Deloitte.



Fourth *Product Stewardship (Oil) Act* 2000 review - Final report

Department of Agriculture, Water and the Environment ^{11 December 2020}

Deloitte Access Economics

Contents

| Gloss | ary | | 5 |
|--------|--|--|--|
| Execu | utive s | ummary | 8 |
| 1 | Background | | 13 |
| | 1.1 1.2 | Introduction and review scope Background | 13 14 |
| 2 | Context and operation of the PSO Scheme, 2000-2020 | | 15 |
| | 2.1 2.2 2.3 | Operation of the PSO Scheme Outcomes of the 2013 Review Context – the Australian petroleum market and operation of the PSO Scheme | 15 18 |
| | 2.4 2.5 2.6 2.7 2.8 2.9 | COVID-19 Compliance Developments and Rulings since 2013 Other product stewardship schemes in Australia Waste oil transport policy in states and territories PSO Scheme and mine sites | 20 27 28 30 33 35 36 |
| 3 | The e | environmental impacts of used oil and recycling | 37 |
| | 3.1 3.2 3.3 | Background Environmental impacts of waste oil disposal and recycling Estimates of the cost of the externality | 37 37 38 |
| 4 | Asse | ssment | 42 |
| | 4.1 4.2 4.3 4.4 4.5 4.6 4.7 | The economic rationale for the PSO Scheme Objectives of the Act Outcomes and achievements of the PSO Scheme Risks and challenges Effectiveness Appropriateness Efficiency | 42 43 45 48 52 54 62 |
| 5 | Conc | lusion and recommendations | 63 |
| | 5.1 5.2 5.3 | Overview Recommendations Further observations | 63 63 67 |
| Appe | ndix A | : International approaches to managing used oil | 69 |
| Appe | ndix B | : Stakeholder consultation | 85 |
| Limita | ation o | of our work | 86 |

Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website: www.deloitte.com/au/deloitte-access-economics

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities. DTTL (also referred to as "Deloitte Global") and each of its member firms and their affiliated entities are legally separate and independent entities. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Liability limited by a scheme approved under Professional Standards Legislation.

Member of Deloitte Asia Pacific Limited and the Deloitte Network.

©2020 Deloitte Access Economics. Deloitte Touche Tohmatsu

Charts

| Chart i : Volume of used oil output (LHS) and value of benefits paid (RHS) | 9 |
|--|----|
| Chart ii : PSO Scheme benefit, levy, and fiscal balance | 10 |
| Chart iii : PSO Scheme cumulative fiscal balance | 10 |
| Chart 2.1 : Australian crude oil production, 2010-11 to 2019-20 | 20 |
| Chart 2.2 : Petroleum refinery input, Australia | 21 |
| Chart 2.3 : Refinery production by Category | 21 |
| Chart 2.4 : Demand for select petroleum products in Australia, 2010-11 to 2019-20 | 22 |
| Chart 2.5 : Sales of lubricants by jurisdiction, 2019-20 | 23 |
| Chart 2.6 : Volumes of PSO Scheme claims by categories | 24 |
| Chart 2.7 : Benefits paid under the PSO Scheme, by Category, 2000-01 to 2019-20 | 25 |
| Chart 2.8 : Scheme benefits and levies paid, 2000-01 to 2019-20 | 26 |
| Chart 2.9 : PSO Scheme cumulative fiscal balance | 26 |
| Chart 2.10 : PSO Scheme levy volume and value, imports and domestic production | 27 |
| Chart 2.11 : Total volume of oil imports, Australia, 2019-20 | 28 |
| Chart 4.1 : Collection rate of waste oil under the PSO Scheme, 2000-01 to 2019-20 | 45 |
| Chart 4.2 : Volume of re-refined oil output by use | 47 |
| Chart 4.3 . Number of PSO Scheme clients who received payments (excluding Category 8 | |
| and additional benefits) | 48 |
| Chart 4.4 : PSO Scheme levy, benefit and fiscal balance, historical and forecast | 55 |
| Chart 4.5 : PSO Scheme cumulative fiscal balance | 55 |
| Chart 4.6 : Source of PSO Scheme benefit payments, 2013-14 to 2023-24 | 56 |
| Chart 4.7 : Crude oil price forecasts to 2030, Tapis and Brent | 57 |
| Chart 4.8 : Output index for select industries, 2018-2023 | 58 |
| Chart 4.9: Requests for driving directions in Apple Maps, 2020 | 59 |
| Chart 4.10 : Crude oil prices, West Texas Intermediate and Brent, 2000 – 2020 | 61 |
| Chart 5.1 : Proposed options for updating the levy rate | 66 |
| Chart A.1 : EPR by product type, worldwide | 71 |

Tables

| Table i : Objects of the Act and evidence of their achievement | 8 |
|---|----|
| Table 2.1 : Legislation and regulation governing the PSO Scheme | 15 |
| Table 2.2 : PSO Scheme Categories definitions and benefit rates | 16 |
| Table 2.3 : Recommendations and Government responses from the third PSO Scheme | |
| review | 19 |
| Table 2.4 : Description of PSO Scheme categories | 24 |
| Table 2.5 : Eligibility requirements for PSO Scheme benefit by Category | 29 |
| Table 2.6 : ATO Commissioner rulings | 30 |
| Table 2.7 : Fuel excise rates for PSO Scheme benefit categories | 33 |
| Table 4.1 : Benefits and costs of the PSO Scheme | 43 |
| Table 4.2 : COAG best practice principles and application to the PSO Scheme | 44 |
| Table 5.1 : Possible approach to floating PSO Scheme benefit rates | 64 |
| Table A.1 : Overview of EPR and Product Stewardship Global Policy Instruments | 71 |
| Table A.2 : Alberta return incentive payment schedule by zone (2018) | 74 |
| Table A.3 : Summary of EPR/Product Stewardship schemes in Canadian provinces | 76 |
| Table A.4 : Summary of EU Directives relating to the waste management of used oil | 79 |
| Table A.5 : Summary of EU EPR Systems | 80 |
| Table A.6 : Summary of Regional EPR schemes in Belgium | 81 |



| Figure 2.1 : Overview of Australian oil recycling sector | 17 |
|---|----|
| Figure 2.2 : Used oil recovery rate and life cycle, ML, 2018-19 | 18 |

Glossary

| Short name | Full name | | |
|-----------------------------|--|--|--|
| AAT | Administrative Appeals Tribunal | | |
| ABF | Australian Border Force | | |
| ABS | Australian Bureau of Statistics | | |
| ACT | Australian Capital Territory | | |
| ATO | Australian Tax Office | | |
| BAS | Business activity statement | | |
| bbl | Barrel | | |
| BEV | Battery electric vehicles | | |
| COAG | Council of Australian Governments | | |
| СРІ | Consumer price index | | |
| cpl | Cents per litre | | |
| 'DAWE', or 'the Department' | Department of Agriculture, Water and the Environment (Commonwealth) | | |
| EPA | Environmental Protection Authority | | |
| EPR | Extended producer responsibility | | |
| EU | European Union | | |
| EV | Electric Vehicle | | |
| GDP | Gross domestic product | | |
| GHG | Greenhouse gas | | |
| GPG | Gas powered electricity generation | | |
| HEV/PHEV | Hybrid electrical vehicles | | |
| ICE | Internal combustion engine | | |
| LGC | Large-scale generation certificates | | |
| LHS | Left-hand side | | |
| ML | Megalitres (Million litres) | | |
| NEPM | National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 | | |
| NGA | National Greenhouse Accounts | | |
| NSW | New South Wales | | |
| NTCRS | National Television and Computer Recycling Scheme | | |
| NTPSS | National Tyre Product Stewardship Scheme | | |
| NZ | New Zealand | | |
| OEM | Original Equipment Manufacturer | | |
| OECD | Organisation for Economic Co-operation and Development | | |
| OSAC | Oil Stewardship Advisory Council | | |
| PRO | Producer responsibility organisation | | |
| 'PSO Scheme' | Product Stewardship for Oil Scheme | | |
| RET | Renewable Energy Target | | |

| RHS | Right-hand side |
|---------|---|
| SCC | Social cost of carbon |
| SME | Small and medium-sized enterprises |
| SSC | Small-scale technology certificates |
| tCO2e | Tonnes of carbon dioxide equivalent |
| the Act | Product Stewardship (Oil) Act 2000 |
| TV | Television |
| UAE | United Arab Emirates |
| US | United States of America |
| WEEE | Waste electrical and electronic equipment |
| WTOG | Waste Thematic Oversight Group |
| WTP | Willingness to pay |

Fourth Product Stewardship (Oil) Act 2000 review

Executive summary

This report presents the findings of the Fourth Independent Review of the Product Stewardship (Oil) Act 2000 (the Act) undertaken by Deloitte for the Department of Agriculture, Water and the Environment.

The Act was introduced to establish a levy-benefit scheme arrangement with the aim of increasing recycling of petroleum-based and synthetic waste oil in Australia. This review provides an assessment of the effectiveness, efficiency and appropriateness of the Act.

This levy-benefit arrangement established is known as the Product Stewardship for Oil Scheme ('PSO Scheme'). The PSO Scheme consists of an 8.5 cents per litre (cpl) levy on the production and import of petroleum-based oils and synthetic equivalents, and a benefit rate paid per litre of recycled oil produced. There are different benefit rates for different products.

Outcomes and achievements

As set out in Table i, the three main objects of the Act continue to be achieved to a large degree.

Table i: Objects of the Act and evidence of their achievement

| Object | Evidence of achievement |
|--|---|
| Develop a product stewardship arrangement for waste oils. | A product stewardship arrangement is in place. Whilst producers and users of oil do not directly ensure that the environmental impact of waste oil is minimised over its life cycle, they pay the PSO Scheme levy, which supports oil recyclers to achieve this on their behalf. |
| Ensure environmentally sustainable management, re-refining and re-use of waste oil. | The PSO regulations establish a system to encourage the collection and re-refining of waste oil, which encourages its sustainable environmental management. Our analysis suggests that the PSO is capturing the large majority of waste oil products and enabling its re-refining and re-use. In addition, there are technical specifications for Category 1 products in the Scheme, which detail health, safety and environmental standards. |
| Support economic recycling options for waste oil. | The existence of the waste oil recycling sector over 20 years, and recent investments in the sector, provides reasonable evidence that the PSO Scheme supports economic recycling options for waste oil. High volumes of waste oil are captured under the PSO Scheme. |
| | The sector would be smaller (or possibly non-existent) in the absence of the PSO Scheme. However, there is also evidence that recycling of waste oil has become less economic. |

There has been a shift away from the processing of low-grade burning oils under the PSO Scheme and towards lubricating oils. This coincides with the opening of the Wren Oil and Northern Oil Refinery facilities in 2014-15 and the RRR v ATO (2013) ruling relating to low grade burning oils. The volume of high-grade burning oils captured by the PSO Scheme has remained relatively constant since the last review.



Chart i: Volume of used oil output (LHS) and value of benefits paid (RHS)¹

Note: Diesel is included in high-grade burning oil. Category 8 is not included as it is not recycled. Category 3 is high grade, Category 4 is low grade and Category 7 is not shown as the rate and volume is zero. Source: ATO, Deloitte.

Key observations on the PSO Scheme's outcomes since 2013 include:

- a collection rate of waste oil products of between 50% and 60% it is generally agreed that approximately 65% is the maximum feasible collection rate due to losses during usage and the presence of by-products
- the usage of recovered oil that is treated rather than re-refined (Category 6 i.e. is simply filtered and de-watered) and captured under the PSO Scheme has declined from 76.8 ML in 2013-14 to zero, as a result of the RRR v ATO ruling. We note that this does not mean that the activity is not occurring, just that it is not captured via the excise and PSO Scheme data.
- the volume of claims under Category 1 (lubricating oil) has increased significantly.

The PSO Scheme has run a relatively neutral fiscal balance historically, until the trend towards higher volumes of Category 1 claims since 2014-15 has caused it to now run at a deficit. Category 1 refers to re-refined base oil (for use as a lubricant or a hydraulic or transformer oil) that meets specified criteria. It requires a more intensive re-refining process, and results in better environmental outcomes because it allows the product to be re-used indefinitely. Because of this, Category 1 has the highest benefit rate (50 cpl), therefore the higher volume of claims in this Category has meant a higher outlay.

¹ All PSO Scheme data for 2000-01 only includes data for the last six months of the financial year.



Chart ii: PSO Scheme benefit, levy, and fiscal balance

Source: ATO Notes: 2020-21 onwards are forecasts.

In 2018-19, the PSO Scheme's cumulative fiscal balance went from positive to negative and is expected to remain negative for the near future under current arrangements.

Chart iii: PSO Scheme cumulative fiscal balance



Future focus

The oil recycling industry has continued to process the majority of waste oil around Australia since the last review of the PSO Scheme in 2013. However, higher costs eroding margins for smaller businesses, and the need for economies of scale has meant that there has been some consolidation of the industry in recent years. As noted above, the PSO Scheme has fallen into deficit and is not expected to return to surplus. This has the potential to undermine the viability of the PSO Scheme and the industry more generally if not addressed.

The waste oil problem in Australia is ongoing, and the PSO Scheme must be designed in such a way that it supports the long-term sustainability of the oil recycling industry and achieves a net public benefit. An increase to both the levy and benefit rates may be required to achieve this.

There have also been some short-term impacts on the industry as a result of COVID-19. A reduction in crude oil prices and the availability of used oil feedstock has adversely affected rerefiners.

Options

While we do not believe a significant overhaul of the PSO Scheme is necessary, we offer several recommendations that would help achieve its objects and reduce red tape.

These recommendations should be tested with the ATO to understand the feasibility and potential administrative burden if they were to be implemented.

Findings and Recommendations

Findings:

The Scheme is, to a large degree, achieving the objects of the PSO legislation of effectiveness, appropriateness and efficiency, and its overall costs are proportional to the benefits and outcomes it achieves.

It is unlikely that any major structural changes to the PSO Scheme would create a net benefit, given the small amount of waste oil that is not currently being captured, and the likely high marginal cost of doing so. This view was supported by all stakeholders consulted during the review.

However, there are several risks and challenges currently threatening to undermine the effectiveness of the PSO Scheme. They are both short-term and long-term in nature:

- in the **short-term**, there are concerns over the financial viability of the PSO Scheme as well as the oil recycling industry itself due to disruptions caused by COVID-19 and the greatly fluctuating oil price
- in the **longer-term**:
 - a shift towards more expensive Category 1 claims has meant that the PSO Scheme has run at a deficit since 2014-15, and there is little prospect of it returning to a breakeven situation
 - oil recyclers raised concerns that their margins have been eroded over the duration of the PSO Scheme, as benefit rates have remained constant, but input costs have increased.

Other, less significant issues include the cost of collection in regional areas, transparency of Scheme information from Government, and procedural efficiency within the PSO Scheme.

Our recommendations are outlined in summary below and set out in full in Chapter 5.

Recommendations:

| PSO Scheme review Recommendations | Summary of rationale | | |
|--|--|--|--|
| Reducing commodity price risk for oil recyclers by: 1. Enabling PSO Scheme benefits to change with oil prices, to insulate oil recyclers against fluctuations in crude oil prices | Allowing the benefit to fluctuate with the oil price would support the financial sustainability of the PSO scheme by providing additional revenue-stream certainty for industry. It would however mean that commodity risk is borne by Government rather than industry. This could avoid the need for emergency industry support from Government during times of low oil prices, such as provided in 2020. | | |
| | A floating mechanism linking oil prices to benefit rates is set out in Chapter 5. Implementing this change as described would result in a need for an additional 20% or \$15.6 million over the next five years to 2024-5, based on the current (relatively) low oil price forecast. | | |
| | As an interim measure , we consider that the PSO Scheme temporary COVID-support package should be extended for at least another six months to allow government to consider and implement this new mechanism. | | |
| Addressing the increasing deficit by:2. Increasing the levy to address the deficit | A one-off increase to the PSO Scheme levy would enable the PSO Scheme to achieve fiscal neutrality. We consider this is an appropriate and proportionate response to the increasing deficit and would be unlikely to significantly impact demand for levied products. | | |
| | Although proposed by several stakeholders we do not consider that an addition of CPI or other escalation mechanism is necessary. | | |
| Providing more transparency and data concerning the operation of the PSO Scheme by:3. Reinstating publication of PSO Scheme information in Departmental Annual Reports | This will provide an opportunity for stakeholders and the community to understand the costs and benefits of the mandatory PSO Scheme, currently funded in part by taxpayers (not just consumers), without needing to wait for the statutory reviews. | | |
| Observations from the Review | | | |

Other observations noted through the review, also covered in Chapter 5 include the following:

- 1. There is an opportunity to consult with the ABF and other Government agencies to identify a more appropriate certification mechanism for petroleum products imported.
- 2. Government should note the intersection of the PSO Scheme with the mining sector, including use of waste oil in explosives and opportunities to support collection of waste oil from mines.
- 3. There may be merit in holding an annual meeting with relevant Commonwealth, state and territory and local government bodies, industry and stakeholders to facilitate knowledge sharing (similar to the previous Oil Stewardship Advisory Council, but with more flexibility).
- 4. There may be an opportunity for Government to consider facilitating submission of fuel excise and PSO Scheme forms concurrently (at intervals other than weekly), to reduce administrative burden for PSO Scheme participants, as part of the ATO digital transformation program we understand is underway. This may require legislative amendment outside of the PSO Scheme and more detailed consideration by Government outside the scope of this Review.

1 Background

1.1 Introduction and review scope

Deloitte Access Economics was engaged by the Department of Agriculture, Water and the Environment ('DAWE', or 'the Department') to carry out a review of the *Product Stewardship (Oil) Act 2000* (the Act). The Act sets out the arrangements for a Product Stewardship Scheme for oil products, in which a levy on sales of certain oil products is used to subsidise the recycling of these used oils.

Regular independent reviews are a statutory requirement of the Act, and this is the fourth independent review since the Act commenced in 2000. The last review was completed in 2013.

As part of our review of the Act, we have also assessed the effectiveness, efficiency and appropriateness of the Product Stewardship for Oil Scheme ('PSO Scheme') framework – including:

- the ongoing relevance of the Act's objects and scope
- the current and future operation of the Act, and relevant provisions of the customs and excise legislation, Product Stewardship (Oil) Regulations 2000 (sunsetting in 2021), and Product Stewardship (Oil) Declaration 2003 (sunsetting in 2021) in meeting those objects
- the financial and operational sustainability of the PSO Scheme with reference to price volatility of synthetic oils and crude oil, current and emerging technological advances in the recovery and recycling of used oil, and international experience of similar schemes
- an assessment of whether temporary support provided by the Australian Government to Scheme participants in response to COVID-19 should be continued beyond 31 December 2020
- an assessment of any opportunities to reduce regulation and red tape.

1.1.1 Structure of the report

Section 2 provides an overview of the context and operation of the PSO Scheme since the last review.

Section 3 documents literature related to environmental economics and relates this to the operation of the PSO Scheme.

Section 4 provides an assessment of the Act against key criteria, including:

- effectiveness
- appropriateness
- efficiency.

Section 5 provides a conclusion of the review and recommendations.

1.1.2 Approach

The review commenced in July 2020 with a stocktake of available resources, including annual reports, industry data and customs data relating to the PSO Scheme. Some initial views on the information available and success of the Act were formed.

In August, a stakeholder consultation plan was produced, and meetings organised. The consultation plan included a series of questions aimed at filling data gaps with industry knowledge and understanding government and industry's perception of the PSO Scheme. A total of 19 discussions were held with stakeholders.

Data analysis and financial modelling was conducted in September and October 2020 following consolidation of industry data and information provided during consultation.

Around the same timeframe, macroeconomic forecasts and analysis were produced to identify the outlook of the industry and implications for the PSO Scheme. This phase was informed by Deloitte's in-house forecasting models, as well as information provided by the Department and ATO.

Between October and November, a set of recommendations were developed and tested, based on analysis undertaken in the previous phases. This report was then prepared.

1.2 Background

Inappropriate disposal of (used) oil is associated with a variety of environmental harms (externalities) including contamination of waterways, and harm to fauna and flora (including crops). For context, a single litre of oil can contaminate up to one million litres of water. A single oil change for a regular passenger vehicle produces four to five litres of used oil.

The Act and subordinate legislation were established in 2000 to provide the framework for a used oil recycling scheme in Australia, namely the PSO Scheme. The PSO Scheme covers petroleumbased products such as base oil and burner oils, as opposed to other products such as food oils and vegetable oils. The process of used oil recycling typically involves removal of the majority of excess water, minerals and impurities, so that it can be reused.

Low grade fuel oil (which is used as a 'burner oil' – i.e. combusted for heat), undergoes a less intensive filtration and dewatering process. This type of burner oil is used for heat-processing purposes, for example in cement, lime, metal foundries, brick kilns, or for greenhouse heating for plant propagation. Distillation processes including thin film evaporation or propane de-asphalting produces a high-grade burner oil. This is used in power stations, industrial steam boilers and burners – displacing new burner fuels, and for engines where low maintenance of the engine is required.

Production of base oil that meets Category 1 specifications via re-refining is a more intensive process. This produces a base oil that is used as an input for production of lubricants for vehicle and hydraulic engines. Oil recyclers sell the base oil to lubricant manufactures. The sale of the recycled oil, combined with revenue from the PSO Scheme, are the primary sources of income for oil recyclers.

The PSO Scheme has resulted in approximately 250 million litres of waste oil being collected and re-processed annually under the licencing conditions and environmental approvals.² The PSO Scheme currently supports 11 oil recycling facilities which employ 600 Australians directly as well as thousands of contractors indirectly.³

When the PSO Scheme was developed, government took the view that due to the different products and recycling processes applicable to the PSO Scheme, several different benefit rates should exist. Recycling processes that yield lower environmental outcomes therefore attract a smaller benefit rate, whereas processes that yield a better outcome attract a higher rate.

DAWE is responsible for the policy oversight of the PSO Scheme, while the Australian Tax Office (ATO) is responsible for implementation and administration in accordance with the relevant legislation and regulations. The customs area of the Department of Home Affairs is responsible for administering the PSO Scheme levy on oil imports.

² See comment from the Deputy Prime Minister and Minister for Transport, Infrastructure and Regional Development, the Hon Michael McCormack MP, 30 June 2020:

https://minister.infrastructure.gov.au/mccormack/media-release/more-funding-support-australias-oil-recycling-industry

³ Ibid

2 Context and operation of the PSO Scheme, 2000– 2020

Since the commencement of the PSO Scheme in 2000, there have been a range of changes both to the PSO Scheme and to the broader oil (and recycled oil) market within which it operates.

