



Government of **Western Australia**  
Department of **Water and Environmental Regulation**

# Smoky Vehicle Reporting Program

2023-24 Annual report



**CleanRun**  
Let's drive down emissions

November 2024

Department of Water and Environmental Regulation  
Prime House, 8 Davidson Terrace  
Joondalup Western Australia 6027  
Locked Bag 10 Joondalup DC WA 6919

Phone: 08 6364 7000

Fax: 08 6364 7001

National Relay Service 13 36 77

[wa.gov.au/dwer](http://wa.gov.au/dwer)

© Government of Western Australia

November 2024

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. Apart from any use as permitted under the *Copyright Act 1968*, all other rights are reserved. Requests and inquiries concerning reproduction and rights should be addressed to the Department of Water and Environmental Regulation.

#### **Disclaimer**

This document has been published by the Department of Water and Environmental Regulation. Any representation, statement, opinion or advice expressed or implied in this publication is made in good faith and on the basis that the Department of Water and Environmental Regulation and its employees are not liable for any damage or loss whatsoever which may occur as a result of action taken or not taken, as the case may be in respect of any representation, statement, opinion or advice referred to herein. Professional advice should be obtained before applying the information contained in this document to particular circumstances.

This publication is available on our website [wa.gov.au/dwer](http://wa.gov.au/dwer). You can also request it in alternative formats such as audio, large print, or Braille.

# Contents

1	Smoky Vehicle Reporting Program .....	1
1.1	Program overview .....	1
1.2	How the program works .....	1
	Privacy .....	1
	Making a report.....	2
	Report verification.....	2
	Vehicle owner notification .....	2
1.3	Program updates.....	3
	Location verification .....	3
	Enhanced data collection.....	3
1.4	Acknowledgements .....	3
2	Program performance .....	4
2.1	Reporting data .....	4
2.2	Reporting frequency.....	5
2.3	Repeat vehicle reports .....	5
2.4	Response data .....	6
2.5	Reporter diversity.....	6
2.6	Observations .....	7
	Fuel type .....	8
2.7	Further information.....	8

# Figures

Figure 1	Annual reporting and response data.....	4
Figure 2	Reports received per month .....	5
Figure 3	Distribution of responses received.....	6
Figure 4	Number of unique reporters annually .....	7

# 1 Smoky Vehicle Reporting Program

This report summarises the data and observations collected by the Smoky Vehicle Reporting Program between July 2023 and June 2024.

It is published to promote transparency in the program and provide feedback to people who submitted a smoky vehicle report during the year.

## 1.1 Program overview

The program is a joint initiative of the Department of Water and Environmental Regulation (the department) and Department of Transport (DoT). It aims to:

- identify vehicles that are at risk of breaching vehicle emission legislation
- engage with vehicle owners to undertake any necessary vehicle maintenance.

The program is a key initiative of the National Environment Protection (Diesel Vehicle Emissions) Measure 2001 and the *Perth Air Quality Management Plan*.

When identifying whether a vehicle can be classified as 'smoky', the program follows guidance from regulation 354 of the Road Traffic (Vehicles) Regulations 2014, which relates to the visible emissions of certain motor vehicles:

- (1) This regulation applies to a motor vehicle that is propelled by an internal combustion engine and was built after 1930.
- (2) A motor vehicle mentioned in sub regulation (1) must not emit visible emissions for a continuous period of at least 10 seconds.
- (3) This regulation does not apply to emissions that are visible only because of heat or the condensation of water vapour.

In line with this, a smoky vehicle is one which emits visible emissions for at least 10 continuous seconds.

The program is a community engagement initiative to address public concerns about vehicle emissions and to encourage vehicle owners to take vehicle maintenance actions. It complements the regulatory effort of WA Police and authorised officers to identify excessively polluting vehicles and issue compliance notices.

## 1.2 How the program works

Members of the public who identify vehicles which smoke continuously for 10 seconds or more can submit reports to the department. The department and DoT then verify reported details and notify the vehicle owner, who is invited to respond. Those responses are collected and statistical data on reported vehicles is compiled for analysis.

