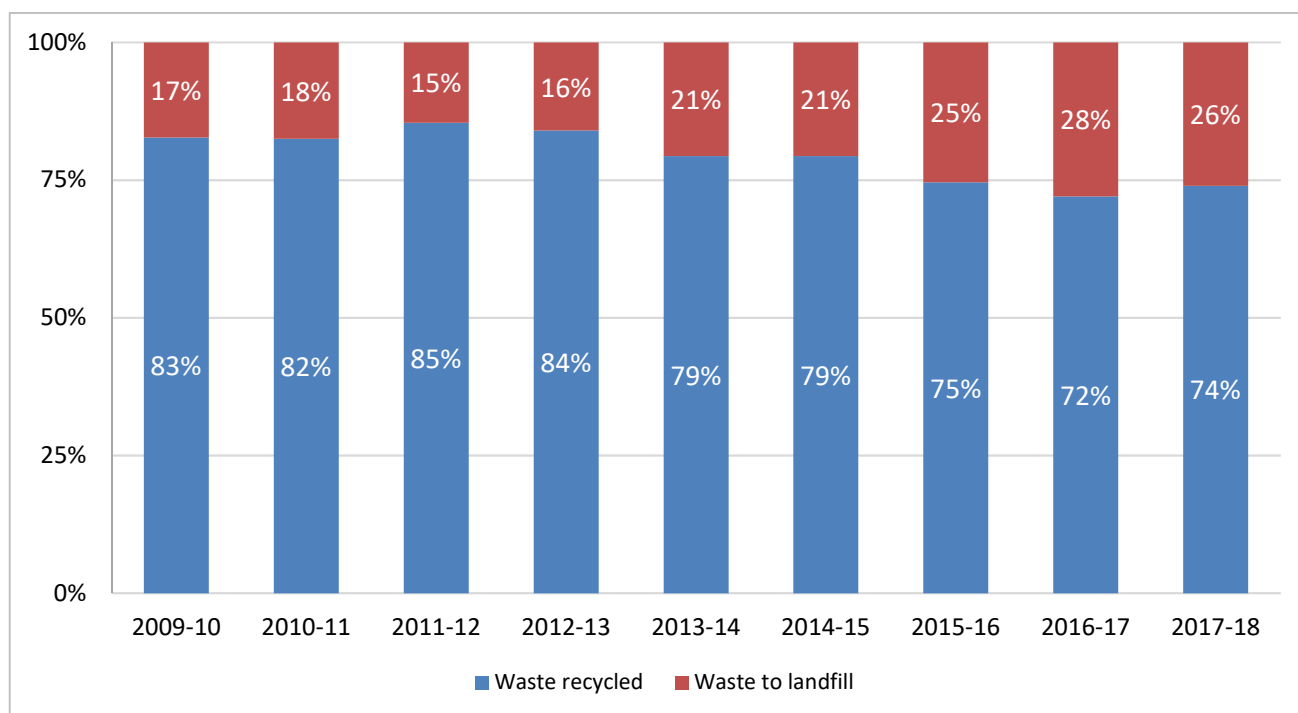
- waste to landfill
- waste (including paper) sent for recycling, and
- composted organic waste.

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 11% since the base year of 2009-10, although there was a 3% increase over 2017-18. The total waste produced in 2017-18 saw a 23% decrease from the base year 2009-10, however there was a 19% increase in total waste in 2017-18 compared to 2016-17. The total waste reported in 2017-18 was the highest amount since 2011-12. The waste produced per FTE follows a similar pattern to total waste, although it only increased modestly (by 4%) in 2017-18. This indicates that increasing FTE staff numbers was largely responsible for an increase in total waste during 2017-18. Compared to 2009-10, Victorian Government agencies are now producing significantly less waste overall and per FTE, but are recycling less effectively. Overall, the significant increase in total waste during 2017-18 is concerning and will hopefully stabilise or reduce during 2018-19.



**Figure 13:** Waste recycled, waste to landfill and recycling rate for Victorian Government agencies from 2009-10 to 2017-18.<sup>11</sup>



**Figure 14:** Percentage of waste recycled and sent to landfill by Victorian Government agencies from 2009-10 to 2017-18.