2.1 Operation of the PSO Scheme

The PSO Scheme is administered by several government agencies and is established by several primary Acts of Parliament as well as regulations and legislative instruments.

| Instrument | Role | Administrator |
|--|---|---|
| <i>Product Stewardship (Oil) Act 2000</i> | Establishes the framework and rules for the PSO Scheme. | DAWE is responsible for the policy oversight, the ATO is responsible for administration. |
| Product Stewardship (Oil) Regulations 2000 | Sets the levy and benefit rates, and product specifications for the PSO Scheme. | DAWE is responsible for the policy oversight, the ATO is responsible for administration. |
| Excise Act 1901 | Provides for the administration and of excise and the licencing of manufacturers of excisable goods such as re-refined oil. | Department of the Treasury is responsible for the policy oversight, the ATO is responsible for administration. |
| <i>Excise Tariff Act 1921</i> | Covers the taxation of products manufactured in Australia relevant to the PSO Scheme. Provides for the PSO Scheme levy arrangement. | Department of the Treasury is responsible for the policy oversight, the ATO is responsible for administration. |
| Customs Tariff Act 1995 | Covers the imports of products relevant to the PSO Scheme. | Department of Home Affairs. |
| <i>Product Grants and Benefits Administration Act 2000</i> | Determines the registration and administration requirements for the payment of benefits under the PSO Scheme. | Department of the Treasury is responsible for the policy oversight, the ATO is responsible for administration. |

Table 2.1: Legislation and regulation governing the PSO Scheme

The PSO Scheme is established by the *Excise Tariff Act 1921* and *Customs Tariff Act 1995*. These pieces of legislation determine which produced and imported products are subject to the levy.

The PSO Scheme consists of a levy-benefit arrangement. A levy of 8.5 cents per litre (cpl) is collected on specific domestically produced oils under the *Excise Tariff Act 1921* and imported oils

under the *Customs Tariff Act 1995*. The levy is used to fund benefit payments to used oil recyclers.⁴ The benefit rate depends on the type of used oil and the process that is applied to it:

| Table 2.2: PSO Scheme Categories definitions and benefit rates | S |
|--|---|
|--|---|

| Category | Benefit (cpl) |
|--|---------------|
| Re-refined base oil (for use as a lubricant or a hydraulic or transformer oil) that meets the specified criteria | 50 |
| Other re-refined base-oils (e.g. chain bar oil, oils incorporated into manufactured products | 10 |
| 3. Diesel fuels that comply with the Fuel Standard (Automotive Diesel) Determination 2001, as in force from time to time | 7 |
| 4. Diesel extenders: that are filtered, de-watered and de-mineralised; and that, if combined with diesel fuels would produce a combined fuel that complies with the determination method mentioned above | 5 |
| 5. High grade industrial burning oils (filtered, de-watered and de-mineralised) | 5 |
| 6. Low grade industrial burning oils (filtered and de-watered) | 3 |
| Industrial process oils and lubricants, including hydraulic and transformer oils (reprocessed or filtered, but not re-refined) | 0 |
| 8. Gazetted oil consumed in Australia for a gazetted use | 8.5 |
| Recycled oil mentioned in item 5 or 6 that has been blended with a petroleum product that meets the criteria mentioned in Schedule 2 | 9.557 |

Source: Product Stewardship (Oil) Regulations 2000

Note: The benefit rate for Category 1 has been temporarily raised to 62 cpl between July 2020 and December 2020.

⁴ Department of Agriculture, Water and the Environment, 'Product Stewardship for Oil Scheme (PSO Scheme) <<u>https://www.environment.gov.au/protection/used-oil-recycling/product-stewardship-oil-program</u>>

Figure 2.1 Provides an overview of the operations of the used oil recycling sector in Australia, and the role of the PSO Scheme regulations and legislation.

Figure 2.1: Overview of Australian oil recycling sector



*Whi lst the legal incidence of the PSO levy falls on importers and manufacturers, the bearer of the notional incidence, or 'who actually pays', will depend on supply and demand elasticity. If consumers are highly price inelastic, they will not change demand significantly in response to a price rise, and therefore 'pay' the levy.

Not all oil consumed is recoverable. Some is lost during use through leakages and removal of byproducts. For each litre of oil that is collected and processed at refineries, around 0.6 litres of base oil can be recovered.





Note: Totals may not add due to rounding Source: ATO, Deloitte, EY 2016, industry estimates.

2.2 Outcomes of the 2013 Review

Aither was engaged to conduct the Third Review of the PSO Scheme in 2013. Its review found that a used oil collection, treatment and oil recycling industry had been successfully established in Australia, by virtue of the fact that the volume of used oil being recycled was increasing.

The findings of the review were consistent with the broad feedback at the time that the PSO Scheme, in conjunction with transitional assistance and support from state and territory governments, has played an important role in achieving the objectives of the Act.

The review also established that reusing or recycling used oil is commercially viable for a number of enterprises due to the fact that they register for and claim PSO Scheme benefits. The review took the view that the PSO Scheme was established as an interim measure, and not as an ongoing or indefinite support scheme. Accordingly, it recommended that the PSO Scheme should not be continued indefinitely, instead repealed after a certain time when certain criteria were met.

The Review made 13 primary recommendations, five of which were subsequently implemented by the Australian Government. When considering whether to implement a recommendation, the Government considered whether the change:

- was associated with a clear, identifiable benefit
- was consistent with the objectives of the PSO Scheme
- would contribute to the environmental or financial sustainability of the PSO Scheme.

At the time of the government response in November 2016, the view of the Government was that the PSO Scheme was effective, and no amendments needed to be made to the objects of the Act

or data collection mechanisms related to the sector. Government noted that the sustainability of the PSO Scheme was a concern, and subsequently raised the levy from 5.449 cpl (or per kilogram for greases) to 8.5 cpl on 1 July 2014 (but did not implement the recommendation to reduce the Category 1 benefit rate, stating that an assessment would be conducted on the basis of assessing the effect of the higher levy first).

As set out in our assessment, the higher levy with no reduction in benefit has not served to bring the PSO Scheme into financial balance. However, on balance we consider that the benefits of the PSO Scheme still outweigh the costs, as set out in Chapter 5.

| Recommendation | | Response and justification |
|----------------|--|--|
| 1. | Determine and articulate a definition of success for used oil in Australia, and objectives for the PSO Scheme redefined in light of that. | Not implemented. Any changes to the objects of the Act were deferred until more substantive changes to the Act are required. The Act is currently meeting its objects. |
| 2. | Increase the levy on oil sold to 7 cpl immediately. | Implemented, but raised to 8.5 cpl instead, with the aim of restoring the PSO Scheme to a budget neutral position. |
| 3. | Reduce the Category 1 benefit to 45 cpl, and incrementally by 5 cpl every two years thereafter until it reaches 25 cpl. | Not implemented. As the levy was increased by a greater degree than recommended, the Government wanted to allow sufficient time to assess the impact of the higher levy. |
| 4. | Discontinue Category 6 benefit payments immediately. | The Government supported this recommendation; however no changes were subsequently made. The Category is now redundant due to a separate court decision being implemented by the ATO. |
| 5. | Rationalise benefit categories where they are redundant. All categories should be | Supported in principle, but a detailed technical analysis and consultation would be required for this. |
| | modified such that they are based on objective output standards or specifications. Apply audits and spot checks to claimants. | The ATO already undertakes audits and testing of Category 1 oil on a risk basis. |
| 6. | Clarify how the levy-benefit arrangements apply to imported used oil. | Not implemented. Used oil imports already require a permit, and the scale of imports is small. |
| 7. | Make benefits payable against used oil derived products regardless of whether they are destined for domestic or foreign consumption, and regardless of what the end use is. | The Government supported this recommendation; however no changes were required to implement it. Any limitations on end-use markets could have a negative impact on the collection of used oil and result in an adverse environmental outcome. |
| 8. | Form an intergovernmental committee and task it with oversight of the PSO Scheme. Make the committee responsible for ensuring other policies or programs do not unduly impact on the PSO Scheme's performance and coordinate collection of data and information relevant to the PSO Scheme's performance. | The Government did not support this recommendation. The frequency of the review process and meetings of the Oil Stewardship Advisory Council is not sufficient to justify a permanent statutory advisory body, particularly as the PSO Scheme is well established. |
| 9. | Task the Oil Stewardship Advisory Council with a more active role in advising government on the PSO Scheme's operation and issues. | The Government did not support this recommendation. Instead, they considered that the Environment Department should engage with industry experts as required to obtain advice for the purposes of a review or to exchange views on the administration of the Act. |
| 10 | Improve monitoring and data availability. | Not implemented at the time. The Government considered that the existing data and information collection mechanism was sufficient but indicated that it |

Table 2.3: Recommendations and Government responses from the third PSO Scheme review

| Recommendation | Response and justification | | | |
|--|--|--|--|--|
| | may seek to improve the mechanism in the future if it proves necessary. | | | |
| Investigate and create mechanism to deal with high collection costs and poor access in some remote and regional areas. | The Government supported the aspects of the recommendations relating to the effective collection of used oil. Most of the environmental benefits arising from the PSO Scheme are attributable to the sound | | | |
| 12. Direct Scheme surpluses towards investment in existing or new public or shared collection infrastructure. Identify areas of priority infrastructure. | management of used oil that the PSO Scheme provides. The matter was to be referred to the next (this) review. | | | |
| 13. Undertake further investigations into the feasibility and possible design options for used oil arrangements under the 2011 Act, prior to the next Scheme review. | Not implemented. As the PSO Scheme continues to be effective, the Government considered it was not necessary. | | | |

Source: Aither (2013), Third independent review of the Product Stewardship (Oil) Act 2000. Department of the Environment and Energy (2016), Australian Government Response to the Third independent review of the Product Stewardship (Oil) Act 2000.

2.3 Context – the Australian petroleum market and operation of the **PSO Scheme overtime**

The Australian-based petroleum market has been slowing in recent years, with strains on crude oil and refinery output caused by lower levels of consumption.⁵ The operation of the PSO Scheme has also evolved over time, alongside Australia's changing oil landscape.

2.3.1 Long-term trends in the Australian petroleum market

Crude oil production in Australia has been trending down recently, albeit picking up slightly in 2019-20. Nevertheless, domestic crude oil production has halved from 17,231 ML in 2010-11 to 8,504 ML in 2019-20 (Chart 2.1).



Chart 2.1: Australian crude oil production, 2010-11 to 2019-20

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020. Note: This is total crude oil production which does not include PSO Scheme re-refined base oil products. Crude oil production increased during 2019-20 due to Woodside's Greater Enfield project.

Similarly, the level of refinery input in Australia has also decreased by over a third between 2010-11 and 2019-20. The majority of Australia's refinery inputs are sourced internationally -

⁵ Department of Industry, Science, Energy and Resources, Resources and Energy Quarterly, September 2020



around 20-30% of refinery input is from domestic petroleum, with 70-80% from crude oil imports (Chart 2.2).

Chart 2.2: Petroleum refinery input, Australia

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020. Note: the uptick in the <u>percentage</u> of indigenous input in 2019-20 is largely due to a drop in imports.

Automotive gasoline and diesel oil represent the two largest groups by volume of manufactured petroleum products in Australia. Combined they account for around 70% of total production (Chart 2.3).



Chart 2.3: Refinery production by Category

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020

Demand for lubricating oils and greases has fallen moderately since 2010-11, whilst demand for fuel oil has increased slightly (Chart 2.4). There are several trends emerging that will have

implications for the long-term demand for lubricant oil in Australia. The adoption of newer cars with more lubricant-efficient engines means that oil changes will not be required as regularly, reducing demand for more base oil (which is then used to manufacture lubricants). In addition, greater sales of electric vehicles will likely reduce demand further, as these vehicles also require less oil than combustion-based vehicles.⁶



Chart 2.4: Demand for select petroleum products in Australia, 2010-11 to 2019-20

By jurisdiction, Queensland is the largest consumer of engine lubricant products, consuming over 100ML in 2019-20. New South Wales and Western Australia are also significant markets, comprising 73.6 and 68.5 ML in 2019-20 (Chart 2.5). This reflects the size of the populations in these jurisdictions, as well as their transport and industrial requirements including large mining operations. This correlates to the geographical location of the major re-refineries: Northern Oil Refinery in Gladstone, Southern Oil Refinery in Wagga Wagga, and Wren Oil in Picton. Across all jurisdictions, the automotive oils market represents the majority of all lubricant sales by volume.

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020

⁶ Electric Vehicle Council, State of Electric Vehicles, p.21 (August 2020)

https://electricvehiclecouncil.com.au/wp-content/uploads/2020/08/EVC-State-of-EVs-2020-report.pdf



Chart 2.5: Sales of lubricants by jurisdiction, 2019-20

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020

2.3.2 Operation of PSO Scheme over time

2.3.2.1 Volumes

Recycling volumes for each Category from 2000-01 to 2019-20 are shown in Chart 2.6. There are several categories that have seen an overall decline over the lifecycle of the PSO Scheme. Category 3, Category 4 and Category 7 have had little to no volume recorded since 2012. The Category 3 spike in 2020 is a result of the Caltex appeal (see Section 2.6.3), which allowed around 200ML of contaminated diesel to be claimed. However there has since been a legislative amendment which will no longer allow such claims.

In addition to this, Category 6 also saw a rapid decline in 2013-14 as two entities had become eligible to receive the higher Category 5 benefit from the same product (lodged backdated claims). After 2013-14, there was a steady decline in volume in Category 5. Industry has advised that feedstock is being diverted to Category 1 production.

There has been a significant increase in Category 1 volumes since Scheme commencement, and particularly since 2014.



Chart 2.6: Volumes of PSO Scheme claims by categories⁷

Source: ATO

2.3.2.2 Benefits paid

Each Category attracts a different benefit rate shown in Table 2.4.

Table 2.4: Description of PSO Scheme categories

| Category | Description | Benefit (cpl) |
|----------|--|---------------|
| 1. | Re-refined base oil used as engine lubricant, transformer and hydraulic oil. This is the highest quality product, e.g. it meets the non-carcinogenic requirements of engine oil. | 50 |
| 2. | Re-refined base oils that are not suitable for use as lubricant in engines. This product does not need to meet the health and safety requirements of Schedule 1 of the Product Stewardship (Oil) Regulations 2000. | 10 |
| 3. | Diesel fuels made from used oil that meet the specifications of diesel in the Fuel Standard (Automotive Diesel) Determination 2001. | 7 |
| 4. | Diesel extenders that meet diesel specification standards. | 5 |
| 5. | High grade industrial burning oils. These must be filtered, dewatered and demineralised. These products require a higher level of recycling and contain lower levels of contaminants than Category 6. | 5 |
| 6. | Low grade fuels that have only been filtered and dewatered. They contain more contaminants than Category 5 but are able to be safely burnt in certain high temperature industrial furnaces. | 3 |
| 7. | Industrial process oils and lubricants. Note that this Category does not pay a benefit because this type of recycling is already occurring as part of existing sound business practices. | 0 |
| 8. | While the PSO Scheme levy is paid on all new petroleum-based oils and their synthetic equivalents, there are some uses of these | 8.5 |

 $^{^{\}rm 7}$ All PSO data for 2000-01 only includes data for the last six months of the financial year.

| Category | Description | Benefit (cpl) |
|----------|---|---------------|
| | oils that do not create a recyclable used oil stream and are a low risk to the environment. These specific uses of oil were never intended to be caught by the Product Stewardship for Oil programme. An example of this is naphthenic process oil incorporated into inks for printing newspapers. Category 8 benefits are paid to producers of oils that are used for specific (gazetted) purposes. These were declared by the Minister for the Environment and Heritage. The benefit rate is equivalent to the PSO Scheme levy. | |
| 9. | Recycled oil mentioned in item 5 or 6 that has been blended with a petroleum product that meets the criteria mentioned in Schedule 2. This Category was closed in June 2006. | 9.557 |

Source: Department of Agriculture, Water and the Environment, Product stewardship benefits



Chart 2.7: Benefits paid under the PSO Scheme, by Category, 2000-01 to 2019-20

Benefit payments are now dominated by Category 1 which has increased from around \$50 million in 2013 to a peak of \$67.6 million in 2017-18, only slowing in the last financial year. This increase has outpaced the increase in levy collected, resulting in the PSO Scheme running at a deficit. The other categories comprise a much smaller portion of benefit payments, with only Category 5 claims (in the range of \$1.2m-\$8.7m since commencement) and Category 8 (\$0.8m-\$4.0m) currently being material.

2.3.2.3 Levies collected and overall Scheme position

Total levy revenue increased from 2013-14 to 2014-15 due to the increase in the levy from 5.449cpl to 8.5cpl, leading to a small surplus in 2014-15. Since then, the increased Category 1 payments have meant that the PSO Scheme has run at a deficit, which has been funded by taxpayers through consolidated revenue.

Source: ATO Note: The Category 3 volume in 2020 is due to the Caltex appeal.





Source: ATO

Note: Dashed line represents benefit paid and balance with Caltex claim excluded, as this payment is considered to have occurred due to a loophole that has since been closed.

Chart 2.9: PSO Scheme cumulative fiscal balance



As domestic oil production has slowed, the source of PSO Scheme levy payments has been trending away from indigenous production and towards imports. In the formative years of the PSO Scheme, 10-20% of the volume levied was from imports, compared with nearly 40% more recently. There was a dip in the volume of oil levied in 2015-16, which coincides with the first year in which the levy increased to 8.5 cpl. However, the volume has then since recovered for both

imports and domestic production, suggesting that the reduction in volume levied was likely a result of the oil price drop in early 2016, and not a production response to the higher levy.⁸



Chart 2.10: PSO Scheme levy volume and value, imports and domestic production

Source: ATO, Department of Home Affairs

2.4 COVID-19

2.4.1 COVID-19 and the oil industry

The COVID-19 pandemic, and earlier in 2020 the so-called 'Russia-Saudi Arabia oil price war', have had a significant impact on global and Australian oil markets.

The greatest impact has been on prices, which have fallen since January 2020. This is largely due to COVID-19 restriction measures leading to lockdowns and less demand for oil in the transport sector.

This extended period of low prices has driven reductions in global production.⁹ Some refineries temporarily shut down and remain closed as of November 2020. Australian refineries have been slowly increasing production since September 2020, but demand is likely to stay below prepandemic levels for the foreseeable future.

Temporary refinery closures need to be seen in the context of the permanent closure of three refineries in the past 10 years, and a recent announcement regarding the further closure of the BP Kwinana refinery, and conversion to an import terminal due to very low refining margins and oversupply in Asia.¹⁰ Two of the other three remaining refineries (Ampol in Brisbane and Viva in Geelong) are under review for possible closure, and ExxonMobil has indicated the Altona refinery is under 'unprecedented pressure'.¹¹ Other oil recyclers are also exploring options to repurpose sites for other uses such as LNG import terminals, supply and storage facilities.

Oil exploration has fallen globally and locally – in Australia, exploration expenditure fell 26% between the June-20 and September-20 quarters.

⁸ Low prices can be a signal that there is a supply surplus in a market, which encourages producers to scale back production until prices recover.

 ⁹ Department of Industry, Science, Energy and Resources, Resources and Energy Quarterly, September 2020
 ¹⁰ Announced on 30 October 2020, as set out in <u>https://www.afr.com/companies/energy/bp-slams-door-shut-on-australian-oil-refinery-20201030-p56a5b</u>
 ¹¹ Ibid.

Prices are expected to recover slowly as COVID-19 restriction measures are eased, although with the reintroduction of COVID-19 restrictions in Europe this recovery may be further delayed (Chart 4.7).

While imports comprise a significant amount of Australian crude oil consumption, the level of imports has dropped in recent months, mainly because of lower demand for transport arising from COVID-19-related travel restrictions (see Chart 2.11).



Chart 2.11: Total volume of oil imports, Australia, 2019-20

Source: Department of Industry, Science, Energy and Resources, Australian Petroleum Statistics, June 2020

2.4.2 COVID-19 industry support fund for Scheme participants

On 30 June 2020, the federal government announced that \$7.8 million of temporary funding would be made available to support oil recyclers affected by COVID-19. This came in the form of a 12 cpl increase in the benefit paid for Category 1 re-refiners (effectively increasing the Category 1 benefit rate from 50 cpl to 62 cpl).

The intent of the increase was to support an industry severely affected by COVID-19, with government noting that 50% of Australia's waste oil refineries have shut down in recent years, and industry estimates showing at least 25% of waste oil was at risk of not being collected.

The \$7.8 million in additional funding can cover up to 65 ML of Category 1 oil. This is approximately half of the volume claimed under this Category in each of the last three years. At current claim rates and volumes, this funding is therefore approximately sufficient to cover all claims made over the period. The regulation that gave effect to the additional 12 cpl benefit was registered on 7 September 2020 and applied to sales of oil made on or after 1 July 2020. Payments made from 1 July to 7 September were initially made at the 50 cpl rate, then when the regulation came into effect, an additional 12 cpl were provided for these claims. Claims made after 7 September have been paid at 62 cpl.

2.5 Compliance

The ATO is responsible for administering the benefits claimed through the PSO Scheme. To do so, the ATO imposes a multi-tiered self-assessment system which aims to ensure accuracy and compliance in the claims process. This system is automated and consistent with other regimes such as the Business Activity Statement (BAS) where participants make a claim, which is assessed by the ATO Commissioner.

For Scheme participants to be eligible to claim the PSO Scheme benefit, certain requirements must be met for each Category (Table 2.5).

| Category | Category Specific Eligibility Requirements | General Eligibility Requirements |
|------------|--|--|
| Category 1 | Recycled oil needs to be suitable for use as a lubricant, hydraulic or transformer oil (but does not need to be used or sold in the manner). To meet this requirement, the recycled oil must meet the definition of a re-refined based oil and quality criteria. Sample testing against criteria given in Schedule 1 of regulations Provision of statement from independent laboratory taking samples. Provision of statement from independent laboratory undertaking testing of samples. | Be registered for PSO Scheme. Be licensed to manufacture excisable products. Comply with relevant Australian, state or territory legislation relation to oil recycling operations or enterprises. Have recycled the oil being claimed and have either sold it to another entity |
| Category 2 | Recycled oil must meet the definition of a rerefined base oil. There is no requirement under Category 2 for the re-refined base oil to be suitable for use as a lubricant, hydraulic or transformer oil. | (not to undergo further recycling) or used the recycled oil in the refiner's own operations. |
| Category 3 | • Recycled oil must comply with the <i>Fuel Standard</i> (Automotive Diesel) Determination 2001. | |
| Category 4 | Recycled oil must be filtered, dewatered and demineralised and if combined with diesel the resulting blend must comply with the <i>Fuel Standard (Automotive Diesel) Determination 2001.</i> | - |
| Category 5 | Recycled oil must be filtered, dewatered and demineralised and be suitable for use as a high- grade industrial burner oil. | |
| Category 8 | A Category 8 benefit may be claimed if a person uses gazetted (eligible) oil in a gazetted (eligible) use in Australia. There is no entitlement to a PSO Scheme benefit under Category 8 to the person who used the resulting product after the oil has been incorporated into it. | Be registered for PSO Scheme. |

Table 2.5: Eligibility requirements for PSO Scheme benefit by Category

Notes: There is no benefit amount payable for Category 6. Whilst you can claim for Category 7 the benefit amount is nil. Source: Australian Taxation Office (ATO), Product stewardship for oil program: Eligibility (Accessed 8/10/2020)

PSO Scheme benefit claims are typically lodged via the ATO's business portal. Afterward, a number of system rules check for potential discrepancies or inaccuracies in claims. These system rules compare each claim to a range of parameters to detect data integrity issues such as incorrect dates, line items or unexpected changes in reporting patterns. If any inconsistencies are found, the claim is stopped and investigated further. Alternatively, if no issues arise, the claim is automatically approved and paid within three days.