### Privacy

The department does not have access to vehicle owner information and DoT does not have access to reporter information. This separation of data is designed to protect the privacy of reporters and vehicle owners.

## Making a report

The department maintains an [online reporting portal](#) through which anyone can report a smoky vehicle's details. The data reported, which allows vehicle owners to be identified, includes:

- the vehicle body type, licence number, make, model and colour
- the location, date and time of sighting
- the reporter's name and contact details.

Photographic evidence can also be provided but is not essential. Reporters are sent a notification email to confirm their submission. If a report is incomplete or unclear, they may be contacted for further information.

## Report verification

To mitigate against malicious and vexatious reporting, all reports are verified.

- Reports are checked for basic errors, such as mistyping of the vehicle licence number. Obvious mistakes are either queried or rejected.
- If the notification email sent to the reporter is rejected, a bounce-back email will be received, and the report discarded.
- After the information identifying reporters is removed, batches of reports are sent to DoT every two months. DoT extracts vehicle owner, make, model and colour data from its database and sends the department the vehicle make, model and colour for cross-checking against reports. Those with obvious mismatches are rejected.

## Vehicle owner notification

After verification, reports are sent to a third-party mailer, which prints notification letters on behalf of the department and DoT using the vehicle details from the reports. The letters are sent to vehicle owners, along with a reply-paid card to allow them to respond to the report.

Vehicle owners complete the reply-paid card with their licence number and fuel type, and provide a response to the report, which can include:

- vehicle repaired or scheduled for service
- vehicle does not smoke for 10 continuous seconds
- cannot afford to repair vehicle
- vehicle has been sold or disposed
- vehicle details incorrect
- other – please give details.

These responses are recorded against each report. Response data is analysed annually for observations and trends.

Vehicle owners can contact the department to discuss the letter and reporting program.

## 1.3 Program updates

### Location verification

As a response to the increasing frequency of ‘vehicle does not smoke’ responses over time, an assessment of reports received over the last five years was undertaken in December 2023 to try to identify trends that could be addressed to improve targeting of smoky vehicles.

The review identified patterns in the reporting of locations that were strongly associated with ‘vehicle does not smoke’ responses. The locations were assessed as likely that the vehicles were producing short bursts of smoke, but not for long enough to trigger the 10-second threshold. An additional location filter has been added to the verification stage to remove these reports from the mailout process. However, these reports are still retained in case future reports indicate the vehicle is likely producing excessive smoke.

### Enhanced data collection

From 8 January 2024, the online reporting form was updated to improve the granularity of reports received. Several options were added to clarify the observations made by individuals reporting vehicles. This has increased the quality of data received which makes it more useful for future policy development options, and also improved report verification outcomes with more information available to assess the likelihood of the vehicle being an excessive polluter or not.

## 1.4 Acknowledgements

This program exists and continues to operate thanks to the efforts of members of the public who care about the air that they and others breathe.

For those reading this summary who have submitted a smoky vehicle report, know that you are making a difference. We hope you continue to make reports and would also encourage your acquaintances to report smoky vehicles they see. Having a range of people reporting to the program improves coverage and helps build a bigger picture of where vehicle emission issues are occurring.