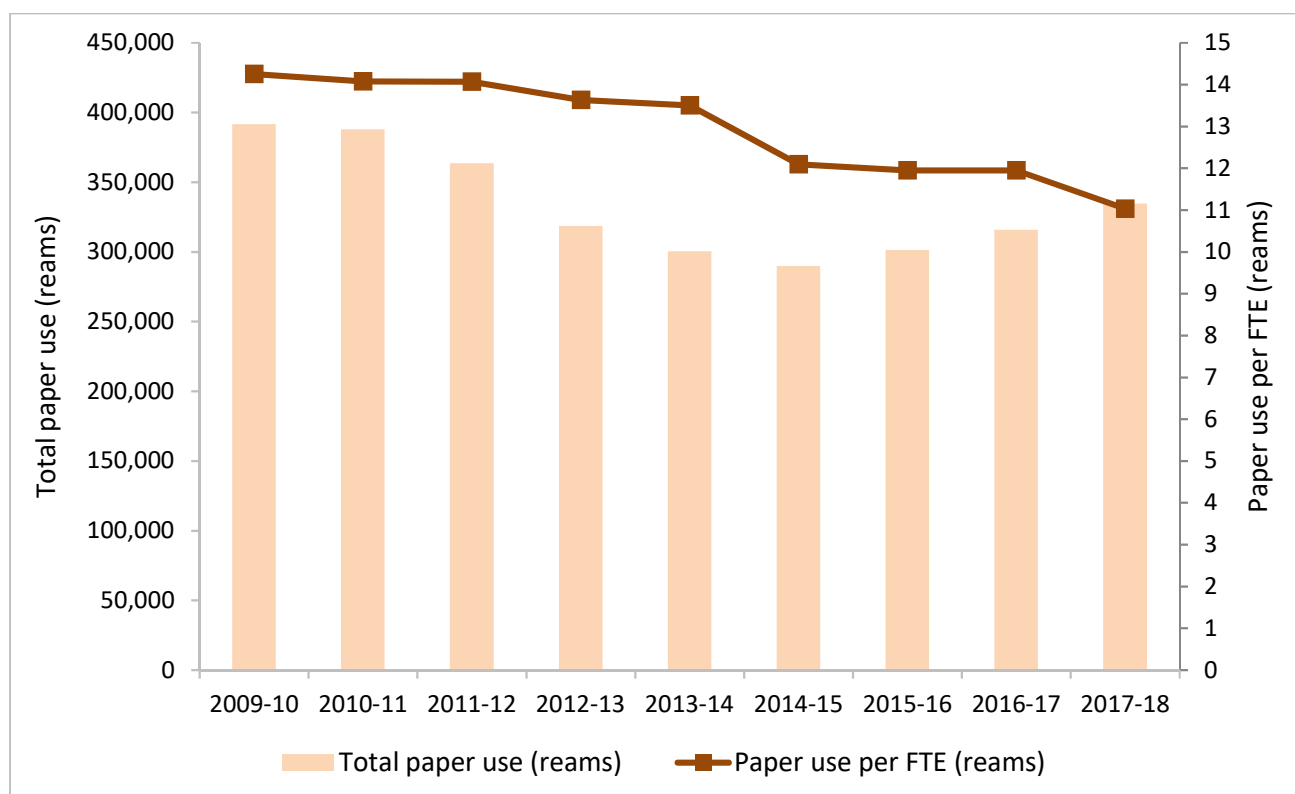
<sup>11</sup> 2012-13 excludes SV data. The then Department of Environment and Primary Industries reported an increase in waste going to landfill, leading to an increase in associated GHG emissions in 2013-14. This was due to separated organics at some sites going to landfill instead of composting.