Administration of the PSO Scheme by the ATO also involves relationship managers who provide an additional layer of claim monitoring. These managers provide regular reports on Scheme activity and liaise with registered oil companies to investigate claims or answer queries.

Lastly, the ATO may choose to engage in further compliance and audit activities. These processes can be expensive and time consuming but are pursued to manage risk. In the past these activities have included a review of clients claiming the Category 1 benefit. The review involved taking samples of re-refined product and arranging independent testing to ensure accuracy in quality and volumes being reported. This occurs periodically, with those claiming the Category 1 benefit required to submit samples of their product every six months to an independent laboratory, which then provides the results to the ATO. In other cases, the ATO typically uses publicly available information before investing resources in further auditing activities.

2.6 Developments and Rulings since 2013

Since the last review in 2013 there have been several amendments, rulings and findings relating to the operation of the PSO Scheme. Some of these are summarised below.

2.6.1 Ministerial decisions

The *Statute Update (Smaller Government) Bill 2017* was recently passed. This bill continues the application of the Government's 'smaller government agenda' in proposing the abolition of seven Commonwealth statutory bodies that are illustrated to be 'unnecessary'. Of the seven bodies, the Oil Stewardship Advisory Council (OSAC) was established under the PSO Scheme. The function of the OSAC was to provide advice to the Minster that administered the PSO Act, the Environment Minister, on matter regarding used oil recycling, the product stewardship arrangements for oil and the current state of the oil industry.¹² The Bill proposed the amendment to the PSO Act to abolish the OSAC.

2.6.2 ATO Commissioner rulings

Several recent ATO Commissioner Rulings have applied to the PSO Scheme, with key rulings summarised in Table 2.6.

Table 2.6: ATO Commissioner rulings

| Ruling/decision | Description and implications |
|-----------------|--|
| ER 2012/1 | Excise Ruling: the meaning of the expression `manufactured or produced' for the purposes of the Excise Acts. |
| | The ruling details that there is a liability to pay excise duty in accordance with the Excise Acts if excisable goods are manufactured or produced in Australia. ¹³ Because the ATO considers some re-refined oils to be an excisable good, the producer must hold a manufacturer licence, and the product is subject to excise. The ruling found 'that a recycling process which consists only of filtering and de-watering used oil would not, by itself, result in something that is new or different having a distinctive character or use.' As such, Category 5 oil is considered manufactured, but Category 6 is not. |
| | determined that the rudimentary filtering and dewatering of oil does not constitute manufacturing, therefore is ineligible for PSO Scheme benefits. |
| ATO ID 2014/35 | ATO Interpretive Decision - Excise PSO: entitlement for a PSO Scheme benefit under Category 1 where re-refined base oil is not used or sold for a use as a lubricant or a hydraulic or transformer oil. |
| | The final decision details that an entity is entitled to a PSO Scheme benefit for re-refined base oil that satisfies the requirements of sub-regulation $3(2)(a)$ of the Regulations and the requirements that are prescribed even if it is neither used as, nor sold for use as, a lubricant or a hydraulic or transformer oil. ¹⁴ |
| | The 2005 PSO Scheme Administrative Guidelines stipulated that the higher Category 1 benefit was only payable if the product was destined for use as a lubricant, hydraulic or transformer oil, due to the fact that these uses are not terminal. This document is not binding or authoritative on interpretive issues but provides indication around the original policy intent. However, there is no evidence that this was monitored prior to 2014, and this decision meant that any re-refined base oil is eligible for the Category 1 benefit, regardless of use. |

 ¹² Bills Digest NO. 35, 2017-18, Statute Update (Smaller Government) Bill 2017, June 2017
 <u>https://parlinfo.aph.gov.au/parlInfo/download/legislation/billsdgs/5510867/upload_binary/5510867.pdf</u>
 ¹³ ATO, Excise Ruling ER 2012/1

- https://www.ato.gov.au/law/view/document?docid=EXR/ER20121/NAT/ATO/00001 ¹⁴ ATO, ATO Interpretive Decision ATO ID 2014/35
- https://www.ato.gov.au/law/view/document?docid=%22AID%2FAID201435%2F00001%22

| Ruling/decision | Description and implications |
|-----------------|--|
| | Category 1 products must still meet the environmental test criteria of sub-regulation 3(2)a of the Regulations but is nonetheless easier to claim after this decision. This has contributed to a large increase in the volumes claimed in Category 1. This may conflict with the principles and objects of the PSO Scheme, as a higher benefit may now be paid on volumes of oil which are destined for terminal use. |
| ATO ID 2008/74 | ATO Interpretive Decision – PSO Scheme: complying with relevant Commonwealth, State and Territory legislation. |
| | The Commonwealth, State and Territory legislation stipulates in relation to sub regulation 4B(1) of the PGBA Regulations that the licences, permits and approvals must be held when undertaking used oil recycling activities. ¹⁵ Used oil recyclers undertaking activities that are not covered by the relevant licences, permits and approvals when undertaking such activities would not be able to be covered by the PSO Scheme. |
| ATO ID 2008/84 | ATO Interpretive Decision – PSO Scheme: accredited laboratory and appropriate facilities, resources and expertise. |
| | The decision provided the accreditation requirements for microbiological analysis in the event of mutagenicity testing and for industrial chemical analysis and testing. The decision clarified what appropriate 'facilities', 'resources', and 'expertise' mean in this context. |
| | This decision did not have any significant impacts on PSO Scheme participants; it simply provided some clarification around laboratory accreditation. |
| ATO ID 2008/85 | ATO Interpretive Decision – PSO Scheme: non-accredited laboratory and appropriate facilities, resources and expertise. |
| | The decision outlines the Commissioner's considerations of what is deemed suitable for a laboratory to demonstrate it has appropriate facilitates, resources and expertise to conduct tests necessary for the purposes of the definition 'independent laboratory' in sub regulation 3(1) of the PSO Regulations: |
| | Use of appropriate up-to-date equipment; Oil samples are tested by recognised and sound methods; Testing is undertaken by a person who is qualified and has the relevant training to conduct testing; Appropriate levels of staffing and staff supervision; and Implementation of effective quality control measure when undertaking testing and for recording and reporting the results.¹⁶ |
| | This decision is unlikely to affect most PSO Scheme participants, although it does help ensure that test results for Category 1 products are more accurate. |
| ATO ID 2002/890 | ATO Interpretive Decision – Excise Payments PSO Scheme: is excess product 'used oil'? |
| | The decision outlines that oil that is an excess product is not considered to be 'used oil' for the purposes of section 6 in the Act. ¹⁷ Therefore, it was found to not be eligible for the PSO Scheme benefit as it has not been employed for a purpose. |

https://www.ato.gov.au/law/view/document?docid=AID/AID200874/00001 ¹⁶ ATO, ATO Interpretive Decision ATO ID 2008/85 https://www.ato.gov.au/law/view/document?docid=AID/AID200885/00001

 $^{^{\}rm 15}$ ATO, ATO Interpretive Decision ATO ID 2008/74

¹⁷ ATO, ATO Interpretive Decision, ATO ID 2002/890

https://www.ato.gov.au/law/view/document?docid=AID/AID2002890/00001

| Rulina | decision |
|--------|----------|
| | |

Description and implications

This ruling clarified that the benefit payment for excess oil is not payable, incentivising more efficient use and production of oil.

2.6.3 Caltex case and recent legislative amendments¹⁸

The Product Stewardship (Oil) Amendment Bill 2020 (the PSO Amendment Bill) and the Excise Tariff Amendment Bill 2020 (the Excise Tariff Amendment Bill), collectively referred to as 'the Bills', were passed in June 2020. The bills involved the amendment of the definitions of 'oils' to be clear that this term applies only to lubricant oils, fluid oils and other oils and greases manufactured from base oils (and therefore, not diesel).

The driver for the change of definition was the 2019 case of *Caltex Petroleum Pty Ltd (Caltex) v Commissioner of Taxation* (the Caltex case) where the Federal Court of Australia (the Court) had broadly interpreted the definition of petroleum-based oils in the PSO Act to include diesel used in refinery operations. The applicant for this case, Caltex, had used diesel in connection with its refinery operations where it was then recycled and sold as fuel grade diesel within Australia. Caltex sought to claim benefits under the PSO Act that were disallowed by the Commissioner of Taxation based on the fact that the definition of 'oils' as expressed in the PSO Act excludes petroleum-based oils that are primarily used as fuel.

This position was later rejected by the Court as the construction of the term 'oils' by the Commissioner of Taxation did not exclude diesel. The Court found that Parliament was not intending for the list of products within the definitions of 'petroleum-based-oils' in the PSO Act to be an exhaustive list that excluded recycled diesel as a primary use of fuel.

This ruling has had limited effect on the PSO Scheme as there has been no other cases that contest the definition applied to refined oils. As for the Category 3 benefits, these will remain unchanged as the bill only makes amendments to the types of oils that are able to claim the PSO Scheme benefit. Now that the Caltex case has been and the PSO Amendment Bill is finalised, the PSO Scheme will continue to be applied in the same manner.

2.6.4 Cooper Bros Holdings Pty Ltd v ATO (2013)

Excise duties are taxes that are paid in the instance that entities either produce or manufacture fuel, petroleum-based oil and grease products in Australia. In order to produce an excise-equivalent good, the entity manufacturing the excisable product must hold a licence and produce the product within a licenced premise within Australia. The excise is then paid by the producer of the product, in this instance fuel, and passed onto consumers. Previous arrangements under the PSO Scheme mandated that used oil products in categories 3, 4, 5 and 6 were required to pay fuel excise. It was only until a case between Cooper Bros Holding Pty Ltd, trading as Triple R Waste Management, and Commissioner of Taxation in 2013 (RRR v ATO (2013)) that Category 6 products no longer attracted a fuel excise.¹⁹ Table 2.7 illustrates previous excise rates for applicable categories under the PSO Scheme.

¹⁸ See new legislation introduced 14 May 2020, relevant page here:

https://www.aph.gov.au/Parliamentary Business/Bills Legislation/bd/bd1920a/20bd109 ¹⁹ Aither (2013) Third independent review of the Product Stewardship Act 2000, p40-41.

| Table 2 | 2.7: | Fuel | excise | rates | for | PSO | Scheme | benefit | categories |
|---------|------|------|--------|-------|-----|-----|--------|---------|------------|
|---------|------|------|--------|-------|-----|-----|--------|---------|------------|

| Category | ATO Excise Tariff Category | Rate of Excise | | |
|----------|---|-------------------|--|--|
| 3 | 10.10 – Diesel (other than biodiesel) | | | |
| 4 | | \$0.423per | | |
| 5 | 10.28 – petroleum products (other than | litre | | |
| 6 | blends) not elsewhere included | | | |

The 2013 RRR v ATO case involved Triple R overturning the ATO's finding that excise was payable on some of its product. Triple R was collecting used oil from garages and taking this to both its Bendigo and Melbourne processing depots whereby removal of impurities and dewatering of the oil was undertaken. However, there were some discrepancies in the methods by which the oil was processed. In Bendigo, the collected oil was dewatered and purified through sun exposure where the contaminants were able to settle over time. The Melbourne depot instead brought the oil to a simmer using heating coils, which sped up the process of purification.

The ATO proceeded to make a private ruling where the excise was payable on the oil that was processed in the Melbourne depot, which had been artificially heated, but not for the oil that was processed at the Bendigo depot, which had been naturally heated. Triple R then went on to challenge this ruling in the Administrative Appeals Tribunal, stating that the oil from the Melbourne depot, like that of the Bendigo oil was neither 'manufactured' nor 'produced' and therefore an excise should not apply in this instance. It was agreed by the tribunal that the oil was not either 'manufactured' or 'produced' and therefore allowing Triple R to be fuel excise free. The tribunal also recognised that the filtering and dewatering of the waste oil does not change the status of the oil to reflect a manufactured product.²⁰

The ramifications of winning the excise argument meant that Category 6 benefits of 3 cpl were essentially made redundant which meant Triple R and other low grade fuel re-refiners were no longer able to claim this PSO Scheme benefit. In addition, it was also found that despite the financial impacts of the PSO Scheme, the decision would not inhibit the environmental performance of the PSO Scheme.²¹

2.7 Other product stewardship schemes in Australia

The PSO Scheme is one of a number of other product stewardship schemes in Australia; a summary of two other relevant schemes is provided below.

The National Tyre Product Stewardship Scheme (NTPSS) was launched on 20 January 2014.²² Like waste oil, end-of-life tyres present a potentially valuable resource if recycled and can create environmental costs if disposed of improperly. Prior to the inception of the NTPSS, a large number of Australia's end-of-life tyres were being disposed rather than recycled. DAWE established an independent body, Tyre Stewardship Australia (TSA), to administer the scheme and conduct education, communication, compliance and market development activities.

The NTPSS has similar objects to the PSO Scheme:

- increase domestic tyre recycling
- expand the market for tyre-derived products
- reduce the number of Australian end-of-life tyres that are sent to landfill, exported as bald tyres or illegally dumped.

²⁰ Cooper Bros Holdings Pty Ltd v ATO 2013 case on excise tariff, <<u>http://www6.austlii.edu.au/cqi-</u> <u>bin/viewdoc/au/cases/cth/AATA/2013/99.html</u>>
²¹ Aither (2013) Third independent review of the Product Stewardship Act 2000, p42.

²² Department of Agriculture, Water and the Environment, Product stewardship for end-of-life tyres, https://www.environment.gov.au/protection/waste-resource-recovery/tyres

Manufacturers, miners and tyre importers incur a cost associated with ensuring the environmentally sound management of end-of-life tyres, which is expected to be passed on to consumers via retailers. The retailers then take responsibility for ensuring the environmentally sound management of the end-of-life tyres. However, unlike the PSO Scheme, the NTPSS is voluntary, and operated and funded by the industry. There is no regulated benefit collected under this scheme, instead, accreditation is acquired by demonstrating compliance with the requirements of the scheme. If participants are found to be non-compliant, their accreditation under the NTPSS may be revoked, with the premise being that accredited businesses are seen as more environmentally sustainable by consumers.

As a voluntary scheme, there is a potential misalignment of incentives under the NTPSS, given that benefit is realised before the recycling takes place. It is possible that retailers could be charging consumers the stewardship benefit but not taking action to ensure the tyres are recycled. This is different to the PSO Scheme where the benefit is only paid after the product is recycled. Subsequently, the NTPSS is reliant on audits to ensure compliance, and there are reports of the NTPSS not being as effective as the PSO Scheme in terms of the proportion of product recycled. Less than 10% of all tyres in Australia are recycled,²³ compared with an estimated 50-60% of used oil under the PSO Scheme. So, in the case of the NTPSS, recyclers may not see any of the benefit, which conflicts with the principles of the scheme.

In the Australian Competition and Consumer Commission's (ACCC's) 2018 determination of the TSA's application for authorisation²⁴, it considered that the NTPSS was likely to result in a reduced volume of tyres disposed of in an environmentally unsound manner. The ACCC also considered that government regulation could also be an effective way to address the problem of tyre recycling and disposal, as opposed to the current voluntary, industry-led arrangement.

The **National Television and Computer Recycling Scheme (NTCRS)** was established in 2011 to give households and small businesses access to free collection and recycling services for televisions (TVs) and computers.²⁵ The NTCRS is another scheme that is administered by the Product Stewardship Act 2011, and has similar objects to the PSO Scheme:

- reduce waste to landfill, especially the hazardous materials found in e-waste
- increase recovery of reusable materials in a safe, scientific and environmentally sound manner
- provide access for households and small businesses Australia-wide to an industry-funded recycling service.

Unlike the PSO Scheme, which is mandatory, the NTCRS utilises a co-regulatory approach, whereby government sets the outcomes to be met and industry funds and implements the scheme. Industry decides how the outcomes will be achieved, and government monitors the outcomes and ensures compliance.

The NTCRS regulations specify requirements for reasonable access to collection services with regards to regional and remote areas:

- for outer regional areas, at least one service must be provided within 150km of every town of 4,000 people or more in each financial year
- for remote areas, at least one service must be provided within 200km of every town of 2,000 people or more, once every two financial years.

In 2015-16, the NTCRS's recycling target was 50%; this will rise to 80% by 2026-27.

Like in the NTPSS, there is no hypothecation of funds between the production of computers or televisions and their collection or recycling. It is the responsibility of liable parties²⁶ to provide funding for recycling by becoming a member of an approved co-regulatory arrangement. Under these arrangements, these producers and manufacturers must meet a recycling target based on

²³ Tyre Stewardship Australia, 2018-19 Annual Report

²⁴ Australian Competition and Consumer Commission (2018), Application for Authorisation AA1000409 lodged by Tyre Stewardship Australia in respect of the national Tyre Stewardship Scheme, 24 May 2018.

²⁵ Department of Agriculture, Water and the Environment, National Television and Computer Recycling Scheme, https://www.environment.gov.au/protection/waste-resource-recovery/television-and-computerrecycling-scheme

²⁶ Producers or importers who manufacture or import in any year more than 5,000 units of televisions, 5,000 units of computers or printers, or 15,000 units of computer parts of peripherals.

their share of total liable imports or production. The NTCRS has achieved a compliance rate of over 99% for liable parties, and 44.7kt of e-waste, or 36.7% of the total produced, was recycled under the scheme in 2014-15 (which is the most recent data published).²⁷

However, the characteristics of the television and computer recycling industry are different to the oil recycling industry. The ubiquity and technology of the industry had been established for longer than the oil recycling industry. There was greater coverage of TV and computer recycling plants around Australia, and the economic viability of the industry was better than with oil recycling. As such, the NTCRS was not as concerned with growing or sustaining the industry, like in the case of the PSO Scheme and its supportive transitional assistance. Instead, it aimed to improve the availability of collection points around the country.

2.8 Waste oil transport policy in states and territories

The oil recycling industry is also affected by a range of state and territory legislation and regulations, typically in relation to waste management and collection. In most jurisdictions, the transport and disposal of waste, including used oil, is governed by state and territory legislation. Slight differences across these jurisdictions have implications for transparency of data mean an opaque view of the unregulated industry across Australia.

2.8.1 New South Wales

Waste management in New South Wales comes under the purview of the *Protection of the Environment Administration [Operations] Act 1991.* This legislation includes licencing requirements for the transport of loads exceeding 200kg of waste oil and tracking requirements for waste oil transported between New South Wales and another state or territory.

In NSW, there is an exemption to tracking waste oil²⁸ *within NSW* under the *Protection of the Environment Administration [Operations] Regulation 2005.* This exemption was designed to encourage the collection and transport of waste oil within NSW, but stakeholders report that it may be a factor in driving an unregulated market. There is not good visibility of the unregulated market as it is not captured under the PSO Scheme or under these NSW regulations.

2.8.2 Victoria

In Victoria, the *Environment Protection Act 1970* contains the requirements relating to waste oil. A key requirement relating to waste oil is the prohibition of its disposal in waterways. In addition, Victoria has a set of Waste Management Policies that aim to ensure that resource recovery facilities are managed in a manner that minimises risk of harm to human health and the environment.

New environmental protection legislation and regulations will come into force in Victoria from 1 July 2021. These will impose a general duty on persons to take all reasonable steps to minimise the risk of harm to the environment from waste generation activities and to avoid or minimise pollution so far as reasonably practicable.

2.8.3 Queensland

Waste oil management in Queensland comes under the purview of the *Environmental Protection Act 1994* and *Environment Protection Regulations 2019*. According to the regulations, waste oil is a prescribed water contaminant and Category 2 regulated waste, meaning that it is considered a moderate risk waste. The regulations also detail the requirements for storage and disposal of waste oil and include a tracking requirement for waste oil.

2.8.4 Western Australia

Under the *Environment Protection (Controlled Waste) Regulations 2004*, waste from grease traps and waste oil are defined as controlled waste. As such, any person or company that produces or is in possession of waste oil or grease must abide by the requirements of the regulations, which include:

- using a carrier licensed to transport that type of controlled waste on a road
- ensuring the waste is in a container that is fit for safe transport

²⁷ Department of the Environment and Energy (2016), National Television and Computer Recycling Scheme, Outcomes 2014-15.

²⁸ Non-hazardous waste hydrocarbon oil destined for reuse, exemption number 2006-E-4

• signing a controlled waste tracking form, which tracks the waste from generation to unloading.

The regulations also dictate that a specific licence must be held by a carrier or driver transporting controlled waste (unless exempted). These licences come at a fee and must be renewed periodically.

The Department of Water and Environmental Regulation may issue a controlled waste holder with a notice requiring the controlled waste to be transported to an appropriate facility within a specified time period. The prescriptive nature of this notice may not enable the holder to ensure that the waste oil is recycled appropriately under the PSO Scheme.

In addition, the Environment Protection Act 1986 provides restrictions on the disposal of used oil.

2.8.5 South Australia

According to the *Environment Protection Act 1993*, an activity that results in the production of less than 50,000L of waste oil per year is a prescribed industrial activity of environmental significance in South Australia. In addition, the act classifies waste oil as a listed waste. As such, it is a prohibited landfill waste or matter under the *Environment Protection (Waste to Resources) Policy 2010*. Waste mineral oils and waste oil/water must be tracked when transported in South Australia.

2.8.6 Tasmania

The *Environmental Management and Pollution Control Act 1994* and subordinate regulations (Waste Management) detail the requirements for those in possession of a controlled waste such as used oil in Tasmania. It includes storage and treatment requirements, and a requirement for controlled waste transporters to be registered. As part of this registration, the applicant must disclose where the waste came from, where it currently is, and how it will be transported to the receiving facility (if applicable). The disposal of used oil in a way that is likely to cause environmental harm is prohibited under the regulations.

Stakeholder feedback indicated that there is no trade of used oil between Tasmania and the mainland due to the cost of transport via ferry.

2.8.7 Australian Capital Territory

The ACT classifies motor oil as a hazardous waste, due to its potential for environmental harm. There are resource management centres that accept up to 20L of automotive oil, but any more than that must be collected by a designated business that specialises in hazardous waste removal. Hazardous wastes are also considered regulated waste in the ACT under the *Environment Protection Act 1997* and are therefore subject to the requirements for the movement of controlled waste between states in the *Environment Protection Regulations 2005*. This includes a requirement for environmental authorisation for a transporter, and a record of movement of the controlled waste.

2.8.8 Northern Territory

The Northern Territory considers waste mineral oils and waste mixtures of oil and water to be a prescribed waste for the purpose of listed waste under the *Waste Management and Pollution Control (Administration) Regulations 1998.* As a listed waste, waste oil must be tracked as it is transported between the Northern Territory and other jurisdictions. In addition, the collecting, transporting, storing, recycling, treating or disposing of a waste oil on a commercial basis requires a licence under the *Waste Management and Pollution Control Act 1998.*

2.9 **PSO Scheme and mine sites**

Stakeholders highlighted a growing trend in the mining sector of filtered waste-oil being mixed with ammonium nitrate to produce on-site explosives or being filtered on-site for use as a burner oil. Mines that recycle waste oil in this fashion are not subject to PSO legislation and regulations. The PSO regulations include requirements in relation to the destruction of carcinogens and mutagenic compounds for Category 1 products. This waste oil, which could alternatively be collected and recycled under the PSO Scheme, is then combusted for heat processing purposes or for explosives.