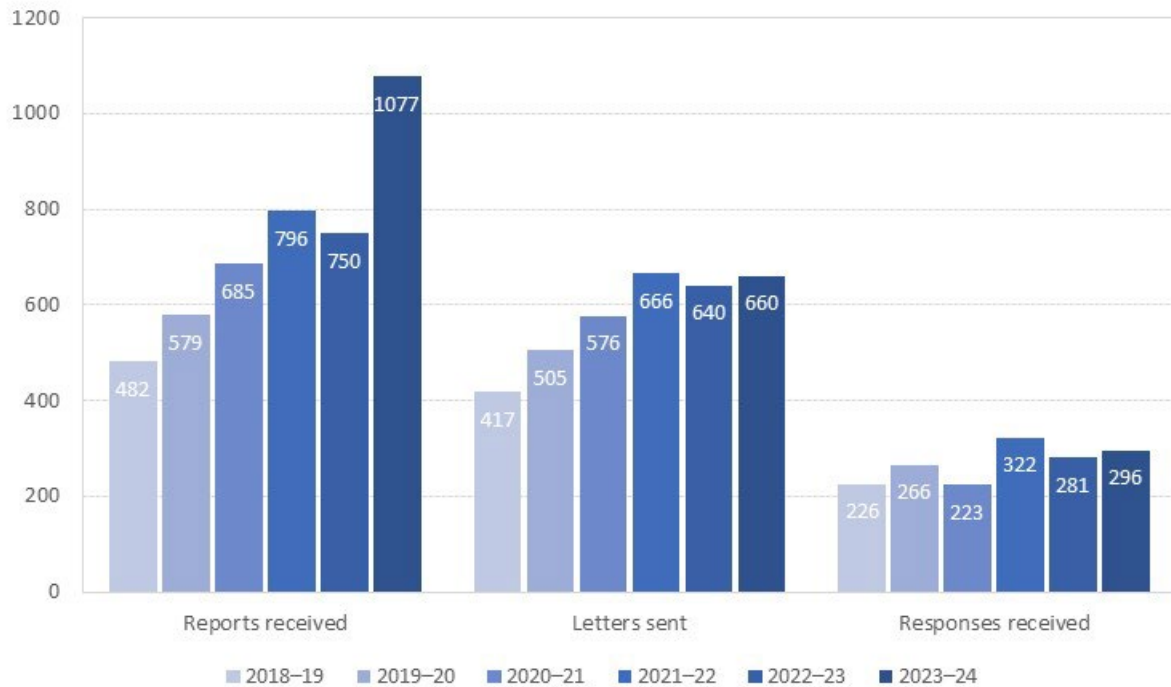
If you have received a smoky vehicle letter and have acted to repair, service or retire your vehicle, we hope you enjoy the reduced operating costs and the knowledge that you’ve reduced the impact of your vehicle on local air quality. Vehicle emissions are a significant source of air pollution in urban environments – any reduction makes a real difference to your community.

## 2 Program performance

### 2.1 Reporting data

Figure 1 shows the program's recent reporting history. In 2023–24, the program:

- received 1,077 valid reports
- verified 660 reports as valid and sent letters to identified vehicle owners
- received 296 responses from letters sent.



*Figure 1 Annual reporting and response data*

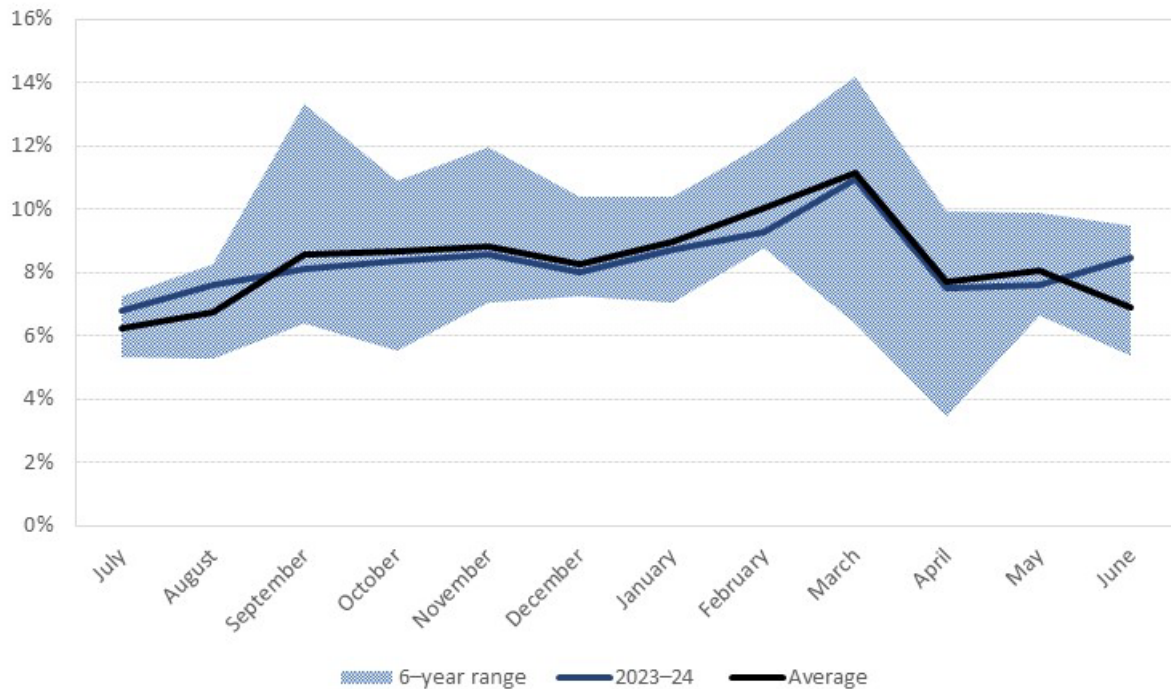
The number of reports received and letters sent in 2023–24 shows a sizable increase compared with last year. However, if the number of 2022–23 reports received is considered an outlier, then this year's reports received shows a continuation of the linear increase in reports received each year.