## Paper use

**Table 7:** Percent change in paper usage across Victorian Government agencies.

| Indicator                        | Value for 2017-18 | % change vs base year<br>2009-10 to 2017-18 | % change in past year<br>2016-17 to 2017-18 |
|----------------------------------|-------------------|---|---|
| Total paper use<br>(reams)       | 334,591           | -15   | +6  |
| Paper use per FTE<br>(reams/FTE) | 11.0              | -23   | -8  |

Victorian Government agencies used 15% less paper in 2017-18 compared to 2009-10. However, paper consumption rose by 6% in 2017-18 compared to 2016-17 and 15% since the lowest recorded value of approximately 290,000 paper reams used in 2014-15. Despite the recent increases in total paper usage, paper use per FTE was 11 reams in 2017-18, which is the lowest figure recorded and a 23% reduction since the dataset began in 2009-10. Paper use per FTE across Victorian Government agencies ranged from 4.9 (EPA) to 16.5 (DEDJTR) reams.



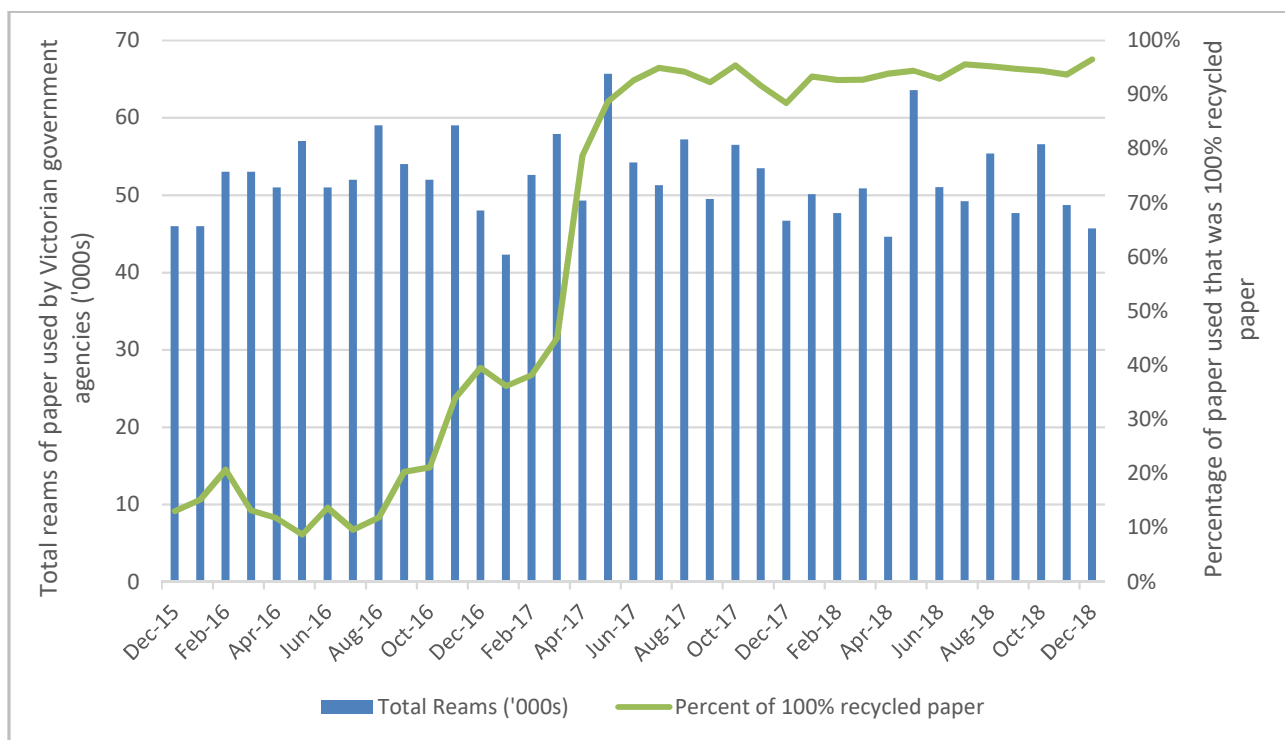
**Figure 15:** Paper use and use per FTE across Victorian Government agencies from 2009-10 to 2017-18.