This information should be conveyed to the team responsible for hazardous waste and EPBC Act assessments within DAWE. It may also be an issue for further discussion with State and Territory Departments and environmental regulators, potentially as part of the annual meetings we have recommended in Chapter 5 below (or another forum as appropriate).
3 The environmental impacts of used oil and recycling

3.1 Background

The PSO Scheme is designed to avoid negative environmental impacts from waste oil in a manner that ensures the costs of the scheme do not exceed the benefit provided by the avoided externality.

The environmental benefits of oil recycling include the following:

- waste oil recycling prevents environmental damage such as contamination of soil and water affecting biodiversity or human health, which may otherwise occur via dumping or incorrect disposal into landfill
- processing of crude oil is an energy intensive activity compared to recycling used oil which limits total energy consumption. Minimisation of the energy output by recycling and reusing waste oil is cost efficient for producers of oil
- recycling waste reduces production of new oil in Australia or globally
- reduced greenhouse gas emissions, as the recycled or re-refined waste oil reduces the need to combust oil or other fuel.

The impact of used oil disposal can have both short - and long-term health and environmental consequences on Australia's land, water and biodiversity, as well as on coastal and marine environments.²⁹ These include (but are not limited to):

- damage to native or farm soil, flora, fauna, crops, rivers, and lakes
- damage to human health and infrastructure
- death or detriment to wellbeing of sea birds, marine mammals and other sea life, foreshore and marine habitats and coastal ecosystems.³⁰

As environmental assets are a public good, the cost externalities from oil products are not fully borne by oil producers and therefore are not factored into their product and pricing decisions. While direct regulation (for example, prohibitions on disposing of oil in waterways) can avoid some of the externalities, some industry participants might find the financial incentive to act illegally is strong. Further, environmental regulation does not directly address issues such as greenhouse gas emissions. As a result, there may be a socially undesirable amount of pollution and negative externalities which decrease overall environmental quality and health outcomes. This market failure establishes a case for government intervention which, in this case, is the PSO Scheme.

3.2 Environmental impacts of waste oil disposal and recycling

A number of studies have been conducted in relation to the environmental benefits of re-refining. When waste oil is burnt without being treated, the resource lifecycle ends, and any contaminants remaining are released into the environment.

One study compared the net energy gains from filtering and dewatering oil for use in a burner with the net energy gains from processing waste oil into base oil. It found that the burning process presented higher energy consumption gains, but the avoided energy used gained from re-refining rather than processing virgin oil made the base oil process preferable.³¹

Another compared the use of waste oil in re-refining, distillation for marine fuel, and untreated fuel oil. It found that the ecotoxicity impact potential of consuming used oil as fuel is over five times

²⁹ Gilbert, T., 1999. Oil Spills in the Australian Marine Environment: Environmental Consequences and Response Technologies, p1.

³⁰ Ibid

³¹ United States (US) Department of Energy, 2006, Used Oil Re-refining Study to Address Energy Policy Act of 2005 Section 1838, Washington DC, USA. <u>https://fossil.energy.gov/epact/used_oil_report.pdf</u>

that of re-refining or distillation. This is due to the heavy metals and pollutants that are present in used oil. $^{\rm 32}$

A third found that the priority given to re-refining in the European Union Directive 75/469 EEC was given on the basis of the goal of resource preservation, not other factors.³³ While resource preservation is a key tenet of oil recycling, there are also energy implications to consider, as noted in the above studies.

Another study modelled the impact of four different used oil management scenarios in California. These scenarios involved different volumes of several uses, including marine diesel oil, fuel oil and re-refining. The options explored indicate that three out of the four scenarios concluded that the re-refining process produces better environmental outcomes than burning fuel oil. It is also highlighted that despite the re-refining process being better for the environment, the main environmental benefit is from appropriate disposal of used oil.³⁴

3.3 Estimates of the cost of the externality

The extent to which it is worthwhile addressing the used oil problem will depend in part on how much society is willing to pay for it and estimates of the social cost of the externality. This section presents some research related to estimating these costs.

Ernst and Young (EY) prepared two studies which relate to the impacts of these externalities and Australians' willingness to pay to avoid those impacts. Firstly in 2016, EY conducted economic analysis of the PSO Scheme ('technical note' for Southern Oil), examining the volume of oil recycled as a result of the PSO Scheme, and calculating the benefits of the PSO Scheme, including in relation to Greenhouse Gas (GHG) Emissions.³⁵

Secondly, in 2018, EY conducted a consumer survey and 'Assessment of Willingness to pay for oil recycling' (WTP assessment). The WTP assessment examined consumers' willingness to pay for oil recycling and the broader social benefits that accrue as a result of oil recycling services.

The 2016 study estimates the level of avoided GHG emissions through the re-refining process of oil and in turn, one element of the potential environmental benefit of the PSO Scheme.

The amount of avoided GHG emissions is determined by high and low projections of GHG abatement costs, is depicted in Figure 3.1. These GHG emissions were derived from a generation factor per litre of lubricant oil that is produced and re-refined.

GHG emission generation factors were applied over a historic and forecasted period to provide an estimate of the level of avoided GHG re-refinement of Category 1 oil.³⁶ The GHG emission generation factors were sourced from analysis provided from an oil re-refinery and the Australian Government National Greenhouse Accounts.³⁷

³² Boughton, B. and Horvath, A., 2004, Environmental Science & Technology - Environmental Assessment of Used Oil Management Methods, 2004, 38, 2, p353–358. <u>https://pubs.acs.org/doi/pdf/10.1021/es034236p</u> ³³ Fehrenbach, H., 2005, IFEU - commissioned by GEIR, Executive Summary - Ecological and energetic assessment of re-refining used oils to base oils: Substitution of primarily produced base oils including semisynthetic and synthetic compounds, p2-13. <u>https://www.geir-rerefining.org/wp-</u> content/uploads/LCA en short version.pdf

<u>content/uploads/LCA en short version.pdf</u> ³⁴ Aither (2013) Third independent review of the Product Stewardship Act 2000, p116-122.

³⁵ EY, Product Stewardship for Oil (PSO) Program: Economics Analysis (report commissioned by Southern Oil Refining, 25 August 2016), p8-9.

³⁶ EY, Product Stewardship for Oil (PSO) Program: Economics Analysis (report commissioned by Southern Oil Refining, 25 August 2016), p15-16.

³⁷ National Greenhouse Accounts Factors, full series available at <u>https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors</u>

Figure 3.1 – PSO Scheme Operation including avoided GHG emission costs (\$m) – high estimate (left) and low estimate (right)



Source: EY, 2016

Environmental benefits are also observed in this analysis, as shown in Figure 3.2. CO_2 emissions that are generated in the initial production of the refined oil are significantly higher than that of the emissions that are generated by re-refining Category 1 oil.

Virgin lubricant oil production produces five times more CO_2 than the oil produced from rerefinement. $^{\mbox{\tiny 38}}$





Source: EY (2016)

This study concluded that the net benefits of the PSO Scheme significantly exceed the costs when considering GHG abatement and industry benefits. ³⁹

The 2018 WTP report identified the benefits of waste oil recycling and provided an annual estimate of Australia's willingness to pay for oil recycling using a consumer survey.⁴⁰

The economic benefits tested included:

- industry gross value (the overall net economic contribution of the oil recycling industry)
- values attributed to GHG avoided due to oil recycling;

³⁸ EY, Product Stewardship for Oil (PSO) Program: Economics Analysis (report commissioned by Southern Oil Refining, 25 August 2016), p20.

³⁹ EY, Product Stewardship for Oil (PSO) Program: Economics Analysis (report commissioned by Southern Oil Refining, 25 August 2016), p6-17.

⁴⁰ EY, Analysis of consumers' Willingness to Pay for oil recycling services, 2018 (report commissioned by Australian Oil Recyclers Association, December 2018).

and the environmental benefits included:

- the prevention of damage to the environment, via avoided contamination that could be attributed to waste oil recycling
- recycling waste oil promotes the reduction of mass production of new oil from untouched habitats. Through resource conservation, this provides protection to the environment from additional harm due to GHG remissions.

The EY WTP assessment found that the per vehicle service price for oil recycling that the least number of people will reject is \$12.50, and that when prompted, 61% of consumers indicated they would be happy to pay this fee. The optimal range of WTP for the recycling of oil was in the order of \$10.50 - \$20.50 (\$11.08 - \$21.64 in 2019\$) per service as illustrated in Figure 3.3. A total annual WTP for oil recycling of \$146.4 million (\$154.6 million in 2019\$) was calculated by multiplying this weighted WTP by the estimated number of car services per year.⁴¹

While these figures were based on a relatively small sample that did not include mining or industrial customers, and recognising the weaknesses of willingness to pay studies in general, it suggests that the \$53.4 million of total levy paid in 2017-18 is likely to be lower than what society is willing to pay for oil recycling.



Figure 3.3: Optimal Price Range for oil recycling

Source: EY (2016)

Similarly, in New Zealand, a survey was conducted in 2007 on the WTP of consumers for different types of waste, including car oil. The average WTP for oil recycling from respondents was A\$1.96 for each oil change, with the assumption of 5 litres of used oil for each change and that 1 litre of oil weighs 0.8kg. Therefore, the surplus for car oil is A\$0.39 per litre or A\$490 per tonne for car oil.⁴²

https://www.mfe.govt.nz/sites/default/files/recycling-cost-benefit-analysis-apr07.pdf

⁴¹ EY, Analysis of consumers' Willingness to Pay for oil recycling services, 2018 (report commissioned by Australian Oil Recyclers Association, December 2018)

⁴² Covec, Recycling: Cost Benefit Analysis, 2007 (report commissioned by the Ministry for the Environment, New Zealand, April 2007), p60-66.

3.3.1 Oil as hazardous waste

The improper disposal of oil has detrimental effects on the environment and potential effects to humans and animals. All Australian jurisdictions consider oil to be a hazardous or controlled waste and regulate its disposal.

Further, long term storage of oil can also cause environmental and health harms. Storing containers of used oil in sheds on farms or in garages can create a fire hazard. Storing used oil containers for a long period of time is also dangerous containers can degrade when in contact with the used oil and can therefore increase oil spill risk.

Inappropriate disposal of oil can lead to significant environmental and human health costs, and the cost of cleaning up spills in order to avoid these impacts is often very expensive. There are an estimated 160,000 contaminated sites around Australia, many of them as a result of improper oil disposal with total clean-up costs running into the tens of billions of dollars, and some individual sites costing several hundred million dollars alone.⁴³ As an example, the costs of remediating chemical pollution at the recent Barangaroo development were estimated at \$400 million.⁴⁴

The PSO Scheme reduces the risk of these types of costs being incurred, by minimising the amount of used oil that is disposed of improperly or stockpiled. Although it is not the role of this review to conduct a formal review of the benefits of avoided improper oil disposal, they are typically extensive.

⁴³ https://www.epa.sa.gov.au/files/12558_sc_overview_info.pdf

⁴⁴ https://www.barangaroo.com/the-project/progress/remediation/ This case relates to pollution from some non-petroleum products.

4 Assessment

The PSO Scheme is designed to address a common externality – environmental costs sustained from waste oil pollution. It is based on sound economic concepts and supports the collection and recycling of the vast majority of waste oil around Australia. However, there are several factors both within and exogenous to the PSO Scheme that have the potential to undermine its success. A change in the benefit mechanism to be linked to oil price fluctuations is recommended in order to address these factors.

4.1 The economic rationale for the PSO Scheme

As discussed in Chapter 3, improper disposal of oil is associated with well-documented negative environmental impacts. These include harm to the environment (particularly waterways), human health and productive land. The negative impacts of improper disposal of used oil are even greater than that of virgin oil, due to the dirt and chemicals that are introduced to oil during use. These impacts are classed as externalities because their costs are borne by those who did not participate in their creation, and the creators of the impacts do not consider them when making their production or consumption decisions. This is a market failure and creates a potential case for regulation.

The PSO Scheme is a response to this market failure of improper used oil disposal. It aims to address the externality by encouraging the collection and recycling of used oil, so that it doesn't end up polluting the environment. It achieves this by creating incentives to recycle oil and placing the cost burden of the oil recycling onto those who create the need for recycling – producers, who pass these costs to consumers in a competitive market for oil products.

Environmental economics literature generally shows that a levy- benefit scheme is more effective than a regulatory or prohibition approach to managing negative externalities, as the latter can be difficult to monitor and enforce, and often does not provide properly aligned incentives.⁴⁵ For the PSO Scheme, a levy and benefit are used in conjunction, in order to spread the burden of the externality across users and recyclers, rather than just one group. Levies and benefits provide incentives that can induce desired behaviour and discourage undesired behaviour. In addition, the concept induces economically efficient abatement and recycling because it leaves the abatement and recycling decisions to market forces.

The benefits and costs of the PSO Scheme are broadly as follows:

⁴⁵ ACIL Allen, 2014, The Product Stewardship (Oil) Act 2000, A Critical Review, Report to Southern Oil Refining and J.J. Richards

Table 4.1: Benefits and costs of the PSO Scheme

| Benefits | Costs |
|---|--|
| Reduced environmental impacts arising from less improper disposal of used oil. | Costs of the levy scheme which are passed onto consumers. |
| Greater resource life as a result of reusing oil more often. Less damage to untouched habitats or new sources as a result of the reduced need for outputting of oil. | • Administrative burden of complying with the PSO Scheme. This includes the resources required from government to monitor and administer the PSO Scheme, and the record-keeping required by industry. |
| extraction of oil Reduced energy use and associated reduction in carbon emissions The creation of jobs and indirect value associated with the used oil collection and re-refining industry. | Economically distortionary effect associated with levies and subsidies. Whilst the PSO Scheme encourages the more efficient use of an otherwise waste product, via recycling, it is associated with some level of economic deadweight loss due to the changes in production and consumption decisions it causes. |

While the third review considered that the PSO Scheme was a form of transitional assistance for the establishment of an oil recycling industry, we consider that it more closely resembles a Pigouvian Tax – a levy on market activity that is intended to correct undesirable or inefficient outcomes (i.e. inappropriate used oil disposal). While the PSO Scheme has resulted in the creation of a sector that did not exist before, it also addresses an ongoing market failure.

The transitional assistance was implemented in 2000-2007 to support implementation and establishment of the PSO Scheme. This assistance consisted of \$34.5 million of funding from the Commonwealth for strategic initiatives to increase the recycling of used oil in order to complement the PSO Scheme framework and facilitate compliance with state and territory regulations regarding improper disposal of used oil. Some examples of programs supported include awareness campaigns, technology innovation and storage facility construction. Stakeholder feedback indicated this transitionary assistance was particularly important in establishing facilities in regional and remote areas.

4.2 **Objectives of the Act**

The objects of the Act are to:

- 1. develop a product stewardship arrangement for used oil
- 2. ensure environmentally sustainable management, refining and reuse of used oil
- 3. support economic recycling options for used oil.

The extended objects from the PSO Bill explanatory memorandum also include:

- ensure that oil producers progressively assume the costs of product stewardship and environmentally sustainable practices for oil
- increase the recovery rate of waste thus avoiding environmentally damaging disposal of waste oil
- ensuring that products manufactured from waste oil meet the relevant Commonwealth environmental standards
- allow for transitional assistance to introduce product stewardship arrangements.⁴⁶

Historically, the total volume of used oil recycled under the PSO Scheme has been considered a simple measure of its success, as this indicates the extent to which economic recycling options for used oil exist in Australia. However, this measure does not take into account other factors which could influence the volume of used oil that is recycled, or other indicators which might mean that

⁴⁶ Product Stewardship (Oil) Bill 2000, Explanatory Memorandum

the PSO Scheme is not achieving its objects. This section discusses some of these issues and indicators.

The extent to which oil producers assume the costs of product stewardship and environmentally sustainable practices for oil is difficult for the PSO Scheme to control. This object is largely dependent on supply and demand elasticity, or how sensitive producers and consumers are to changes in prices. In addition, the market for oil is global, so the PSO Scheme can have little if any control over the price of oil.

4.2.1 Criteria for assessing the success of the PSO Scheme in meeting objectives? When considering the rational for, and assessment of the PSO Scheme, the Council of Australian Governments (COAG) Best Practice Regulation Guide provides some useful guidance. It lays out the principles of best practice regulation, which include:

Principle Application to the PSO Scheme Establishing a case for action As explained in the explanatory memorandum, waste oil was a difficult problem prior to the PSO Scheme's establishment. In 2000, the before addressing a problem. recycling rate of oil was approximately 28.8%, and up to 50 ML of used oil was unaccounted for, likely dumped into waterways, catchments, storages and soils. The PSO Scheme was deemed to be an appropriate policy instrument to increase the volume of used oil collected and re-used. Providing effective guidance This is reflected in the PSO Scheme by the objects of the Act and the to ensure that the policy regulations, which sets out varying specifications and benefit rates to intent and expected align with the policy intent. compliance requirements of the regulations are clear. Ensuring that regulation In addition to the regular statutory review, the Act and regulations are remains relevant and updated regularly to remain relevant. Examples include: effective over time. The additional 12 cpl benefit to support the industry through COVID-19; The change arising from Caltex v ATO [2019] relating to a definitional issue; The Cooper Bros v ATO [2019] tribunal decision relating to the interaction between the PSO Scheme and fuel excise. Consulting effectively with In addition to the independent consultation that takes place during the affected key stakeholders at statutory review, the Government is actively engaged with PSO all stages of the regulatory Scheme clients on a regular basis. cycle. Government action should be Whilst the magnitude of cash flows relating to the PSO Scheme are small relative to other schemes such as income tax and corporate tax, effective and proportional to the issue being addressed. the environmental impacts addressed are significant. As such, a comprehensive federal policy instrument, and the associated resource requirements, are likely warranted. The extent of government action is not excessive, due to the maturity of the sector and the amount of automation utilised by the ATO. This means that the taxpayer cost of the Government administering the PSO Scheme is relatively small. Although current data is not available it was estimated to be \$421,438 for both the Department of the Environment and the ATO in 2014-15⁴⁷ and is unlikely to have changed significantly since this time.

Table 4.2: COAG best practice principles and application to the PSO Scheme

Source: COAG Best Practice Regulation Guide

⁴⁷ Department of the Environment, Annual Report, 2014-15. The Government resourcing cost has not been published since 2014-15.

4.3 **Outcomes and achievements of the PSO Scheme**

4.3.1 Collection of used oil

The estimated collection rate for used oil under the PSO Scheme has mostly been in the range of 50-60% of oil levied since Scheme commencement, compared to less than 30% prior. In total, 52.9% of oil levied under the PSO Scheme has been collected compared to a theoretical maximum amount which is generally believed to be around 65%.

This accords with the consensus view of stakeholders that the majority of waste oil produced around Australia is being collected as a result of the PSO Scheme. The increase in collection between 2014-15 and 2015-16 is likely attributable to the commissioning of the Northern Oil Refinery in Gladstone and the Wren Oil base oil re-refinery in Western Australia. This has helped to capture waste oil from these areas, which have significant mining and industrial operations.



Chart 4.1: Collection rate of waste oil under the PSO Scheme, 2000-01 to 2019-20

Notes: The maximum estimated collection rate of 65.1% is based on the assumption that 34.9% of oil is consumed during use (EY, 2016). The collection rate can be greater than the maximum if waste oil from previous years is collected and registered in a subsequent year.

While there is a general trend for consumers to become more environmentally conscious and invested in sustainability and recycling practices over time, it is likely that in the case of waste oil, the majority of collections and recycling is attributable to the PSO Scheme rather than being driven by individual consumers. This is because waste oil is mostly collected from industrial businesses and mechanics, not individual consumers or households, and because the benefits paid under the PSO Scheme are necessary to ensure the economic viability of the recyclers. This view was shared by the stakeholders, who are of the opinion that the impact of the benefit payments on recyclers' economic viability has been the major driver of the industry.

Further, as shown above the proportion of waste oil collected has been consistently high following the formative years of the PSO Scheme, and it is likely that this is largely driven by the increased economic viability for recyclers provided by the PSO Scheme.

During the review, stakeholders indicated that oil price fluctuations impact the incentive for used oil collection, and that fees for collection of used oil can be adjusted with oil price movements and to reflect the costs of collection, including from remote sites. During periods of low oil prices, collectors charge fees for used oil (some customers stockpile used oil during these periods), and conversely when oil prices are high, they may even pay to collect used oil product.

While the collection of used oil from remote and regional sites is more expensive, we did not hear evidence of used oil dumping in some regional and remote areas from the State and Territory environmental regulators or other stakeholders. Further, participants in the PSO Scheme did not report that the burden of collection is too high but noted that they do self-manage collection costs in that they are more likely to charge for industrial or council collections, and less likely to charge (or would charge less) for regional and remote collections.

This fluctuation in collection costs can be seen as a self-regulating mechanism which helps to offset commodity price risk.

An example of this may be observed in relation to the Northern Territory. While there is an oil recycling facility operated by Veolia in Darwin, there is not a re-refinery in the NT. Used oil that does become part of the PSO Scheme is transported from Darwin to the Northern Oil facility located in Gladstone, and we understand that a collection fee is paid to the relevant collector who transports the product over 3000 km.

Another is evidenced in the Tasmanian market. A small amount of waste lubricant oil (relative to the mainland) is generated in Tasmania, but the volume is insufficient to maintain a Category 1 rerefinery in the state. The cost of freighting this waste oil to one of the re-refineries on the mainland is prohibitive, given the high cost of sea freight. As such, this oil is not collected or recycled under the PSO Scheme, however some low-grade recycled products are produced by Hagen Oil, operational in the north of Tasmania. Hagen Oil also carry out oil waste disposal.

We do note that in some similar schemes in other international jurisdictions with low population density, a (scaling) collection benefit is incorporated which creates an incentive for collection of waste oil which is more remote from major population centres or re-refinery locations. For example, in Western Canada, there are 6 tiers of payments which increase with distance from the market.

4.3.2 Reuse and recycling of used oil

Once used oil is collected, it is either treated, freighted to a re-refiner, or in some cases combusted for heat or disposed of. As outlined above, the design of the PSO Scheme ensures a large volume of waste oil is re-refined as well as collected. Having the benefit paid after the recycling process means that there is incentive to collect waste oil and transport it to oil recyclers, rather than stockpile it. The benefits paid to recyclers under the PSO Scheme create demand for waste oil from collectors, thus increasing the volume collected. This is further supported by the waste oil tracking requirements of most states and territories.

The volume of oil recovered from waste oil in Australia is around 300ML per year. There has been a trend away from low grade burner oils and towards lubricant oils since 2012-13. This was likely driven by the opening of the Wren Oil refinery and Northern Oil Refinery, which focus on higher grade oil re-refining, and the outcome of the RRR v ATO (2013) decision relating to low grade burning oils. As discussed in Chapter 3, the Administrative Appeals Tribunal found that the rudimentary filtering and dewatering of waste oil for use as low-grade industrial burner oil does not constitute a new product that had been 'manufactured or produced' from the used oil. Therefore, the burner oil created via this process is exempt from fuel excise. As a consequence of the Tribunal findings, the product would not meet the definition of 'recycled oil' to be eligible for a PSO benefit under the Act. The volume of low-grade burner oils recycled under the PSO Scheme subsequently dropped to zero following the ruling (excluding a few grandfathered claims). (For several years after Scheme commencement low grade burner oils represented more than 50% of recycled oils). There was an increase in high grade burner fuel claims following this ruling, suggesting some category shifting of the low-grade oil, but overall the volume recycled decreased following the ruling. This could indicate that some of this oil is either being disposed of improperly or processed outside of the PSO Scheme.