The number of responses received for letters sent to vehicle owners during this period remains broadly consistent with recent years with respect to letters sent.

A notable feature of this year's data is the disparity between the reports received and letters sent. Previous years show a mostly consistent ratio between these values each year. It is believed that the introduction of additional observation questions this year in the online reporting form has encouraged reports that would have not been submitted in the previous version of the online reporting form. While many of the reports would not be usable by the program, they still provide useful contextual information and insight into public concerns around vehicle pollution for future policy development.

## 2.2 Reporting frequency

The monthly reporting rate for the recent years is presented in Figure 2.



*Figure 2 Reports received per month*

The 2023–24 period had a reporting frequency profile similar to the average of the last six years; though it is noted that the large increase in reports received this year would pull the average towards this year’s report distribution profile.

Historic data shows spike and dips occurring at various times of the year. It is unknown what, if any, specific factors influence the reason reporting frequency varies over the year. Considerations include:

- weather influencing visibility of exhaust fumes
- seasonal variance in driver activity or behaviours, such as air-conditioner use or scheduled servicing
- seasonal fuel quality variation, such as a change in Reid Vapour Pressure.

## 2.3 Repeat vehicle reports

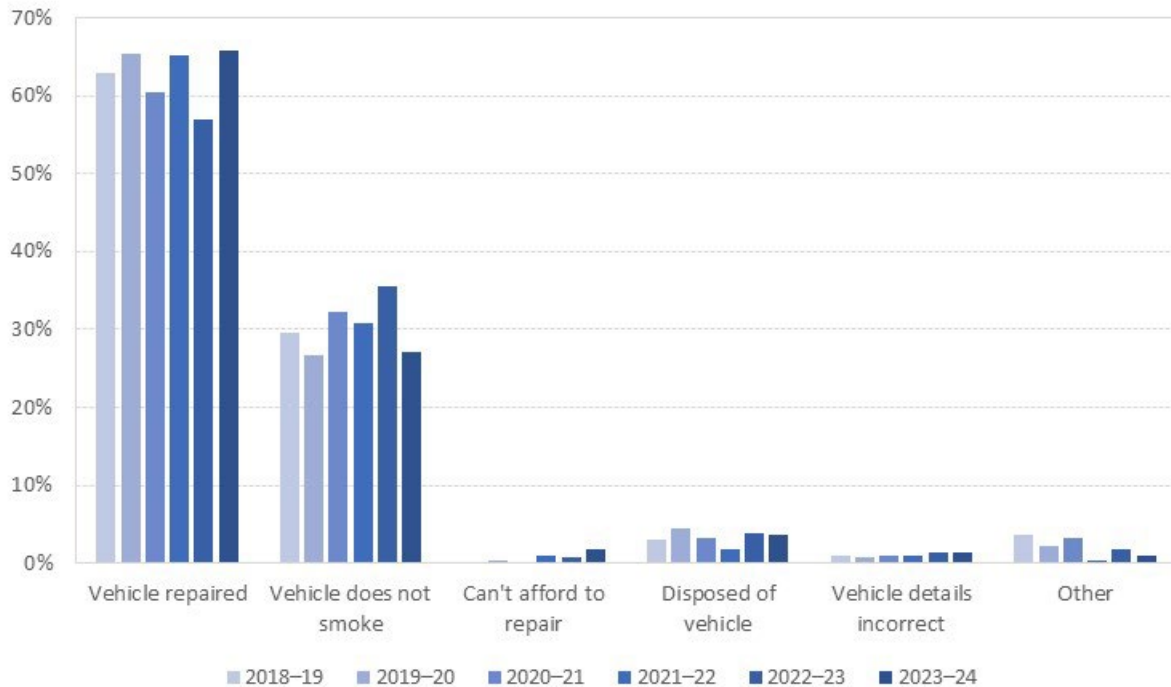
In 2023–24, 74 vehicles were reported more than once within a 12-month period. Seven of these were reported three times.