Victorian Government agencies purchase products, including paper, from the 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 and expires on 10 October 2019, with an option to extend the contract for a further year. 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 through the SPC from 18% in 2016 to 79% in 2017 and 94% in 2018. The availability of locally manufactured, recycled paper has contributed to this increase.



**Figure 16:** Monthly percentage of 100% recycled paper use by Victorian Government agencies from December 2015 to December 2018.<sup>12</sup>

<sup>12</sup> Data supplied by DTF.

## Water use

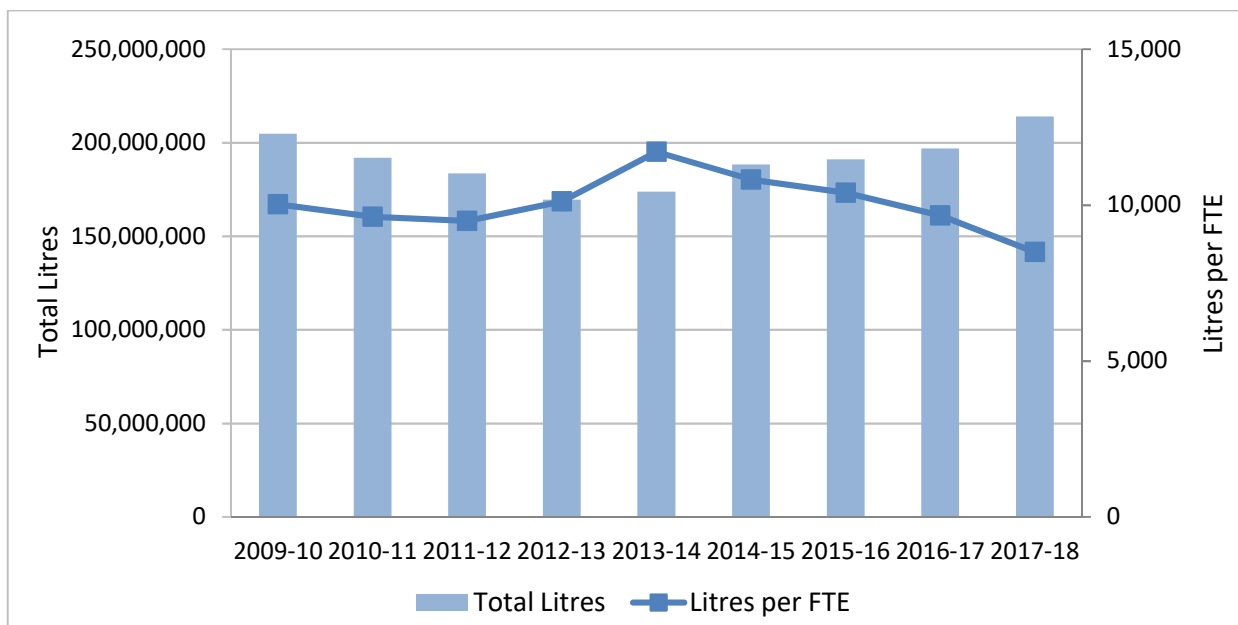
**Table 8:** Percent change in water usage for Victorian Government agencies.

| Indicator   | Value for 2017-18 | % change vs base year | % change in past year |
|---|-------------------|-----------------------|-----------------------|
|   |                   | 2009-10 to 2017-18    | 2016-17 to 2017-18    |
| Total water use<br>(litres)   | 214,041           | +5                    | +9                    |
| Water use per FTE<br>(litres/FTE)                                     | 8.5               | -15                   | -12                   |
| Water use per unit of office<br>area<br>(litres/metres <sup>2</sup> ) | 606               | not available         | 0                     |

Victorian Government agency office-based water use data includes water consumption for drinking, washing, cleaning and toilet flushing along with 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 2017-18 show an increase in total water use (by 9%) since 2016-17 and a reduction in the amount used per FTE (by 12%).