Chart 4.2: Volume of re-refined oil output by use

Source: ATO

If the benefit was paid at the collection phase, there would be no economic incentive under the PSO Scheme for the oil to be transported to re-refiners, and it may end up being disposed of or burned (instead of recycled). Currently, a large proportion of oil collected is eventually recycled.

4.3.3 Establishment of the used oil industry and resulting economic and employment benefits

The waste oil recycling sector is a high volume, low margin operation. The greater the volume of oil available for recycling the more viable the industry. Even with large volumes of used oil running through a small number of recycling facilities, it is generally accepted that margins would be low or even negative without the PSO Scheme, and therefore the sector would be non-existent or much smaller. Our research and analysis confirm this position.

The sector employs several hundred people, including those in collection and associated industries, and contributes tens of millions of dollars to the economy every year. One study found that the re-refining industry alone employed 88 full-time equivalent positions and contributed \$46.8 million to the Australian economy in 2014-15.⁴⁸

In recent years there has been some consolidation in the industry, notably large recyclers acquiring smaller businesses. This is likely to reflect a combination of margins tightening, business incentives for industry consolidation, and an increased need for economies of scale.

⁴⁸ EY, Product Stewardship for Oil (PSO) Program: Economic Analysis (report commissioned by Southern Oil Refining, 25 August 2016)



Chart 4.3. Number of PSO Scheme clients who received payments (excluding Category 8 and additional benefits)

Source: ATO

During the review, some stakeholders highlighted that the PSO Scheme benefits, and particularly the COVID support funding provided in 2020, has enabled recent expansion projects in the oil recycling industry. At least \$20 million has been invested in recent years, including on new vehicles, hydrotreaters, facilities, weighbridges, storage expansion and staff training. The vast majority of this expenditure involves local suppliers. In particular, there has been a significant amount of expenditure in 2020, including \$10 million by one re-refiner on new plant, and nearly \$500,000 on asset maintenance and upgrades. Several PSO Scheme participants indicated they are also employing more people during COVID. Taken together, this suggests that while the industry was disrupted this year and has been particularly vulnerable to low oil prices and low feedstock during the pandemic and economic downturn, participants in the sector are continuing to invest in new plant and equipment and expand and improve their operations. This is not typically characteristic of an industry under significant financial strain.

4.4 **Risks and challenges**

There are several risks and challenges associated with the operation of the PSO Scheme. These have the potential to erode the PSO Scheme's effectiveness, efficiency and sustainability. Most of these risks and challenges are long term in nature, but some (notably the impact of COVID-19) are short-term. These risks and challenges are discussed below and in sections 4.5 and 4.6.

4.4.1 Exposure to exogenous drivers and viability levels to participate

The used oil recycling sector is subject to several exogenous drivers, given the global nature of the industry. The effectiveness of the PSO Scheme is influenced by these drivers, both positively and negatively. These includes global crude oil prices, foreign exchange rates, and domestic and foreign demand for oil products.

Because re-refined oil is competing with virgin products, producers are price takers in the global oil market. Oil recyclers have two primary income streams: PSO Scheme benefits and revenue from sales of re-refined products. The PSO Scheme benefit rates are constant, and operating costs do not change drastically with oil prices, but the revenue from sales of products rises and falls with global oil prices. Because the PSO Scheme benefit rates are constant, there are few mechanisms to address the volatile trading environment of the industry.

Oil recyclers have different cost structures than virgin product manufacturers – it is a high-volume low-margin industry, and margins are squeezed when crude prices are low. Stakeholders have reported that while the industry would be economically viable in the absence of benefit payments

during times of high oil prices, margins would be negative without PSO Scheme benefits under recent low oil prices.⁴⁹ Without having access to the confidential commercial information of industry participants it is difficult to make a robust assessment of the exact point of viability of the industry – and the point of viability will vary across participants depending on their size, debt levels and other operations.

That said, stakeholder feedback from industry indicated that the industry is viable at the current PSO benefit rates when oil prices are around **US\$50/barrel** or higher. As the oil price increases, the industry becomes more profitable, and as it decreases, profitability is eroded. Without the additional COVID-19 support package from June to December 2020, when the oil price was generally in the range US\$20-40 / barrel PSO Scheme participants would have faced significant losses.

Because PSO Scheme clients are price-takers in a globally priced market, and some export overseas, their terms of trade are dependent on the exchange rate between the Australian dollar and foreign currencies. A low Australian dollar makes products from Australian re-refineries relatively more attractive to export markets. Further, it also means that it is more expensive to import virgin oils, increasing the attractiveness of recycled oil in the Australian domestic market. A high Australian dollar has the opposite effect – i.e. domestic recycled oil becomes less attractive to export markets as well as for the Australian lubricant manufacturing market for example (as their buying power in the import market has increased). The value of the AUD therefore has an impact on demand for recycled oil products.

4.4.2 Demand and attitude to recycled oil

In the case of Category 1 output (re-refined base oil), the recycled product is typically sold to blenders who reintroduce fresh additives and then on-sell to consumers who use it as a lubricant. The PSO Scheme benefit is paid to the re-refiner, regardless of what the blender does with the product.

The PSO Scheme regulations detail technical specifications and requirements, which in theory should make recycled oil a perfect substitute for virgin products. However, despite periodical testing required under the Regulations which specify output quality, stakeholders have suggested that recycled products continue to be viewed in the market as inferior, and therefore attract a lower price than virgin oil.

At the same time, stakeholders indicated that that this perception problem has improved in recent years and should continue to improve with the trend of increasing acceptance of and demand for recycled products.

4.4.3 Impact of technological change

Stakeholders indicated that the need for lubricating oils for engines is likely to continue in the medium term despite the trend towards electrification of passenger or commercial vehicles and machinery. Battery EVs (BEVs) do use substantially less oil than conventional vehicles - they do not use engine oil and only use a small amount of grease and other secondary lubricant products. Hybrid electric vehicles (HEV/PHEV), which have an internal combustion engine (ICE) and powertrain battery, do use engine oil (and typically require additional higher-grade lubricants).

⁴⁹ Particularly so during the COVID-related oil price crash in 2020, although an additional 12cpl benefit for category 1 has been implemented to address this.



Figure 1 – Average consumption of lubricants per light vehicle

Source: Perlangeli, A., 2017.

Nevertheless, the number of EVs in Australia is currently very small, with only 14,500 vehicles registered.⁵⁰ This is compared with total vehicle sales (pre-COVID) of more than 1 million per annum. Increased penetration of EVs is therefore unlikely to have a material impact on the PSO Scheme in the next 5 years.

Other sources of used oil are also emerging – for example wind turbines use substantial quantities of oil. The larger the turbine the more tailored lubricant oil is required to be able to handle the additional stress created by the added size.

4.4.4 Interaction with other areas of Commonwealth policy and programs

4.4.4.1 Process for calculating PSO Scheme levy on imported oil products The PSO Scheme levy on imported products is assessed and collected by the Customs division of the Australian Border Force (ABF), and governed by the *Customs Act 1901* and *Customs Tariff Act 1995*. When assessing which oil imports are subject to the PSO Scheme levy, ABF must consider if the product is an excise equivalent good and therefore exempt from the PSO Scheme levy. Excise equivalent petroleum products (those not covered by the PSO Scheme) are subject to an excise of 42.3 cpl compared to the PSO Scheme levy of 8.5 cpl, so there is an incentive to classify products as PSO-eligible in order for the importer to pay the lower rate.

However, ABF has indicated that for a small fraction of special purpose oils these exemptions are not always consistently applied, as they are based on US standards, which do not always concord with Australian standards. A classification can be derived from commercial names of products, but these are not always clear, and can overlap. As such, testing for compliance is likely to place excessive demand on ABF resources.

4.4.4.2 Regulating transport of used oil

The National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (NEPM) introduced a national framework to track the movement of controlled waste within and around Australia. This framework requires controlled waste, including used oil, to be identified, transported and handled in an environmentally sound manner until reaching a licensed or approved facility. This also includes the licensing of transporters to ensure compatibility with participating State and Territory requirements.

The NEPM interacts with the PSO Scheme by placing requirements on the transportation of used oil for recycling within and between the states and territories.

⁵⁰ Australian Bureau of Statistics (ABS), 2020, Electric vehicle registrations almost double <u>https://www.abs.gov.au/articles/electric-vehicle-registrations-almost-double</u>

4.4.5 Exportation and benefit payments of the PSO Scheme

There are no restrictions placed on the export of oil recycled under the PSO Scheme. However, some stakeholders questioned whether facilitating the export of recycled oil aligns with objects of the Act and principles of the PSO Scheme.

When a PSO Scheme benefit is paid on recycled product, it is assumed that the process undertaken to make that product will create a net environmental benefit for Australia. In the case of burner oils (Category 5, 6), it makes little difference if it is exported or not, because the product is going to be burnt regardless. However, in the case of re-refined base oil (Category 1), the product can be blended into reusable lubricant oil and recycled indefinitely, and also used as burner oil. The significantly higher rate that Category 1 attracts exists to encourage sustainable reuse rather than terminal use (burning). Indeed, according to the 2005 administrative guidelines;

(re-refined base oil) ...must be sold for use as lubricant, hydraulic or transformer oil. Benefits will not be paid at the Category 1 rate if the product has been sold for consumptive uses (e.g. diesel, burner fuel, chain bar-lube). The higher benefit for this Category is designed to encourage sustainable reuse of used oil – that is, where the oil is turned back into the original (or a similar) product.⁵¹

If Category 1 oil is exported, it leaves the Australian market and does not return (unless the base oil is blended internationally and imported back into Australia as a new lubricant product). Stakeholders indicated that the Asian lubricant blending industry currently has a commercial advantage over the Australian industry due to lower cost structures and economies of scale. Therefore, stakeholders considered that while there is potential for more lubricant blending to be done domestically, there may be barriers on new entrants due to the internationally competitive environment.

In addition, when re-refined base oil is exported, there is a risk that the importer burns it rather than blending into lubricant, ending its lifecycle.

However, we note that if the local market for re-refined base oil is insufficient to absorb the supply of used oil, and therefore exports are required, the net environmental outcome for Australia may still be positive because the Scheme still induces used oil collection and avoids improper disposal.

Australia belongs to a number of international waste conventions which place guidelines and limitations on transboundary movements of hazardous waste (Appendix A.1). The two main conventions relevant to the export and import of used oil are the Basel and Waigani Conventions. These conventions aim to place a level of duty on importers and exporters of waste to ensure their requirements are achieved in an environmentally sound manner.

The *Hazardous Waste (Regulation of Exports and Imports) Act 1989* allows Australia to meet all its obligations under the Basel Convention (Appendix A.1.1).⁵² This legislation introduced a permit system to regulate the movement of hazardous waste into and out of the country. If a Basel export permit is approved, used oil can be exported or imported for resource recovery, recycling, refining or other re-uses. Alternatively, if used oil has been adequately treated domestically to meet industry standards, then the oil is no longer classified as waste and need not be regulated under this Act or the Basel convention.

The Waigani Convention (Appendix A.1.2) allows Australia to import hazardous wastes from South Pacific countries, given they are not parties to the Basel Convention. This allows for an injection of used oil into the Australian refining industry, increasing the volume of used oil available to be rerefined domestically and therefore, eligible to be claimed through the PSO Scheme. Once treated, this oil may be sold domestically or exported, on condition that Australia's obligations under the Basel Convention are observed.

4.4.6 Limitations of Category specifications

There have been some adjustments made to the PSO Scheme Category definitions and requirements since Scheme commencement as well as since the Third Review. For example, the RRR v ATO ruling effectively made Category 6 redundant and the amendment bill arising from the

⁵¹ Department of the Environment and Heritage, Administrative Guidelines covering Product Stewardship Benefits and Transitional Assistance, December 2005

⁵² Basel Convention, Overview, <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>

Caltex v ATO case resulted in an interpretational clarification which makes contaminated diesel ineligible for Category 3 claims after 2019-20.

Stakeholders provided an example of an instance where the specifications for certain categories did not allow them to undertake a new, more innovative and efficient process. An example was provided by a stakeholder whereby a Ministerial approval was required in order for the ATO to accept a new, more efficient re-refining process (which allowed two parts of the process to be undertaken in either order, not just one). The stakeholder indicated it took 18 months for this approval, by which time the potential benefits of the process were reduced.

This suggests that there is an opportunity for the Category specifications to be reviewed in detail to implement a longer term view of which categories are necessary, and how they can be regulated more efficiently to allow for innovation and technological changes. Monitoring of the categories should be carried out periodically by Government in consultation with industry.

4.5 Effectiveness

The effectiveness of the PSO Scheme refers to the extent to which it achieves the objects of the Act. A number of factors within and external to the PSO Scheme have the ability to both impede and support the PSO Scheme in pursuit of the objects.

4.5.1 Outcomes and achievements of the PSO Scheme

The PSO Scheme is effective at achieving its objects. It supports economic recycling options for waste oil and encourages the environmentally sustainable recycling and reuse of waste oil. This is evidenced by the fact that the volume of waste oil collected is close to the theoretical maximum, and it appears the majority of waste oil is being collected and recycled in all jurisdictions.⁵³ Certainly there is no evidence of a significant used oil disposal problem in Australia and there appears to be sufficient demand domestically and overseas for the recycled products.

The waste oil recycling industry is characterised by high start-up costs and low operating costs. As such, oil recyclers require large volumes of oil passing through their facilities over a long period of time to make a return on this investment. Some re-refineries are designed to operate for over 25 years.

Prior to the commencement of the PSO Scheme, the oil recycling industry faced significant constraints and limited opportunities for expansion.⁵⁴ The fact that the industry now has capacity to recycle all waste oil generated in Australia demonstrates that these constraints have been addressed. There has been expansion and investment in the industry since the last review, including new base oil re-refinery capacity in Western Australia (Wren Oil) and Queensland (Northern Oil Refinery). This investment suggests that the PSO Scheme is providing sufficient certainty and commercial outcomes for the oil recycling industry to grow.

As noted above, there has also been some consolidation in the industry, as smaller players have been acquired by larger re-refineries. This likely reflects a number of factors but is not unexpected in the context of the evolution of a relatively new industry.

Nevertheless, some oil recyclers expressed concern arising from the uncertainty created by the periodic statutory reviews of the PSO Scheme. Feedback from PSO Scheme participants was that when they make a business or infrastructure investment, they are susceptible to recommendations implemented as a result of the statutory review which may negatively affect the investment's viability. This presents an investment risk every four years.

We note that reviewing the Scheme every four years presents an opportunity to assess its outcomes and ensure that it continues to achieve its objectives. Noting the substantial changes in the industry and volume of product produced under different categories in recent years, and the increased deficit, we consider a periodic review every four years is appropriate. Aside from the fact that the Act mandates this review period, shorter reviews would create greater uncertainty but

⁵⁴ The Parliament of the Commonwealth of Australia (1998-2000), Product Stewardship (Oil) Bill 2000, Explanatory Memorandum

⁵³ Except Tasmania, where there is insufficient volume to justify the investment associated with a base oil rerefinery, and it is not economical to ship waste oil to the mainland for re-refining. ⁵⁴ The Parliament of the Commonwealth of Australia (1998-2000). Product Stowardship (Oil) Bill 2000.

longer review periods might mean that necessary adjustments to the scheme cannot occur in a timely manner.

We have considered the comments from stakeholders, and noting the recent investments in rerefining capacity, combined with our finding that the output of the Scheme is close to its theoretical maximum, we consider that there is limited evidence to suggest that investment risk is inefficiently high.

4.5.2 Is the PSO Scheme the best approach to achieve the outcomes, relative to other models or options?

As indicated above, we consider that the PSO scheme, which uses a combination of levies and benefit payments to fund and encourage recycling of waste oil, is operating effectively. However, there are a number of alternative approaches that could be applied to ensure waste oil does not impose undue externalities on the environment and broader community. Some of these are briefly noted in Table 4.1.

Table 4.1 Alternative options for achieving the outcomes of the PSO Scheme

| Option | Key points |
|--|--|
| 1. No formal scheme – leave it to market forces | Unlikely to achieve the objectives of the PSO Scheme, particularly when oil prices are low. In all likelihood the industry could not be sustained. Likely to significantly reduce the volume of oil recycled, particularly given current oil prices Likely to lead to stranded assets Would represent a significant shift from current arrangements |
| 2. Industry (voluntary) regulation | Government could encourage and support industry to develop a recycling scheme Industry take-up for this option is uncertain, in the absence of incentives to do so Unlikely to achieve the objectives of the PSO Scheme |
| 3. Mandatory regulation – e.g. set recycling targets that oil importers and producers must meet | Will incentivise manufacturers and importers to achieve least cost recycling and find markets for recycled oil Targets could be traded Could be accompanied by a 'penalty' levy if manufacturers and importers failed to meet their targets High transaction costs in establishing targets and monitoring and auditing outcomes Tracing whether a particular manufacturer's oil is recycled is likely to be extremely difficult Would represent a significant shift from current arrangements Has intuitive appeal but would be complex and unlikely to represent an improvement over existing arrangement |
| 4. Education campaigns/industry accreditation | Campaigns aimed at both business and consumers encouraging recycling of oil and introducing an accreditation program for businesses that recycle oil Accreditation is unlikely to be attractive to many industry participants as customers may see little value Likely to significantly reduce the volume of oil recycled, particularly given current oil prices |
| 5. Levy-only scheme | Similar to 3 but with no mandatory targets, and would simply place a levy on all oil that is not recycled As with 3, a number of practical difficulties will exist Unlikely to represent an improvement over existing arrangement |

On balance, we do not consider there is any need to fundamentally change the nature of the PSO scheme. Alternative options are unlikely to provide better outcomes and may incur much higher costs.

4.6 Appropriateness

Assessing the appropriateness of the PSO Scheme requires consideration of its design elements, costs, and sustainability.

4.6.1 Design of the PSO Scheme

The appropriateness of the design of the PSO Scheme depends on the relevance and proportionality of action taken. The design of the PSO Scheme is simple and relevant. It levies an activity that creates a negative externality (inappropriate oil disposal) and subsidises an activity that has a positive externality (used oil recycling).

The relative simplicity of the PSO Scheme, and administrative and resourcing requirement of Government and oil recyclers, is proportionate to the size of the industry. The problem being addressed by the PSO Scheme is not temporary, it is ongoing as long as there is consumption of oil in Australia. Therefore, the PSO Scheme continues to remain relevant.⁵⁵

When considering the volume of waste oil recycled in Australia, and the volume that would likely be captured in the absence of any support, it is clear the PSO Scheme is creating sufficient conditions to achieve the outcomes of the Act. The PSO benefit payments support an industry to provide an environmentally and socially beneficial service, and the entities that are best placed to provide this service do so.

When comparing the PSO Scheme to similar schemes in other countries (see Appendix A.2), our research suggests that the levy-benefit concept employed by the PSO is generally better at creating well-aligned incentives for recycling than many overseas examples. The placement of the benefit on the recycled volume and the centralised approach taken ensures the incentives are aligned with the objects.

4.6.2 Sustainability of the PSO Scheme

As discussed above, for the last five years the PSO Scheme has run at a deficit. The increase in the levy from 5.449 cpl to 8.5 cpl in 2014-15 helped to briefly return the PSO towards a neutral position after several years of small deficits. However, this change has been more than offset by the increase in Category 1 claims since 2013-14 and a trend away from lower grade products. While the movement towards Category 1 claims is desirable from an environmental perspective, as it involves a product that can be reused indefinitely, it means that the PSO Scheme is paying more in benefits than it is receiving in levies from oil manufacturers and importers ('polluters').

⁵⁵ Some adjustments have been made to category specifications to address undesired consequences, but the concept of the Scheme is still appropriate.





Source: ATO

The PSO Scheme has gone from a positive cumulative fiscal position to a cumulative deficit in 2018-19 and is expected to drop further in the absence of changes to the scheme, as shown in Chart 4.5.

\$m 100 50 0 -50 -100 -150 -200 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 2013-14 2014-15 2015-16 2016-17 2017-18 2018-19 2001-02 2002-03 2003-04 2011-12 2012-13 2019-20 2010-11 2021-22 2020-21 2000-01 2022-23 023-24

Chart 4.5: PSO Scheme cumulative fiscal balance

Source: ATO

Chart 4.6 shows that consolidated revenue has contributed around \$20 million of PSO Scheme benefits in recent years, and this is expected to increase to \$25 million in coming years (assuming the COVID-19 top-up is removed).



Chart 4.6: Source of PSO Scheme benefit payments, 2013-14 to 2023-24

Source: ATO

If current trends continue, the levy and/or benefit rate need to be modified in order to address the increasing deficit, otherwise the deficit will continue to be funded by taxpayers (beneficiaries).

While both polluter pays and beneficiary pays approaches to addressing environmental externalities can be valid depending upon the circumstances, the polluter-pays approach is more aligned with the objects of the Act. The explanatory memorandum for the PSO Scheme is explicit in its intention to ensure that oil producers progressively assume the costs of product stewardship and environmentally sustainable practices for oil. It is also likely to be a more economically efficient approach to dealing with environmental externalities, as it results in a more efficient allocation of resources.⁵⁶

As such, we consider that the PSO Scheme's deficit should be addressed to ensure that taxpayers (beneficiaries) are not contributing to the costs.

4.6.3 Financial sustainability of recyclers

Our analysis and consultation have confirmed that the oil recycling industry in Australia is facing tightening margins, rising input costs and susceptibility to commodity and exchange rate risk. Stakeholders have highlighted that the nominal benefit rates have not increased in 20 years.

4.6.3.1 Sustainability of the industry during COVID-19

As discussed in Section 2.4.2, in June 2020 the Government announced an additional 12 cpl benefit for Category 1 claims between July and December 2020. It is within the scope of this review to consider whether or not this additional benefit should be extended past December.

The additional benefit of 12 cpl is scheduled to end after December 2020. During consultation, industry stakeholders indicated that the impact of the lower oil price on the industry may continue beyond 2020, and if this were the case, there may be justification in extending the additional benefit.

Some of the feedback from the industry regarding the impacts of COVID-19 include that there was:

- significant changes in revenue, but not costs
- *difficulty in staff performing their roles due to COVID restrictions on travel etc.*

⁵⁶ ACIL Allen, The Product Stewardship (Oil) Act 2000 - A Critical Review, p7.

- a reduction in feedstock from motor vehicle workshops
- drop in domestic demand for base oil, and therefore density of collections
- port restrictions in foreign countries and other factors limiting demand for Australian base oil exports
- a rising AUD eroding international competitiveness
- collection companies charging a fee for used oil collection, as opposed to paying for used oil (this can lead to stockpiling and improper disposal)
- reduction of up to 13% of workforce
- reduction in workforce hours of up to 28%
- some regional collections halted
- postponing or cancellation of capital expenditure
- engagement with JobKeeper.