Of the vehicles reported more than once, three vehicle owners responded to the advisory letters sent. All responses advised they had either divested themselves of their vehicle or had undertaken repairs/servicing.



## 2.4 Response data

Responses received in recent years are summarised in Figure 3.



*Figure 3 Distribution of responses received*

Two-thirds of responses received in 2023–24 indicated the vehicle owner had repaired their vehicle or scheduled it for servicing after being notified. This is consistent with responses from recent years. The ‘vehicle does not smoke’ response was received in 27 per cent of cases, which was also comparable to recent years’ responses.

While this represents an improvement from the 2022–23 reporting period, the response profile is similar to those in 2021–22 and 2019–20. There is no clear explanation for the two-year cycle that appears in the data, and it will continue to be monitored.

Responses falling into other categories remain low with only 23 (8 per cent) of responses received in 2023–24 falling outside the two main categories.

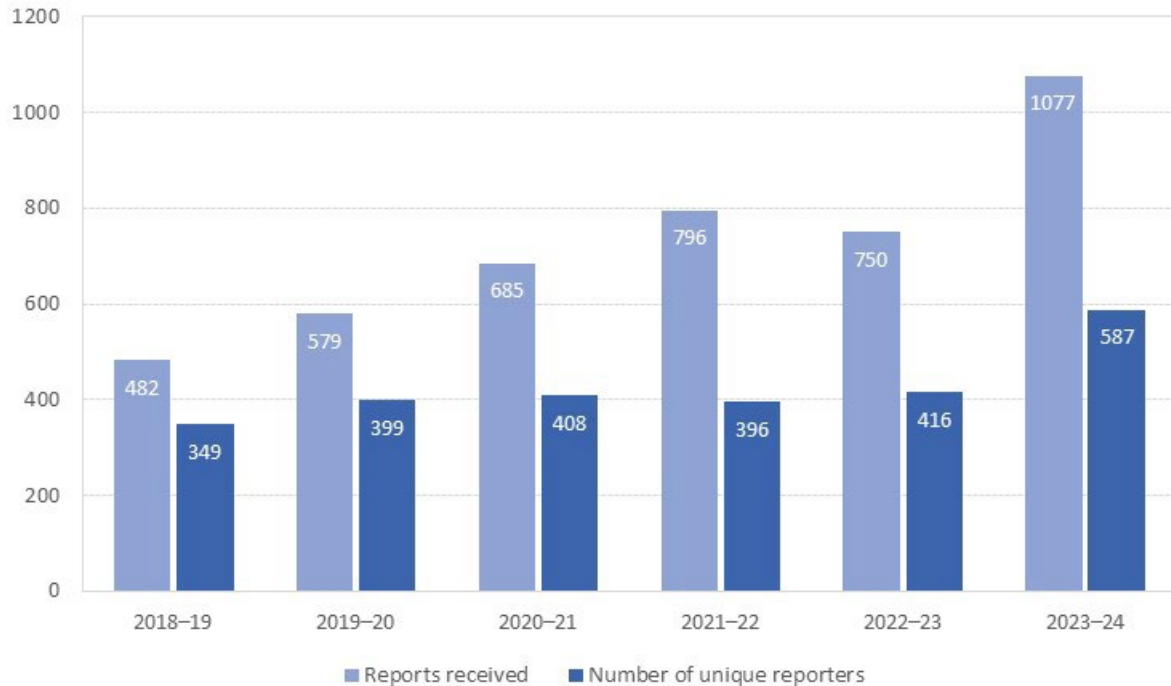
## 2.5 Reporter diversity

It is important to consider the diversity of the reporter base when assessing the significance of the dataset. A high percentage of unique reporters dilutes the risk of observational bias in the dataset. A very small number of heavy reporters can potentially impact the proportion of responses received if they do not properly observe the 10-second rule. An example of this is the reporting of vehicles that puff smoke on take-off but not for 10 continuous seconds.

An additional benefit of a wide reporter base is the likelihood of improved spatial coverage, though this is no guarantee and there is insufficient data collected for any meaningful spatial analysis of reports received. A wide reporter base can also be used as

a proxy to measure community awareness of the program; though it is noted that several factors can influence reporter participation levels.

Reporter diversity, depicted in Figure 4, shows that the number of unique reporters were mostly stable between 2019–20 and 2022–23 while the number of reports received was trending upwards. While there were more unique reporters for the 2023–24 reporting period, the average of 1.8 reports made per person was the same as last year.



*Figure 4 Number of unique reporters annually*

A consistent feature of the reporter base is the dominance of a small number of ‘super-reporters’ submitting 10 or more reports in a year. Analysis of the responses received from vehicles identified by super reporters historically has found the ‘vehicle does not smoke’ response is usually between 10–20 per cent higher than the average from the entire reporter base.