**Figure 17:** Total water use and water use per FTE for Victorian Government agencies from 2009-10 to 2017-18.

Due to the update to FRD 24D from FRD 24C, 2017-18 is the first financial year water use per unit of office area is required to be reported by agencies. Previously, it was optional to report this indicator although many agencies reported this data anyway. Analysis of data from 2016-17 and 2017-18 shows there was no change in water use per unit of office area during the past year.

## TAKE2 program update

Last year we included the first financial year of data since Sustainability Victoria launched the TAKE2 pledge program in June 2016. This year, we note the state of Victoria is continuing to enthusiastically participate in the initiative.

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.

Over 800 organisations are now registered with the program along with more than 11,000 individuals who have taken up the initiative (Table 9).

**Table 9:** Breakdown of organisations and individuals that have made a pledge as part of the TAKE2 program. Data as of 30 June 2018.

| Sector                   | Number |
|--------------------------|--------|
| Individuals              | 11,150 |
| Business                 | 626    |
| Community                | 186    |
| Education                | 90     |
| Government organisations | 78     |
| Local Governments        | 44     |

The reach of the program represents:

- More than 104,000 individual TAKE2 pledges (actions)
- TAKE2 local governments covering more than 76% of Victoria's population
- TAKE2 businesses employees numbering more than 380,000 across Australia with over 16.5 million customers.
- TAKE2 community organisations that have more than 187,000 members
- The combined annual turnover of all TAKE2 members represents at least \$269 billion across Australia.

Only participation statistics are currently available, so the effectiveness of the program is still to be evaluated. However, the reach of the program is encouraging.

## Case study: Department of Justice and Regulation – delivering a modern government fleet policy for a changing climate<sup>13</sup>

DJR, under the Take 2 pledge program, has a pledge of ‘Greening our Vehicle Fleet’ that aims to reduce annual fleet GHG emissions by 404 tonnes per annum by 2020. This pledge has resulted in the department expanding its existing hybrid fleet policy to include a broader range of vehicles. All operational vehicles must be hybrid fuel technology unless supported by an approved exemption. Where a functional area requires a non-hybrid vehicle, the department has established a ‘most efficient’ in class category, to ensure emissions are always considered.

To embed this positive environmental change to vehicle procurement, a sliding scale fleet surcharge has been implemented and a fleet portfolio emissions target (less than 130 grams CO<sub>2</sub>-e per kilometre) has been set. The surcharge is a one-off up-front fee payable as part of the lease. Vehicles emitting less than 50 grams of carbon dioxide per kilometre (50 CO<sub>2</sub>-e g/km) have the lowest surcharge, with the scale increasing as emission levels rise.

**Table 10:** DJR vehicle fleet surcharge scale.

| Scale   | Emissions (CO <sub>2</sub> -e g/km) |
|---------|-------------------------------------|
| Scale 1 | less than 50                        |
| Scale 2 | 50 to 100                           |
| Scale 3 | 100 to 200                          |
| Scale 4 | greater than 200                    |

The surcharge is applied to all vehicles leased from 1 December 2018. Funds raised by the scheme will contribute to offsetting departmental fleet emissions, assist with the roll out of electric vehicle charging infrastructure and fleet administration costs.

In line with the department’s 2017-19 Environmental Management Plan targets, the department elected to procure 3,720 tonnes of carbon offsets to cover both fleet and air travel emissions for the 2017-18 financial year. The offset was gold standard Verified Emissions Reduction – Australian native reforestation of the Yarra Yarra biodiversity corridor in Western Australia.

It is hoped the department’s fleet policy will be used by other state government departments and agencies to reduce their fleet-based carbon emissions which contribute to thousands of tonnes of GHG emissions annually. Furthermore, the department is working with Emergency Management Victoria and its portfolio agencies to understand the emergency portfolio's fleet profile and pathways to transition towards cleaner energy sources.

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<sup>13</sup> This case study was prepared for the Commissioner for Environmental Sustainability by the Department of Justice and Community Safety (formerly the Department of Justice Regulation).



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Level 36, 2 Lonsdale Street

Melbourne Victoria 3000

T 03 9948 2829

[www.ces.vic.gov.au](http://www.ces.vic.gov.au)

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