Some of the industry feedback regarding the additional 12 cpl support include:

- *it has enabled some entities to not require JobKeeper*
- the additional benefit is being passed on to collectors, allowing them to continue collecting
- it does not cover the shortfall for some entities, but it is keeping the wheels turning
- the additional 12 cpl has been so far sufficient to support operations during COVID.

As noted above, stakeholders also separately provided some information on their investment activities during 2020, including expansion projects for major plants and asset upgrades.

Low crude oil prices affect the re-refining industry because their product is a substitute for virgin products. Prices have recovered slightly since the lowest point in mid-2020, but forecasts suggest prices may not reach pre-COVID-19 levels until as late as 2030.



Chart 4.7: Crude oil price forecasts to 2030, Tapis and Brent

Source: Deloitte Access Economics, September 2020

PSO Scheme clients have reported that the volume of feedstock throughput in the industry has reduced by about one-third compared to pre-COVID-19 levels. This is driven by a reduction in the need for car servicing, as well as a slowdown in the mining sector. In addition, with lower global retail oil prices, oil recyclers have had to reduce their sales costs to stay competitive domestically and in the export market.

Some stakeholders indicated that the crude price volatility has been less important than the limited volume of feedstock available during 2020. As such, we consider that the additional support measures may only be able to be repealed when the level of feedstock recovers, i.e. when transport and industrial consumption of oil pick up.

Industry accounts show that a large amount of mining activity in 2020-21 has been postponed, and Chart 4.8 shows that some industries which generate used oil are likely to see reduced activity beyond 2020. Therefore, the volume of feedstock from this source is likely to remain supressed at least into 2021.



Chart 4.8: Output index for select industries, 2018-2023

Note: Sep-20 onwards are forecasts.

Source: Deloitte Access Economics, ABS, September 2020

A September Australian Bureau of Statistics (ABS) survey showed that 31% of people with a job worked from home most days compared with 12% in March.⁵⁷ Apple mobility data also shows that driving activity around Australia dropped by more than half at the peak of the lockdown in April but has since recovered to pre-COVID-19 levels in the last half of the year (except in Victoria).

⁵⁷ ABS Cat. No. 4940.0, Household Impacts of Covid-19 Survey, September 2020



Chart 4.9: Requests for driving directions in Apple Maps, 2020

Note: 13 January is shown as the baseline because travel restrictions were not in place at this time. Source: Apple, October 2020

The availability of feedstock for the oil recycling industry will be influenced by whether or not there are further COVID-19-related restrictions in the future.

Road transport is likely to recover quickly following the easing of restrictions, whereas industrial and manufacturing activity which generates used oil tends to recover more slowly, as business investment is postponed. Strong recovery in road transport suggests that the volume of feedstock from mechanics should recover in 2021 (assuming no further travel restrictions), however, supressed industrial activity and crude oil prices will place pressure on the oil recycling industry well past 2020.

4.6.3.2 Indexation of benefit and/or levy

A key point raised through the consultation with industry was the design of the PSO Scheme and whether there should be a functionality for increasing the benefit rate paid in line with CPI, to reflect rising input costs. It is also worth considering if the PSO Scheme levy rate should be increased to cover higher benefit rates and the recently observed deficits.

The indexation of excise rates with CPI is a familiar concept for the Australian petroleum industry. Indexation was first introduced in 1983 by the Hawke government to avoid the eroding effects of inflation. This system remained in place for 18 years until 2001 where it was abolished to reduce fuel prices. In 2014, the fuel excise indexation was reintroduced in response to recommendations from a review of Australia's tax system in 2009.

A similar system could be placed on the PSO Scheme levy for oil in Australia. This would ensure that the real value of the levy is maintained. The PSO Scheme levy was last increased in the 2014-15 financial year from 5.499 cpl to 8.5 cpl to increase revenue and assist the PSO Scheme to operate in surplus. While this was effective in the year following the change, benefits paid have outweighed revenue collected from the levy ever since.

In addition, indexation of the benefit rate paid to oil recyclers through the PSO Scheme may also be required. As operating expenses and wages increase with inflation and wage growth, this would ensure that the costs of re-refining do not become disproportionately higher than the financial incentive to re-refine. This would also offset the initial increase in the PSO Scheme levy. Thus, indexation would address stakeholder concerns in relation to rising costs of doing business by providing them with a proportionate benefit rate paid. In a written submission, the oil recyclers' peak body AORA submitted that:

- the benefit rates should be updated to today's dollars to reflect the costs of maintaining and updating infrastructure. With CPI in 2020 at 1.53 times the 2000 CPI level they considered that the categories should increase:
 - a. Category 1 re-refined base oil 75 cpl
 - b. Category 2 other re-refined base oils 15.3 cpl
 - c. Category 5 high grade industrial burning oils 7.65 cpl
- 2. the levy should be increased from 8.5 cpl to 18 22 cpl to counter the cost of the increased benefit.
- 3. index the benefits and levy at the same time, at the same levels as the fuel excise
- 4. reduce or eliminate the levy payable of re-refined base oil to incentivise the use of domestically produced base oil over imported materials
- 5. increase the periodical review intervals from 4 years to 8 years to provide additional investment confidence. $^{\rm 58}$

In relation to the CPI point submitted by AORA, we note that in the case of Category 1 oil, the PSO Scheme benefit comprises a significant proportion of recyclers' revenue. Stakeholders have indicated that wholesale base oil prices were stable at around \$1/L in the early 2010s, when crude oil was over US\$100/barrel. Wholesale base oil prices dropped to \$0.5-0.6/L in subsequent years as the crude price fell, and further to \$0.3/L during 2020 with the effects of COVID-19 creating historically low oil prices.⁵⁹ This means that the PSO Scheme benefit has represented up to 50% of the revenue for some oil recyclers in recent years, excluding the recent experience during COVID-19.

During consultation, industry stakeholders mentioned that some of their costs had increased significantly since the introduction of the PSO Scheme, but the benefit payments had not kept pace with these cost increases. While some costs, such as fuel for collection and energy, are also linked to crude oil prices, many other business expenses are not. A breakdown of operating expenses was obtained from oil recyclers in order to understand to what extent costs are linked to crude oil prices, as opposed to other benchmarks such as CPI and wage growth.

The information provided showed that fuel and energy costs only comprise up to 20% of all operating expenditure, with around 18-28% for wages and between 52-73% for other costs. This means that more than 80% of operating expenses incurred by oil recyclers change with inflation and wage growth, while crude prices do not necessarily follow the same trend.

In summary, some costs faced by oil recyclers have increased over the past 20 years, whilst the PSO benefits received have remained constant in nominal terms. This has resulted in a tightening of margins across the industry, and appears to be reflected in some industry consolidation, as greater economies of scale have been required. Other technology changes and events over the last 8 years have resulted in a significantly higher proportion of oil recycled at the higher Category 1 benefit rate, and improvements to the quality of recycled oil products, which is gradually enhancing the ability for recycled oil to compete with virgin oil products. Further, recent investment activity in the industry suggests that, putting aside the disruption caused by COVID-19, oil recycling continues to be economically viable under the current PSO benefit levels, so long as crude oil prices remain at reasonable levels. As such, this issue could potentially be addressed by introducing a floating component to PSO benefit rates.

Balancing this argument is the fact that the benefit paid is only one part of the overall revenue for recyclers. The PSO Scheme benefit payment has typically comprised between 30% and 60% of total revenue for oil recyclers, with sales comprising the balance. This is based on information from industry that prices received for Category 1 oil have been around 50 cpl in recent years, up to 100 cpl in times of high crude prices, and as low as 25-30 cpl during COVID.

⁵⁸ AORA written submission, 12 October 2020.

⁵⁹ Aggregated feedback provided by stakeholders.

4.6.4 Commodity price risk

Under the current PSO Scheme arrangement with fixed benefit rates, oil recyclers bear the financial risk of fluctuating commodity (crude oil) prices. As shown in Chart 4.10 crude oil prices have been volatile since commencement of the PSO Scheme, meaning that re-refiner revenues have also fluctuated.





Source: IMF. From July 2017 onwards NYMEX Cash.

Margins are low and can be negative when crude prices are very low. This presents a significant challenge, particularly for an industry with a long payback period for investments in plant and equipment. COVID-19 provides an extreme example of this volatility risk and has warranted the introduction of the industry support fund, but volatility is an ongoing issue for the industry.

Full exposure to this risk provides a disincentive for expansion and investment in the industry and ultimately could threaten the viability of the scheme if oil prices are persistently low. In our view, it may not be appropriate for oil recyclers to fully bear this risk. Transferring this risk to Government/taxpayers, for example via a floating benefit payment, would provide for smoother revenue flows for oil recyclers. An approach to introducing a floating benefit is detailed further in Section 5.2.

4.6.5 Information and reporting

There is a lack of transparency in the reporting of information and data relevant to the PSO Scheme. Prior to 2016, the Department of the Environment's annual reports contained information on the volumes claimed in each Category and the Government's resourcing requirements for the PSO Scheme. This information helped stakeholders and the community to assess the PSO Scheme as it adapts without having to wait for the statutory reviews.

The Department of the Environment no longer publishes this information in its annual reports. As legislation currently stands, the Minister is only required to lay before each House of the Parliament a report relating to the operation of the PSO Scheme and any other matters the Minister thinks relevant.

A lack of transparency may weaken adherence to reporting, data and monitoring requirements and facilitate 'off-radar' activity which could undermine the effectiveness of the PSO Scheme. It is important and appropriate that the Government attains the most accurate data possible in order to best understand the extent of collection and recycling in the used oil industry and thus, the PSO Scheme's ability to support it. It is also appropriate that the Government share sufficient information to enable the industry to make well-informed decisions. It is suggested that

information collected by the ATO could be shared with DAWE on an aggregated basis, to summarise collection and recycling rates of eligible products, without identifying the specific parties involved. This information could then be published. During our review, the ATO has indicated it is supportive of this suggestion.

Globally, transparency also appears to be an issue for oil recycling industries. Our research on international schemes was hampered by a lack of consistent, up-to-date information on the collection and recovery rates of used oil (Appendix A: International approaches to managing used oil). Gaps and differences in reporting requirements and structures not only make international comparisons of effectiveness difficult but also impede upon the detection of changes and trends which may have domestic implications. The Australian used oil industry is strengthened by imports of used oil from overseas. Therefore, deficiencies in data and information could potentially lead to detrimental misjudgements of the global market for used and re-refined oil.

4.7 Efficiency

4.7.1 Cost and administrative efficiency of the PSO Scheme

4.7.1.1 Administrative cost to Government

The last public report on resourcing requirements for the PSO Scheme occurred in the 2014-15 Department of the Environment Report, where it showed that the funding for DAWE and the ATO in relation to the PSO Scheme was \$421,438 for the year. In addition, the Australian Border Force (ABF) customs area devotes approximately 2-3 full time equivalent personnel to undertake trade enforcement activities, including monitoring the imports of oil products subject to the PSO Scheme levy.

However, as discussed above in section 4.4.4.1, during consultations, ABF reported difficulty testing compliance with specifications due to the nature of testing. The PSO Scheme levy can be difficult to apply in some cases, as some exemptions relate to US standards which do not easily concord with Australian equivalents. In addition, ABF reported some issues with commercial names and products that have already been consumed. More clarity around these requirements may enable ABF to more efficiently administer the PSO Scheme levy.

4.7.1.2 Administrative cost to oil recyclers

The general consensus among oil recyclers was that there is a moderate amount of work involved with registering for the PSO Scheme, but the marginal cost of engaging with the PSO Scheme is not significant. The exception to this is in Tasmania, where it was suggested the low volume and quality of feedstock meant that the administrative costs of participating in the scheme were prohibitive.

A minor issue that became apparent during consultations was the fact that PSO Scheme clients lodge both fuel excise claims and PSO Scheme benefit claims. Fuel excise forms are legislated to require weekly lodgement, while some clients submit PSO claims monthly (although they can be submitted at any frequency). This means that if a re-refiner wishes to lodge the two forms concurrently, they can only do so by increasing the frequency of their PSO claims to a weekly schedule. These forms contain very similar information, so there is an opportunity to reduce duplication for oil recyclers. Weekly lodgement of PSO claims would increase the administrative costs of the PSO scheme, despite being aligned with weekly excise claims.

As noted above, some stakeholders raised concerns that the regulations are overly prescriptive and are not able to be changed quickly so as to encourage innovation. One such case involved a request for a ministerial approval which we were advised took 18 months to be approved, by which time, much of the potential gains from innovation had been missed (see 4.4.6 above).

4.7.1.3 Conclusion on efficiency

The administrative costs of the scheme are likely to be in the order of \$1 million per annum, which is reasonably efficient for a scheme that pays benefits in the order of \$80 million per year. Nevertheless, in Chapter 5 we have made a small number of suggestions to improve its efficiency.

5 Conclusion and recommendations

5.1 Overview

To a large degree the PSO Scheme continues to achieve the objects of the Act:

- the vast majority of waste oil in Australia is being collected and re-refined through the PSO Scheme
- a waste oil recycling industry has developed and is supported by the PSO Scheme, and has been economically viable prior to the disruptions caused by COVID-19
- producers and consumers of oil are bearing the cost of environmentally sustainable management of its waste products.

Based on this review, the PSO Scheme appears to achieve the outcomes of effectiveness, appropriateness and efficiency, and its overall costs are proportional to the benefits and outcomes achieved by the PSO Scheme.

The PSO Scheme imposes a relatively low administrative and public cost.

It is unlikely that any major structural changes to the PSO Scheme would create a net benefit, given the small amount of waste oil that is not currently being captured, and the likely high marginal cost associated with capturing this waste oil. This view was supported by all stakeholders consulted during the review.

However, there are several risks and challenges currently threatening to undermine the effectiveness of the PSO Scheme. They are both short-term and long-term in nature:

- in the **short-term**, there are concerns over the financial viability of the PSO Scheme, in part due to disruptions caused by COVID-19
- in the longer-term:
 - a shift towards more expensive Category 1 claims has meant that the PSO Scheme has run at a deficit since 2014-15, and there is little prospect of it returning to a breakeven situation
 - oil recyclers raised concerns that their margins have been eroded over the duration of the PSO Scheme, as benefit rates have remained constant, but input costs have increased.

Other, less significant issues include the cost of collection in regional areas, transparency of Scheme information from Government, and procedural efficiency within the PSO Scheme.

Given the PSO Scheme's success, we strongly support its continuance, and do not consider that it requires a major change in design. However, we do consider action is necessary to address the issues identified above. Our recommendations are outlined below.

5.2 Recommendations

We have developed a series of recommendations for modifications to the PSO Scheme which are designed to address the primary challenges with the Scheme that were identified throughout this review.

Implementing these recommendations will ensure the PSO Scheme can continue to achieve the objectives of the Act, ensure that it remains an appropriate measure to respond to the challenge of managing waste oil in Australia, and improve its effectiveness and efficiency in managing waste oil.

Reducing commodity price risk for oil recyclers

1. Enable PSO Scheme benefits to change with oil prices, to insulate oil recyclers against fluctuations in crude oil prices and thereby support the financial sustainability of the PSO Scheme.

Currently, the PSO Scheme benefits are fixed per unit of oil recycled and have not changed since the PSO Scheme commenced in 2000. The viability of oil recyclers varies with oil prices, as they sell their recycled oil products into a market, competing with virgin oil. This means that when oil prices are low due to demand or supply factors in the global market, the revenue that oil recyclers receive for their product is reduced. When oil prices are high, oil recyclers receive higher revenues for their products sold. Oil recyclers have some capacity to deal with this risk through charging waste oil producers for collection when oil prices are low but providing a free service when oil prices are high. However, this only enables some of the revenue loss to be offset.

Oil prices are currently low, both due to COVID-19 and more structural issues, and most forecasts expect that low prices will continue in the medium term.

To address this risk, by enabling PSO Scheme benefit rates to vary with crude oil prices, increasing as oil prices decrease, oil recyclers will face less risk to their viability. When oil prices are higher, the floating component could go to zero, to reflect the fact that PSO Scheme benefits are not required.

The aim is not to completely protect oil recyclers from oil price risk; price volatility is a feature of the industry and oil recyclers need to be able to manage this risk. Rather, the aim is to ensure the viability of the PSO scheme during prolonged periods of lower oil prices.

Ultimately this approach means commodity price risk is borne by Government rather than by industry. This would avoid the need for emergency industry support from Government during periods of low oil prices, such as was provided this year to support the industry during COVID-19.

Enabling floating benefit rates could be implemented by introducing different benefit rates associated with different ranges of crude oil prices, such as that outlined in Table 5.1. Our analysis is based on Brent Crude prices to align with available forecasts, however there may be more appropriate Australian base oil price indices (such as WTI or NYMEX) to use as a benchmark if implementing this recommendation.

| Average price of Brent crude oil over the previous quarter (USD/barrel) | Approximate price that oil recyclers receive for base oil | Proposed floating benefit rates, as a % of current benefit rate | Proposed floating benefit rate (Category 1) | Total revenue (sale price plus PSO Scheme benefit, Category 1) |
|--|--|--|--|--|
| Greater than US\$80 | 50-100 cpl | 50% | 25 cpl | 75-125 cpl |
| Greater than US\$60 but less than US\$80 | 50 cpl | 100% | 50 cpl | 100 cpl |
| Greater than US\$40 but less than US\$60 | 40-50 cpl | 120% | 60 cpl | 100-110 cpl |
| US\$40 or less | 25-40 cpl | 140% | 70 cpl | 95-110 cpl |

Table 5.1: Possible approach to floating PSO Scheme benefit rates

Feedback from stakeholders suggested revenue of approximately \$1 per litre is necessary to maintain business viability. This occurs when crude oil prices are greater than US\$80/bbl.⁶⁰ As the

⁶⁰ Base oil is used as a benchmark because it attracts the highest rate and comprises the majority of oil recycled under the Scheme.

price of base oil falls or rises, the PSO Scheme benefit should rise or fall by the same amount so that the revenue per litre remains broadly similar.

When crude prices are in the US\$60/bbl range, stakeholders indicated that the price of base oil is approximately 50 cpl, so the current benefit rate of 50 cpl puts the total price at around 100 cpl. With crude prices in the order of US\$30-40/bbl, base oil prices have been in the range of 30-40 cpl, so the benefit rate would need to increase by 10-20 cpl, or 20-40%, in order to maintain the constant total price of 100 cpl.

Based on the information we received from stakeholders during consultation, we therefore estimate that the floating benefit rate components outlined in the table above would result in a relatively consistent revenue streams for oil recyclers, maintaining revenues from PSO Scheme and recycled oil sales of approximately \$1 per litre during periods of oil price instability, and reducing the benefits paid and overall cost of the PSO Scheme during periods of high oil prices.

As outlined in Chapter 4, Deloitte Access Economics forecasts Brent Crude prices to remain below US\$60, but above US\$40/bbl until 2027. Accordingly, introducing the floating PSO Scheme benefit as described in Table 5.1 above would result in benefit payments equal to 120% of the current benefit rate. It is therefore estimated that introducing the floating benefit rate mechanism would result in Government paying an additional 20%, or \$15.6 million, for PSO Scheme benefits over the next four years, to 2024-25.

We note that this recommendation would involve an increase in administrative burden to the ATO, namely through:

- System updates to include new rates
- Errors arising from incorrect use of rates
- Manual intervention sometimes required where a claim straddles two rates
- Increased cost of compliance
- Updating of forms.

We considered whether introducing a scaled collection benefit to encourage collection of oil from particularly remote areas might be desirable. However, given our findings that:

- the majority of waste oil in Australia is being collected
- that there is no evidence that waste oil is being dumped in regional areas
- that collectors have reported they are continuing to service remote areas, albeit at lower marginal revenues (though this is unlikely to be below marginal cost)
- the administrative complexities and 'loopholes' that such an approach might open up

there is insufficient reason for a change to incentivise regional and remote collections at this time.

As an **interim measure**, we consider that the PSO Scheme temporary COVID support package should be extended for at least another six months to allow government to consider and implement this new mechanism. This would also allow time for the mechanism to be tested for feasibility with the ATO, and with industry, in late 2020 through early 2021.

Addressing the increasing deficit

2. Increase the levy to address the deficit

As outlined in Chapter 4, the PSO Scheme has been running a deficit since 2007-08, which has been escalating in recent years as the benefits paid have increased with the concentration of higher benefit Category 1 products. Since 2015-16, \$141.5 million of deficit has been funded by taxpayers. This conflicts with the polluter-pays principle for management of environmental externalities, and the aim of the PSO Scheme to be self-financing.

Options to address the deficit include increasing the levy and/or decreasing the benefit rates.

Decreasing PSO Scheme benefit rates is not currently a desirable option, given the financial challenges that oil recyclers are reporting during COVID-19, rising input costs and commodity price risks.

The options for increasing the levy to address the deficit include:

- implement a one-off increase to align the expected levy collection with expected benefit payments, based on the most recent year of data on volumes and benefits paid; and
- index the levy to reflect movements in the Consumer Price Index (CPI) since it was last increased in 2014.

For these options, we have estimated that:

- a one-off increase to align the expected levy collection with expected benefit payments would result in a levy increase from 8.5 cpl to 12.76 (rounded to 13) cpl
- if the levy were to be updated for changes in the Consumer Price Index since the last increase in 2014, it would increase 10 per cent to 9.35 cpl.⁶¹



These options are presented in Chart 5.1.

Source: Deloitte, ABS

In considering an increase to the levy, it is important to consider the impact this could have on the price and hence demand for oil products. Consultation with industry has confirmed that the levy on wholesale oil products is typically passed on in full to end customers, noting that the market is competitive and that therefore there may be some variation. An increase of the levy from the current level of 8.5 cpl, to enable the PSO Scheme to breakeven at approximately 13 cpl, would result in a very small change to the overall retail price of oil products. Cheaper engine oils currently retail for prices in the order of \$5-10/litre, so a 4.5 cpl increase in the levy represents a 0.5% to 1.0% increase in retail prices (assuming the increase in the levy is fully passed on to consumers).

Further, considering the price elasticity of demand for oil, and the nature of oil products and how they are consumed, we note that base oil is an input into processes for which there is typically significant capital investment, for example, vehicles and machinery. This means that small changes in the price of base oil are unlikely to significantly impact demand, as the investment in capital significantly outweighs the input costs. However, over the longer term as capital is replaced, higher operating costs due to, for example higher levies on oil, may marginally reduce the demand for oil products.

⁶¹ ABS Cat. No. 6401.01. September 2013 to June 2020.

Overall, we consider that a one-off increase to the levy to 13 cpl to enable the PSO Scheme to achieve fiscal neutrality is an appropriate, and proportional, response to the Scheme deficit, and would be unlikely to significantly impact demand for base oil products. We note that if this recommendation were to be implemented, sufficient lead-in time (at least six or twelve months' notice) must be provided to allow industry to factor the new levy into their operating models, given the significant lead time for imported products and lengthy supply contracts.

We have also considered the potential for amending the PSO Scheme to enable the levy to escalate annually with general inflation but do not consider this is necessary for the reasons discussed in section 4.6, particularly in the current low-inflation environment.