For 2023–24, seven reporters were responsible for 300 (28 per cent) of the reports received. Forty per cent of the responses received from super-reporters indicated that the ‘vehicle does not smoke’, compared with 28 per cent for the whole reporter base. When the dataset was assessed without the reports received from super-reporters, the ‘vehicle does not smoke’ response dropped from 28 to 23 per cent.

This disparity reinforces the importance of a diverse reporter base to offset the potential impact of high-frequency reporters on report validity, but also the need to better emphasise the requirement that reports should only be submitted if the vehicle smokes for 10 seconds continuously.

## 2.6 Observations

Collection of detailed vehicle data started in November 2017 as part of improved report verification processes.

The only metric of note for 2023–24 was the fuel type of reported vehicles, which is discussed further below. No noteworthy observations or trends were found for odometer data, vehicle weight or vehicle body type.

Additional pollution observation data was available from January 2024 but will not be assessed until a full year of data is available.

### **Fuel type**

Eighty-seven per cent of vehicles reported were diesel powered. [Roadside measurements taken in recent years](#) by the department have established that diesel vehicles produce higher emissions of particulates compared with other fuels like petrol. Particle emissions contribute to visible exhaust smoke.

Diesel engines can produce a short puff of smoke when accelerating until air intake is sufficient to combust more completely the volume of diesel being injected into the cylinders. This can be more noticeable when the vehicle is under heavy load. Given that the program uses the 10-second rule as defined by the Road Traffic (Vehicles) Regulations 2014, these smoke puffs do not necessarily make the vehicle 'smoky'.

Driver behaviour can also strongly influence smoke emissions. Vehicles that are accelerated heavily or towing overweight trailers are more likely to smoke. When driven smoothly with gentle acceleration, steady speed and the correct gear choice, emissions are significantly reduced, and vehicles are less likely to smoke.

Only eight LPG vehicles were reported to the program in 2023–24. This is more reflective of the low popularity of the fuel in the Western Australian fleet than the emissions performance of engines operating on LPG.

## **2.7 Further information**

For further information about the program and the data collected, contact the department via email at [smokyvehicles@dwer.wa.gov.au](mailto:smokyvehicles@dwer.wa.gov.au).