3. Provide more transparency and data concerning the operation of the PSO Scheme.

Prior to 2016, the Department of the Environment's annual reports contained information on the volumes claimed in each Category and the Government's resourcing requirements for the PSO Scheme. This provided transparency and helped stakeholders and the community assess the PSO Scheme without having to wait for the statutory reviews. Given this is a mandatory Scheme, currently in part funded by taxpayers, we consider there should be more transparency around its operations. Even with the consolidation in the industry that has been occurring, there is still some information that could be provided publicly. This includes the volume claimed in each Category, levies collected, benefits paid, and the Government resources allocated to administration.

5.3 Further observations

As discussed in Section 4.4, this review has identified a number of issues with the design and operation of the PSO Scheme, which can be considered relatively less important than the broader industry and Scheme financial viability and risk challenges for which we have made recommendations to address.

We note that while these issues have been identified during this review, further analysis is required to determine the nature and extent of the problems, and the best approach to address them, if it found to be necessary. This further analysis and consideration may be led by the Department as part of the government response to the Review but may also require consultation with the other parties involved in the administration of the Scheme.

1. Consult with ABF and other Government agencies to identify a more appropriate certification mechanism for petroleum product importers.

As discussed in section 4.4.4.2, when assessing which oil imports are subject to the PSO Scheme levy, the ABF must often identify if product is an excise equivalent good and therefore exempt from the PSO Scheme levy. Importers have an incentive to classify their goods as eligible for the PSO levy, in order to attract the lower PSO levy of 8.5 cpl instead of the excise equivalent goods levy of 42.3 cpl.

It is likely that the resourcing requirement for this testing process is excessive and could be made more efficient. For example, this could be achieved by improving concordance between Australian and US standards, or a requirement for importers to demonstrate Australian laboratory testing in some circumstances. We therefore recommend that the ABF, DAWE and the ATO should consult on the operation of an alternative arrangement for certification of oil imports.

2. Investigate ways to support increased collection of waste oil from mines.

Mines are one of the major generators of waste oil, but currently collectors are unable to capitalise on the full potential of this volume for waste oil recycling. This is because waste oil produced at mines is subject to mining regulations, which allow it to be combusted on site - in some cases as a cheap, dirty source of energy. During our review, several stakeholders highlighted that this undermines the operation and achievements of the scheme.

Addressing this issue would require a review of mining regulations, which are State-based, and therefore would require consultation with State EPA and mining authorities. With stronger legislation and regulations that are more aligned with EPA policies, more waste oil can be collected from mines and recycled, leading to better environmental and economic outcomes.

3. Hold an annual meeting/s with relevant government bodies and stakeholders.

It became apparent during research and consultations that there are some knowledge gaps between oil recyclers, collectors and government that could help achieve the objects of the Act if addressed.

As such, we suggest that an annual meeting be held between these entities where these knowledge gaps and other concerns can be raised, so that they can be discussed without having to wait for the period statutory review. This meeting could cover similar topics that the former Oil Stewardship Advisory Council covered but would do so with more flexibility. In addition, the meeting could be integrated with the agenda of the Meeting of Environment Ministers, or the Senior Officials Group that underpins it in order to streamline the process. The meeting could be facilitated by Government or a consultant, and would incorporate entities such as DAWE, ATO, ABF, EPAs, oil recyclers, producers and collectors.

This meeting could be based on the system used for the Fuel Schemes Stakeholder Group in relation to fuel tax credit, <u>currently</u> held by ATO.

4. Allow oil recyclers to lodge their fuel excise and PSO Scheme forms concurrently.

Currently, oil recyclers are required to submit fuel excise forms weekly. Industry standard is that PSO Scheme forms are submitted monthly, though there is no specific requirement for this schedule. The requirements for excise form lodgement frequency sit outside the PSO Scheme itself. However, both of these forms are submitted to the ATO and contain very similar information, and so there is an opportunity to streamline this process by allowing PSO Scheme clients to submit all this information at once on a monthly basis. While it would be possible for oil recyclers to submit both their PSO claims and fuel excise forms weekly, increasing the frequency of PSO claims would increase the administrative burden for stakeholders, rather than reducing it.

We understand the ATO Is currently updating its PSO Scheme submission IT system. We consider that there is an opportunity for Government to concurrently consider updating its fuel excise form submission process for PSO Scheme participants. Streamlining this timing would relieve administrative burden for Scheme participants. This may require legislative amendment outside of the PSO Scheme and more detailed consideration by Government which may be outside the scope of this Review.

Appendix A: International approaches to managing used oil

A.1. Australia and international waste conventions

Australia is part of two international conventions in relation to oil and hazardous waste processing, the Basel Convention and the Waigani Convention.⁶²

A.1.1. Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal first came into force in 1992. The convention is designed to place a level of duty upon exporting countries to ensure that hazardous wastes, including used oil products, are managed in an environmentally sound manner in the country of import. 151 countries have agreed to the convention and this obliges them to:

- minimise generation of hazardous waste;
- ensure adequate disposal facilities are available;
- control and reduce international movements of hazardous waste;
- ensure environmentally sound management of wastes; and
- prevent and punish illegal traffic.

Australia signed the Basel Convention in its commencement year. The *Hazardous Waste* (*Regulation of Exports and Imports*) *Act 1989* allows Australia to meet all its obligations under the Basel Convention.⁶³ To do so, this legislation introduced a permit system to regulate the movement of hazardous wastes into and out of the country. If a Basel export permit is approved, used oil can be exported or imported for resource recovery, recycling, refining or other re-uses. Alternatively, if used oil has been adequately treated domestically to meet industry standards, then the oil is no longer classified as waste and need not be regulated under this Act or the Basel convention.

A.1.2. Waigani Convention

The Waigani Convention bans the importation of hazardous and radioactive wastes into the Forum Island Countries (which includes Australia and 17 Pacific Island countries). There are 24 countries within the coverage area of the Waigani Convention. The convention also controls the transboundary movement and management of hazardous wastes within the South Pacific region.

As such, the Waigani Convention allows Australia to import hazardous wastes from South Pacific countries, given they are not parties to the Basel Convention. This acts as an injection of used oil into the Australian oil recycling industry, increasing the volume of used oil available to be rerefined domestically and therefore, eligible to be claimed through the PSO Scheme. Once treated, this oil may be sold domestically or exported, on condition that Australia's obligations under the Basel Convention are observed.

A.2. Global product stewardship of oil

Oil recycling is emerging as a prominent industry globally. The international automotive oil recycling market has displayed rapid growth in recent years and is projected to grow at least 10%

⁶³ Basel Convention, Overview, <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>

by 2026.⁶⁴ Possible drivers of this growth may include a shift in focus towards sustainability, improved infrastructure, more favourable perceptions of recycled products and increasing demand for government action through policy.

Many countries have oil recycling schemes, and the approach taken varies. Schemes tend to differ based on the environmental objectives outlined by governments in setting re-refined oil targets. The economic and operational responsibility of different schemes also tends to vary across distributors, producers and importers.

This international literature review explores existing global product stewardship and extended producer responsibility (EPR) schemes. The range of approaches to EPR and the relative performance of each is examined through qualitative analysis of international case studies. Case studies have been selected to demonstrate the range of existing approaches to managing used oil. The list of schemes included in this review is not exhaustive. Conclusions and comparisons drawn are used to support Deloitte's broader work in reviewing the Product Stewardship (Oil) Act 2000.

A.2.1. Extended producer responsibility as a global policy instrument

According to the original EPR manual, OECD defines EPR as "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle".⁶⁵ In this way, EPR policies are used to shift responsibility towards producers, encouraging reduction and prevention of waste at its source. This also creates a design incentive for producers to minimise any potential negative externalities that may result from production, consumption and disposal processes. Although EPR schemes create an individual obligation, producers often work collectively by establishing Producer Responsibility Organisations (PRO) to operate on the industry's behalf.⁶⁶

International approaches to EPR have continued to evolve since the third review of the PSO Scheme in 2013. Across the globe, governments have been tasked with reviewing their waste management policies in response to rising environmental concerns and pressure to transition towards a more circular economy. Whilst there is no standardized approach, EPR has become largely accepted in many countries as an effective method to increase collection and recycling of environmentally harmful waste products, including used oils. Worldwide, there exists more than 350 EPR policies and of these, more than 70% were implemented since the release of OECD's original EPR guidance manual for governments, in 2001.⁶⁷ EPR schemes for used oils form a small portion of the total number of EPR schemes worldwide (Chart A.1). Other products covered by EPR schemes include waste electrical and electronic equipment (WEEE), used lead acid batteries, end of life vehicles, used tires and packaging.⁶⁸

⁶⁴ Recycling International, *Bright Prospects for Worldwide Oil Recycling Sector* (12 September 2019)

<https://recyclinginternational.com/business/bright-prospects-for-worldwide-oil-recycling-sector/27613/> ⁶⁵ Organisation for Economic Co-operation and Development (OECD), *Extended Producer Responsibility: A Guidance Manual for Governments* (20 March 2001) <https://www.oecd-ilibrary.org/environment/extended-producer-responsibility_9789264189867-en>

⁶⁶ Extended Producer Responsibility Alliance (EXPRA), *Extended Producer Responsibility at a glance* (2016) http://www.expra.eu/uploads/downloads/EXPRA%20EPR%20Paper_March_2016.pdf

⁶⁷ Kaffine, D. and P. O'Reilly., 'What have we learned about extended producer responsibility in the past decade? A survey of the recent EPR economic literature' (21 January 2015), *OECD Working Party on Resource Productivity and Waste* ENV/EPOC/WPRPW(2013)7/FINAL.

<https://spot.colorado.edu/~daka9342/OECD_EPR_KO.pdf>

⁶⁸ Gupt, Y. and Sahay, S., 'Review of extended producer responsibility: A case study approach, *Waste Management & Research' (16 July 2015)*, Vol. 33(7).

Chart A.1: EPR by product type, worldwide



Source: OECD, 'What have we learned about extended producer responsibility in the past decade? – A survey of the recent EPR economic literature' (2013)

There are four major categories of EPR instruments used by policy makers globally. Economic instruments and product take-back requirements are most commonly used for the stewardship of used oils (Table A.1). Economic and market-based instruments such as advance disposal fees or upstream combinations of tax and subsidies provide financial incentives to ensure the proper treatment of used lubricant oil. This may involve charging a levy on the sale or production of oil in order to cover the cost of recycling and re-refining processes. In contrast, product take-back requirements work to improve used oil collection rates. The mix of these policy levers varies based on individual waste streams, the quantity of used oil generated and the region's capacity to recycle it.

| Policy Instrument Category | Description | | Use of EPR Policy Instrument for the Management of Used Oils (by location) |
|---|---|--|--|
| Product take-back requirements | Policies which require the producer or retailer to collect the product at the post-consumer stage. This may involve providing an incentive for consumers to return the used product to a specified selling point. | | Austria, Belgium, Bulgaria, Canada, Chile, Cypress, Denmark, Germany, Greece, Italy, Latvia, Netherlands, Poland, Portugal, Slovenia, Spain, France |
| Economic and market- based instruments | Deposit-refund | A deposit or initial payment made at the time of purchase that is fully or partially refunded when product is returned for collection | Canada, United States (California) |
| | Advanced Disposal Fees | Fees which are levied on certain products at purchase based on the estimated costs of collection and treatment. | Italy, France |
| | Material Taxes | Taxes on virgin materials to create incentives to use recycled or less toxic materials. | Not often used for Used Oils |
| | Upstream combination tax/subsidy | A tax paid by producers which is used to subsidise waste treatment. | Australia, Finland |
| Regulations and performance standards | Minimum recycled content standards, minimum collection and recycling targets. | | Voluntary collection rate targets in place in various countries |

Table A.1: Overview of EPR and Product Stewardship Global Policy Instruments

| Policy Instrument Category | Description | Use of EPR Policy Instrument for the Management of Used Oils (by location) |
|----------------------------------|---|--|
| Information-based instruments | Policy measures such as reporting requirements, labelling of products, communication of producer responsibility to consumers and information pertaining to recycling. These indirectly support EPR programmes by raising public awareness. | Used to varying degrees across a majority of countries |

Source: Column 1 and 2: Organisation for Economic Co-operation and Development (OECD), *Extended Producer Responsibility: Updated Guidance for Efficient Waste Management,* 2016. Column 3: Kaffine, D. and P. O'Reilly., What have we learned about extended producer responsibility in the past decade? A survey of the recent EPR economic literature, *OECD Working Party on Resource Productivity and Waste,* 2013.

Although often used interchangeability, it is important to note that product stewardship differs to EPR by sharing the responsibility of recycling amongst multiple stakeholders.⁶⁹ In most cases the greatest responsibility remains with producers, however local governments, suppliers, retailers and consumers can also play a role in the operation, reporting and economics of waste management. Additionally, product stewardship programs commonly use legislated environmental fees or public funds as a funding base whilst under EPR schemes producers are responsible for the financing of collection and treatment of used oils.

A.2.2. International case studies

As international applications of EPR policy tools vary, so too do their levels of success. This section explores the different types of global EPR schemes for used oil and their relative effectiveness, namely:

- legislative;
- decentralised;
- outcome-based; and
- industry led EPR schemes.

Whilst each country's approach is different, patterns in EPR schemes for the sustainable management of used oil have emerged. Many schemes involve take-back requirements, economic instruments (such as taxes and levies) or a combination of both. Take-back requirements are most commonly used to incentivise collection and may target consumers, collectors or oil producers. Here, used oil products are "taken-back" through approved collection points or scheduled pick-ups. If applied, economic instruments then work to offset the cost of recycling and re-refining of used oil and encourage innovation in cleaner production.

There are lessons to be learnt from the experiences of other countries. However, it is important to note that there is no one-size-fits-all approach to EPR. Instruments selected and their success are often dependant on cultural, institutional, industry, trade and geographic contexts.⁷⁰ As such, not all aspects of any one scheme are necessarily transferrable to the Australian landscape.

For example, research shows that EPR is generally successful in developed countries but only moderately successful in developing countries, based on recovery and recycling rates.⁷¹ In developed countries, producers often have greater financial responsibility than physical responsibility for recycling. It is also suggested that producers in these countries are more likely to take innovative measures to re-design products to reduce their environmental impact (although

schemes in Asia: China and Taiwan, Japan, South Korea.' (2009). Paper prepared for Department for the

Environment, Water, Heritage and the Arts, by the Institute for Sustainable Futures, UTS: Sydney. ⁷¹ Gupt, Y. and Sahay, S., 'Review of extended producer responsibility: A case study approach' (16 July 2015), *Waste Management & Research*, Vol. 33(7).

 ⁶⁹ Wagner, T., 'Examining the concept of convenient collection: An application to extended producer responsibility and product stewardship frameworks' (March 2013), *Waste Management 33*.
 ⁷⁰ Chong, J., Mason, L., Pillora, S., Giurco, D. 'Briefing Paper – Product stewardship
this may not exactly be the case in Australia). In contrast, producers in developing countries are burdened by the financial and physical responsibility more equally. In a recent study, 77% of EPR schemes able to meet their recovery and recycling targets were from developed countries whilst the remaining 23% were from developing ones.⁷²

A.2.2.1. National legislative EPR schemes

Like the Australian Product Stewardship Oil Act 2000, many international EPR schemes are defined within nationwide EPR legislation. This is the standard approach to EPR allowing requirements to be enforceable by law and supported by government at a national level. For small countries or those with similar oil consumption across regions, this has proven effective. Here, a standardised approach increases efficiency by reducing unnecessary red tape and streamlining the process of passing and adhering to EPR regulations.⁷³

In 2003, **South Korea** introduced its own national EPR system. Overtime, this system has strengthened and expanded to address a large range of waste product categories including lubricant oils. The EPR system for lubricant oils is defined by law under Article 18 of the "Act on the Promotion of Saving and Recycling of Resources".⁷⁴ This approach involves take-back requirements as well as mandatory recycling targets which are announced annually. The law also places responsibility on producers to collect and recycle used oil products. In response, South Korean oil producers formed the Korea Lubricant Oil Industrial Association (KLOIA) to function as a PRO. In 2017, approximately 188.5 million tonnes of waste oil were reused with a recycling rate of 72.4%.⁷⁵ This indicates ongoing success, growing from 70% in 2013 (at the time of last review).

Additionally, within the last decade, an increasing number of South American countries have followed worldwide trends by putting EPR legislation into motion. In 2016, the **Chilean** government passed the Waste Management, Extended Producer Responsibility and Recycling Incentives Bill (Ley N20.290, 2016).⁷⁶ This law is the first of its kind in South America and established an EPR scheme for six priority product categories with lubricant oils toward the top of the list. Here, both producers and importers are given the responsibility to organise and finance the collection of used oils. Producers are also required to sign up to the Ministry of Environment's Producer Register. The specific implementation of these laws in relation to used oils is still being developed, however, it is likely that an economic instrument for waste management will be enforced.⁷⁷ The Ministry of Environment set goals for waste generation and recovery and compliance will be overseen by specialist agency, the Superintendency of the Environment.

Relevance to Australian PSO Scheme

Australia has a well-established national product stewardship scheme for used oil. A standardised approach has worked well for Australia, which is sparsely populated and has similar oil consumption and waste patterns nationwide.

A centralised system has yielded the following benefits in Australia:

- Establishment of a strong national network of used oil collectors
- Improvement in the quality of national recycling infrastructure
- Increased collection, recycling and re-refining of used oil, leading to environmental benefits.

However, it is important to note the inherent challenge which accompanies a national scheme governing waste collection in a large country. Particularly, the collection of used oil in regional

⁷² Gupt, Y. and Sahay, S., 'Review of extended producer responsibility: A case study approach' (16 July 2015), *Waste Management & Research*, Vol. 33(7).

⁷³ Bass, J., 'The Potential and Limits of Extended Producer Responsibility: A Comparative Analysis Study' (24 April 2017).

⁷⁴ OECD, *Case study for OECD project on extended producer responsibility: Republic of Korea* (22 May 2014). https://www.oecd.org/environment/waste/OECD_EPR_case_study_Korea_revised_140522.pdf?

⁷⁵ Statista, Recycling rate of waste lubricant oil in South Korea from 2008 to 2017 (April 2019).

<https://www.statista.com/statistics/1078298/south-korea-waste-oil-recycling-rate/>

⁷⁶ Vanderstricth, C., 'What have we learned about Extended Producer Responsibility in the past decade? Case Study – Chile' (Commissioned by the OECD, 2014).

⁷⁷ Benitez, R., Carrasco, E., and Sas, A., *The Environment and Climate Change Law Review – Edition 4: Chile* (March 2020) <https://thelawreviews.co.uk/edition/the-environment-and-climate-change-law-review-edition-4/1215618/chile>

Relevance to Australian PSO Scheme

and remote regions. In these areas, collection and transport of used oil is accompanied by increased costs and as a result, may depress collection rates and potentially lead to improper disposal.

The higher cost of rural and regional collection has been addressed in Alberta where return incentives vary by region to address the increased transport costs associated with the large geographical size of the province. This will be discussed in detail in the next section (Appendix A.2.2.2.)

A.2.2.2.Decentralised EPR Schemes

In contrast, large countries with high population density often manage EPR on a state-by-state basis. Here, EPR may exist in variety of different forms to complement existing policies or to appropriately address the distinct needs of locations or products within one nation.

Canada's decentralised approach to the product stewardship of used oil has evolved into one of the most sophisticated approaches in the world. Here, Canadian provinces are responsible for their own collection and management of used oils (Table A.3). Nine of the thirteen provinces have implemented mandatory used oil recovery schemes through introduction of individual used oil control and handling regulations.⁷⁸

All nine of these provinces have established their own used oil associations through provincial legislation. These associations are made up by wholesalers and first-sellers of lubricant oil products. Each of these provincial associates are members of a wider Used Oil Management Association (UOMA). The UOMA is an industry-led stewardship program model that facilitates collaborative recovery, recycling and reuse of used oil across its member provinces in Canada. This program model uses a combination of economic incentives and take-back requirements. Under the UOMA model, the management of used oil is funded by an Environmental Handling Charge which is placed on all sales of lubricant oil. Revenue generated by this charge is then paid back to the separate provincial associations. The Environmental Handling Charge differs between states but is approximately 0.05 CAD (0.053 AUD) per litre of oil on average.⁷⁹

In addition, a return incentive is paid to private sector collectors to pick up and deliver returned quantities of used oil to government approved recycling facilities where the materials are processed into new products. In Alberta, these return incentives vary by region to address the increased transport costs associated with the large geographical size of the province.⁸⁰ The Alberta Used Oil Management Association established six freight-equalized zones within Alberta with separate return incentive rates for each (Table A.2).⁸¹ Here, a higher return incentive is paid in the northern regions than those which are closer to major cities due to the long distances required to travel to market.

| Zone | Used oil (CAD/litre) | Used oil containers (CAD/kg) | Used oil filters (CAD/kg) |
|-----------------------|-----------------------------|---------------------------------|------------------------------|
| 1 (Closest to market) | 0.0425 (0.0511 AUD 2019) | 1.82 (2.19 AUD 2019) | 1.04 (1.25 AUD 2019) |
| 2 | 0.0680 (0.0817 AUD 2019) | 2.20 (2.64 AUD 2019) | 1.26 (1.51 AUD 2019) |

Table A.2: Alberta return incentive payment schedule by zone (2018)

⁷⁸ Environment and Climate Change Canada, *Follow Up on the Final Decision on the Assessment of Releases of Used Crankcase Oils to the Environment* (2005) <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/follow-up-assessment-releases-crankcase-oils/chapter-2.html>

⁷⁹ Used Oil Management Associations, *Environmental Handling Charges (EHC)* (1 April 2020)

⁸⁰ OECD, EPR Policies and Product Design: Economic Theory and Selected Case Studies (February 2006)

⁸¹ Alberta Recycling Management Authority, *Return Incentive Rates (By Zone)* (2018)

| Zone | Used oil (CAD/litre) | Used oil containers (CAD/kg) | Used oil filters (CAD/kg) |
|-----------------------------|-----------------------------|---------------------------------|------------------------------|
| 3 | 0.0680 (0.0817 AUD 2019) | 2.15 (2.58 AUD 2019) | 1.26 (1.51 AUD 2019) |
| 4 | 0.0680 (0.0817 AUD 2019) | 2.01 (2.42 AUD 2019) | 1.41 (1.69 AUD 2019) |
| 5 | 0.0850 (0.1022 AUD 2020) | 2.15 (2.58 AUD 2020) | 1.57 (1.89 AUD 2020) |
| 6 (Furthest from market) | 0.1275 (0.1533 AUD 2020) | 2.38 (2.86 AUD 2020) | 2.01 (2.42 AUD 2020) |

Source: Alberta Recycling Management Authority, *Return Incentive Rates (By Zone)* (2018). Note – the return incentive rates have decreased since 2002 for used oil, and increased for oil containers and used oil filters.

Recovery rates of used lubricant oils have jumped from 61% in 2002 under the old take-back system, to 80% in 2012.⁸² According to recent annual report figures (Table A.3), the average recovery rate is now approximately 89% within provinces which align with the UOMA.

⁸² Gupt, Y. and Sahay, S., 'Review of extended producer responsibility: A case study approach' (16 July 2015), *Waste Management & Research*, Vol. 33(7).

| Province | Used oil recovery regulations | Provincial used oil association | Member of UOMA | Collection rate | Quantity of oil recovered | Number of collection facilities | Environmental handling charge (EHC) 2020 |
|------------------------------|--|--|---|--------------------------|----------------------------------|---------------------------------------|--|
| Newfoundland and Labrador | Mandatory - Used Oil Control Regulation | UOMA-NL | Yes - from Oct 1 st 2019 | N/A (less than one year) | N/A (less than one year) | 133 | \$0.07 per litre (0.074 AUD) |
| Nova Scotia | Mandatory - Used Oil Regulations | UOMA-NS | Yes – from Jan 1 st 2020 | N/A (less than one year) | N/A (less than one year) | 565 | \$0.04 per litre (0.043 AUD) |
| New Brunswick | Mandatory - Used Oil Regulation | UOMA-NB | Yes -from Jan 1 st 2014 | 90.5% | 9.2 million litres (2018) | 197 | \$0.03 per litre (0.032 AUD) |
| Prince Edward Island | Mandatory - Used Oil Handling Regulations | UOMA-PE | Yes -from April 1 st 2015 | 87.3% | 1.3 million litres (2018) | 33 | \$0.03 per litre (0.032 AUD) |
| Quebec | Mandatory - Regulation respecting the recovery and reclamation of used oils, oil or fluid containers and used filters | Societe de Gestion des Huiles Usagees (SOGHU) | Yes -from Jan 1 st 2005 | 82% | 62.1 million litres (2018) | 1,139 | \$0.05 per litre (0.053 AUD) |
| Manitoba | Mandatory - Used Oil, Oil Filters and Containers Stewardship Regulation | Manitoba Association for Resource Recovery | Yes | 92% | 15.6 million litres (2019) | 76 | \$0.05 per litre (0.053 AUD) |
| Saskatchewan | Mandatory - Used Oil Collection Regulations | Saskatchewan Association for Resource Recovery Corp (SARRC) | Yes | 75% | 18.2 million litres (2019) | 187 | \$0.05 per litre (0.053 AUD) |
| Alberta | Mandatory - Lubricating Oil Material Recycling and Management Regulation | Alberta Used Oil Management Association (AUOMA) | Yes | N/A | 84.5 million litres (2018/19) | 230 | \$0.05 per litre (0.053 AUD) |

Table A.3: Summary of EPR/Product Stewardship schemes in Canadian provinces

| Province | Used oil recovery regulations | Provincial used oil association | Member of UOMA | Collection rate | Quantity of oil recovered | Number of collection facilities | Environmental handling charge (EHC) 2020 |
|--------------------------|--|---|----------------|-----------------|-------------------------------|---------------------------------------|--|
| British Columbia | Mandatory - Recycling Regulation | British Columbia Used Oil Management Association (BCUOMA) | Yes | 110% | 51.4 million litres (2019) | 1000+ | \$0.05 per litre (0.053 AUD) |
| Yukon | Allowed - Yukon Environmental Act | N/A | No | N/A | N/A | N/A | N/A |
| Nunavut | Allowed | N/A | No | N/A | N/A | N/A | N/A |
| Ontario | Encouraged | N/A | No | N/A | N/A | N/A | N/A |
| Northwest Territories | Encouraged | N/A | No | N/A | N/A | N/A | N/A |

Source: Environmental and Climate Change Canada (2015), 2018-19 Annual Reports of existing provincial oil associations, UOMA EHC Schedule (2020).

Similarly, the **United States (US)** takes a decentralised approach to management of used oil, leaving product stewardship legislation in the hands of state and local governments. According to recent data, 37 states have placed disposal bans on used oil whilst only 8 states enforce mandatory recycling.⁸³ A growing number of progressive states are introducing product stewardship through product take-back mandates and economic measures, such as deposit-refund schemes.

As a guide, the United States Environmental Protection Agency (EPA) has established nation-wide used oil management standards. These standards were designed to ensure safe handling of used oil, maximise recycling and minimise improper disposal. Whilst states may have specific requirements around product stewardship or extended producer responsibility, the EPA requirements for the storage of used oil, recordkeeping and clean-up of oil leaks are common across the country.

A study conducted by the EPA identified that consumers were more willing to recycle used oil if collection was convenient.⁸⁴ Providing collection points in locations where oil was purchased, at service stations or through organised pick-ups from homes was predicted to incentivise collection by easing the burden of collection from consumers. This has seen a large number of collection points for used oil and filters established across the country.

California has the largest state oil recovery program in the US and is one of the only states to classify used oil as hazardous waste.⁸⁵ The California Used Oil Program is legislated by the California Oil Recycling Enhancement Act and delivered by the California Department of Resources Recycling and Recovery (CalRecycle). This program has not only established a network of over 2,600 state-wide collection points but also focuses on efforts to inform and motivate the public to use them.

In 2009, Senate Bill 545 made changes to the California Oil Recycling Act, modifying the depositrefund system that was currently in place. Under Senate Bill 545, the fee levied on the production of new lubricative oil products increased from \$0.16 to \$0.24 USD per gallon of oil sold in the state (equivalent of \$0.06 to \$0.09 AUD per litre in 2019). At the same time, the fee paid by re-refiners of recycled oil products decreased from \$0.16 to \$0.12 per gallon (equivalent of \$0.06 to \$0.05 AUD per litre in 2019).⁸⁶ Revenue generated is then refunded to certified) collectors through a return incentive of \$0.40 per gallon to certified kerbside (equivalent to \$0.15 AUD per litre in 2019) and \$0.16 per gallon to industrial collectors (equivalent to \$0.06 AUD per litre in 2019). This scheme is further supported financially by CalRecycle's Used Oil Payment Program and Used Oil Competitive Grant Program, which aim to encourage used oil collection, recycling, and education locally. In 2012, the recycling rate for used oil in California was approximately 70%.

Relevance to Australian PSO Scheme

Schemes which differ across provinces or states can allow schemes to be tailored to the distinct needs of each state. These include population density, volumes of oils used, state-based environmental policies and schemes, and relevant costs. However, a decentralised approach can also lead to inconsistencies and gaps. In the US, some states have chosen not to adopt an EPR scheme towards used oil whilst in others, there is a lack of transparency in information and reporting.

Like Australia, Canada and the US are geographically large. However, Australia and Canada are different to the US in the sense that their populations are heavily concentrated in small areas, so infrastructure and capacity in some areas may be limited. Therefore, waste must be

⁸³ Northeast Recycling Council (NERC), *Disposal Bans & Mandatory Recycling in the United States* (1 July 2020) <https://nerc.org/documents/disposal_bans_mandatory_recycling_united_states.pdf>

 ⁸⁴ United States Environmental Protection Agency (EPA), *How to Setup a Local Program to Recycle Used Oil* (May 1989) https://archive.epa.gov/wastes/conserve/materials/usedoil/web/pdf/89039a.pdf
 ⁸⁵ PD Consulting Environment, *Life Cycle Assessment of Used Oil Management* (Commissioned for the American)

⁸⁵ PD Consulting Environment, *Life Cycle Assessment of Used Oil Management* (Commissioned for the American Petroleum Institute, January 2017) https://www.api.org/~/media/Files/Certification/Engine-Oil-Diesel/Publications/LCA-of-Used-Oil-Mgmt-ERM-10012017.pdf>

⁸⁶ Hamilton, S. and Sunding, D., 'Optimal Recycling Policy for Used Lubricating Oil: The Case of California's Used Oil Management Policy' (August 2014).

Relevance to Australian PSO Scheme

transported a substantial distance to be treated or recycled. The Alberta scheme provides an example of incentives which vary by location.

The Australian Scheme has the advantage of consistency and universal coverage. However, there is a need to ensure that the PSO Scheme is consistent with state-based environmental policies and laws, and that the PSO Scheme adequately compensates for the costs associated with distances travelled for collection.

A.2.2.3. Outcome-based EPR schemes in the European Union

EPR is used widely in Europe to both prevent and minimise the environmental impacts of waste and pollution. The European Union (EU) has the authority to issue legislative acts known as directives to which each member state must follow by *transposing* or creating its own laws. This serves as an outcome-based approach to EPR, where each member state must decide upon the best process to work towards a common goal. In this case, the common goal is to mitigate the environmental consequences of the improper management of used lubricant products.

The EU Waste Framework Directive (WFD), Directive 2008/98/EC, provides the overall framework for waste management in the EU. This is accompanied by four additional directives which mandate EPR schemes for the recycling of End-of life Vehicles, WEEE, packaging and batteries. A suite of directives for other waste products act as legislation to encourage the implementation of EPR measures within its member states. A number of directives are used to determine recycling requirements for used oil (Table A.4).

| Document | Directive number | Relevance |
|---------------------------------|---|---|
| Waste Oil Directive | 75/439/EEC – amended by 87/101/EEC, repealed by WFD | Requires member states ensure the safe collection and disposal of used oil. Gives priority to disposal by regeneration where technical, economic and organisation constraints allow. |
| Waste Framework Directive | 2008/98/EEC | Covers waste management in general. Integrates relevant provisions of the WOD, repealing 75/439/EEC. The management of waste oils, including used lubricant oil, should be conducted in accordance with the priority order of the waste hierarchy, and preference should be given to options that deliver the best overall environmental outcome. The separate collection of waste oils remains crucial to their proper management and prevention of damage from improper disposal. |
| Waste Incineration Directive | 2000/76/EEC | Poses limits on atmospheric emissions from the burning of waste. |
| Hazardous Waste Directive | 91/689/EEC | Places requirements on the management of used oils ensuring controlled consignments of hazardous wastes. |

Table A.4: Summary of EU Directives relating to the waste management of used oil

Source: European Commission, ATIEL Used Oil Technical Committee 2009

Currently, there are over 10 countries in the EU which have introduced EPR instruments, or similar mechanisms, for the recycling of used oil.⁸⁷ Whilst all schemes are guided by the objectives of EU Waste Directives, each member state has approached EPR in different ways to meet the distinct

⁸⁷ Deloitte, Development of Guidance on Extended Producer Responsibility (EPR) (Commissioned by the European Commission, 2014).

needs of their national waste landscapes. Table A.5 provides a summary of these systems, which are then described in further detail.

| Table A.5: Sumn | nary of EU | J EPR Systems |
|-----------------|------------|---------------|
|-----------------|------------|---------------|

| Country | Start Date | Description of System | Quantity of Oil Collected |
|----------|------------------------|--|------------------------------|
| Belgium | 2002, 2003, 2004 | Semi-decentralised EPR system which differs between three large regions: Wallonia, Brussels and Flanders. Producer take-back requirement with a 100% collection rate target Minimum recycling targets set for producers | 45.4 ML (2019) |
| Italy | 1982 | Centralised Organisation, CONOU, responsible for the collection, quality control and treatment of used oils. Economic incentive for recycling in the form of a reduced excise duty where producers of re-refined oil products pay 50% of the excise duty applied to virgin lubricant oils. | 187 ML (2018) |
| France | 1979 | Resembles product stewardship scheme where responsibility is shared among parties Producers and importers required to pay a general tax to the government for polluting activities Government gives annual budgetary allocation to ADEME that funds collection and treatment Collection requirements (take-back requirements) | 181 ML (2017) |
| Finland | 2011/2012 | EPR-like waste management system which prioritises the recycling of used oil through general waste legislation. Waste Oil Charge of 5.95 eurocents per kilogram (\$0.13 AUD 2019) Green deal on national waste oil management | N/A |
| Portugal | 2003 | One PRO, SOGILUB, responsible for used oil management. Producers must pay 63 euros per cubic metre of lubricants sold (\$145 AUD 2019). 5% of budget to communication and awareness, 3% to R&D. | N/A |
| Spain | 2006 | A centralised organisation, SIGAUS, is responsible for used oil waste management. Establishment of target recovery, valorisation and rerefining rates. Producers must pay 6 eurocents per kilogram of lubricants sold (\$0.14 AUD 2019) Mandatory waste prevention plans. | 135 ML (2019) |

Italy introduced the first European scheme for the recycling of used oils in 1982. The Waste Oil Directive was transposed into Italian law as DPR 691/82. Under this law a central agency, the National Consortium for the Management, Collection and Treatment of Used Mineral Oils (CONOU), was established to manage the collection, quality control and appropriate treatment of used oils. Italy also imposes an economic incentive for recycling in the form of a reduced excise duty. Producers of re-refined oil products pay 50% of the excise duty applied to virgin lubricant oils.88 In 2018, the CONOU system collected 187 thousand tonnes of used oil, achieving a 100% collection rate and 99% regeneration rate.89

⁸⁸ European Commission, Excise duties: the European Commission decides to bring Italy before the European Court of Justice for its tax legislation which favours regenerated lubricating oil produced from used oil collected *in Italy* (October 2008) ⁸⁹ Translated from CONOU, *Risultati* (2018) <https://www.conou.it/it/raccolta/risultati/>

Belgium is the only country in the EU which has a decentralised EPR system. Legislation is implemented in the Wallonia (2002), Brussels (2003) and Flanders (2004) regions (Table A.6). This EPR legislation established producer take-back requirements along with a 100% collection rate target for used lubricant oils. Recycling and regeneration of used oils is further prioritised through the imposition of minimum recycling targets for producers, which differ in each region. Belgian lubricant oil producers, retailer and distributers are represented by Valorlub. Valorlub aims to support members in meeting their legal requirements to finance the collection and processing of waste oils, meet the 100% target collection rate, achieve recycling targets and inform consumers of these arrangements.

| Region | Minimum Recycling Targets | Maximum Used Oil for Energy Generation | Purchase Obligation for returned used oil | Quantity of Used Oil Collected (2019) | Collection Rate (2019) |
|----------|---------------------------------|---|---|--|---------------------------|
| Wallonia | 85% | 15% | No | 12.9 million kgs | 102.8% |
| Brussels | 60% | 40% | Yes | 1.4 million kgs | 67.3% |
| Flanders | 60% | 40% | No | 31.0 million kgs | 107.0% |
| Total | | | | 45.4 million kgs | 103.9% |

Table A.6: Summary of Regional EPR schemes in Belgium

Note: Collection rates are based on annual quantities of lubricant oil available on the market. Therefore, collection rates may exceed 100% if collection activities collect more oil than what was sold/available on the market in the same year. This may be achieved if companies collect used oils which were manufactured in previous years.

Source: Bio Intelligence Service, Used of Economic Instruments and Waste Management Performances (Commissioned by the European Commission, 2012). Valorlub Annual Report 2019.

The **Spanish** management of used oil has evolved alongside its EPR policies. Previously, Spain had used economic incentives such as subsidies and tax exemptions to encourage the collection and recycling of used oil. This changed in 2006 where the Spanish Used Oil Management Act mandated EPR in the management of used oils. The scheme set target recovery rates of used oils to 95%, valorisation rates to 100% and re-refining rates to 65%. A royal decree required manufacturers to establish a PRO, SIGAUS, to finance the recovery of used oils. Here, producers are obligated to pay 60 euros per tonne (\$0.14 AUD per litre 2019) of lubricants sold, which is often passed onto the consumer.^{90,91} Producers are also required to prepare enterprise prevention plans to reduce the environmental impacts of their products. This scheme has been extremely successful. Since establishment in 2006, SIGAUS reports consistent annual recovery rates of 100%.⁹² In 2019, 135 million kilograms of used oil were collected in Spain. Of the oil collected, 73% was regenerated or re-refined and 100% was valorised.⁹³

Portugal was motivated by EU Directives to establish the majority of its EPR policies. However, when it came to used oil, the Portuguese government developed specific waste management frameworks from its own initiative. In 2003, Portuguese legislation established a PRO, SOGILUB, to manage used oil collection and disposal. SOGILUB is surveyed by the Portuguese Environmental Agency. An economic incentive system was introduced in 2005 to fund the used oil management system. This EPR system requires producers and importers to pay 63 euros per m³ (\$145 AUD 2019) based on the volume of lubricant sales.⁹⁴ Through this system, SOGILUB is obligated to dedicate 5% of its budget to communication and awareness raising activities and 3% of its budget

 ⁹⁰ Arner, A., *Oil Tax, Subsidies and Extended Producer Responsibility in the Used Oil Market* (September 2018).
 ⁹¹ SIAGUS, Used oil search engine https://www.sigaus.es/en/home (Accessed 4th November 2020)

 ⁹² Arner, A., Oil Tax, Subsidies and Extended Producer Responsibility in the Used Oil Market (September 2018).
 ⁹³ Translated from SIGAUS, Annual Report (2019).

⁹⁴ ATIEL, Report of the ATIEL Used Oil Technical Committee (16 March 2009).

to research and development work.⁹⁵ In 2019, Portugal achieved a 100% collection rate, 81% regeneration rate and 100% recycling rate.⁹⁶

In 1979, **France** established a management system for used lubricant oil in response to the European Directives. This mechanism differs from a true EPR chain as producers are not given direct responsibility for the recycling or disposal of used oil products. Instead, this scheme more closely resembles a product stewardship scheme where responsibility is shared between governments, producers and collectors. Here, used lubricants are required to be picked-up by certified collectors and are then recovered by approved facilities through recycling, regeneration or as industrial fuels. Oil companies are required to pay a General Tax on Polluting Activities (Taxe générale sur les activités polluantes) which is collected by the French government as tax revenue.⁹⁷ The French Agency for Environment and Energy Management (ADEME) receives an annual budgetary allocation that funds the collection and treatment of used lubricants. In 2017, 181 thousand tonnes of used oils were collected with a 75% regeneration rate.⁹⁸

In **Finland**, the Waste Act (646/2011) and Waste Decree (179/2012) regulate the collection, treatment and transportation of waste products, including used oils. Whilst there is no direct EPR legislation in place, the country's waste laws prioritise the recycling of oil through refinement or reuse where possible. Additionally, the Waste Oil Charge Act (894/1986) requires a tax be paid on lubricating oils and greases. This charge, 5.75 eurocents per kilogram (\$0.13 AUD 2019), is paid by producers and importers and is used to cover the costs of managing oil wastes.⁹⁹ Between 2010 and 2016, 36 thousand tonnes of used oil was treated each year with a recycling rate of 74%.¹⁰⁰ The Finnish government has also made a number of 'green deals' to complement existing legislation. These are voluntary agreements between the State and industry bodies which aim to promote the 2050 Sustainable Development goals and to encourage joint action towards building a circular economy. In 2019, the 'Green Deal on Developing National Waste Oil Management' was made to increase the effectiveness of waste oil management, collection and recycling.¹⁰¹ The green deal is valid until 2024, and promotes market-based oil waste management by requiring oil companies to make a range of industry-led commitments, including a target recycling rate of 80% from 2020 onwards.¹⁰²

Relevance to Australian PSO Scheme

Each member state has had different levels of policy success in achieving the overall objective set out in EU Directives to ensure the safe collection and disposal of used oils.

Whilst the EU recommends EPR as a policy instrument, the implementation of such a scheme is not mandatory for used oil. Therefore, approaches to the waste management of used oil are subject to a range of interpretations of the overall objective, providing that they follow the order of the waste hierarchy and preference is given to approaches that deliver the best overall environmental outcome (as specified in the WFD).

Outcome-based schemes allow member states to achieve the objective in the way that is most suitable and efficient for their state. Different states have different geographies, demographics and oil industries, meaning that the optimal approach may not be the same for all states.

<https://www.ecologie.gouv.fr/sites/default/files/Ademe_tableau%20de%20bord.pdf> ⁹⁹ Waselius, C., and Ekqvist. '*Oil and gas regulation in Finland: overview'* (2019)

⁹⁵ Deloitte, *Development of Guidance on Extended Producer Responsibility (EPR)* (Commissioned by the European Commission, 2014).

⁹⁶ Translated from SOGILUB, Annual Report (2019).

⁹⁷ ADEME, Extended Producer Responsibility Chains in France: Panorama 2011 (2012)

<http://news.cleartheair.org.hk/wp-content/uploads/2013/05/7674-REP-Panorama2011.pdf> 98 ADEME, Tableau de bord de la filière huiles usagées du mois de décembre 2017 (2017)

https://uk.practicallaw.thomsonreuters.com/1-630-

^{0426?}transitionType=Default&contextData=(sc.Default)&firstPage=true>

 ¹⁰⁰ Translated from Sitoumus2050, Green deal -sopimus valtakunnallisen öljyjätehuollon kehittämisestä (2019)
 ¹⁰¹ The Ministry of the Environment, Green Deals (17 April 2019) <https://www.ym.fi/en-US/Legislation/Green Deals>

¹⁰² Translated from Sitoumus2050, 'Green deal -sopimus valtakunnallisen öljyjätehuollon kehittämisestä' (2019)

However, the lack of a mandatory scheme in favour of an outcome-based recommendation has resulted in limited data and accessibility which make it hard to recognise and compare the most effective practices.

A.2.2.4. Industry-led EPR systems

In other cases, EPR systems are voluntary and are established by the oil industry themselves. Here, producers unite to take responsibility for the recycling and re-refining of their products. These schemes are often supported or accredited by governments but are not defined in legislation.

The Recycling Oil Saves the Environment (R.O.S.E.) foundation is a non-profit company that is responsible for promoting cleaner production, collection, storage and recycling of used oils in South Africa. The foundation was created in 1994 in response to the government's withdrawal of the previous tax-subsidy scheme for used oil. Here, the industry took on the responsibility to minimise the environmental impact of their products on their own accord. Collection and recycling operations are funded by R.O.S.E. member oil companies through a contribution of 5 cents on each litre of new lubricating oil sold.¹⁰³ Through this system, 120 to 140 million litres of used oil is generated annually in South Africa, and of this approximately 70% is recovered.¹⁰⁴

Similarly, **New Zealand** also follows the industry led R.O.S.E. approach for the recycling of used oil. New Zealand does not have direct EPR legislation in place but instead has 14 voluntary, accredited product stewardship schemes in place. In 2018, the New Zealand government renewed accreditation of the R.O.S.E. product stewardship program. It complies with the Environmental Protection Authority's 2013 guidelines under the Hazardous Substances and New Organisms Act on the management and handing of used oil.

In New Zealand, the R.O.S.E. scheme is a collaboration between multiple oil companies and features a take-back requirement system. R.O.S.E. facilitates collection across New Zealand by utilising the collection fleet and storage facilities of R.O.S.E. scheme operators. This scheme has been successful in addressing the environmental impact of used oil, collecting approximately 2.5 million litres of used oil annually. This volume has grown overtime with Fulton Hogan, the largest member company, collecting 250% more oil in 2017/18 than it did in the first year of the scheme, 2011/12. As a result, the R.O.S.E. scheme has recently been renewed until 2025.¹⁰⁵

Research has found that, in general, New Zealanders are willing to pay approximately \$2.10 per oil change,¹⁰⁶ For used oil, those earning \$20,000-\$39,000 as well as those earning more than \$80,000 annually were more willing to pay for recycling programs. There were no significant demographic differences (age, location) in determining consumers' willingness to pay for oil recycling.

Relevance to Australian PSO Scheme

Product stewardship must have the support of industry in order to be effective and successful. Research advises that EPR schemes are most effective when stakeholders are actively engaged.¹⁰⁷ It is suggested that stakeholders are more likely to effectively implement voluntary

¹⁰³ Lochan. R., Used Oil Management – EPR in a Regulatory Environment (October 2014) <a>https://iwmsa.co.za/sites/default/files/downloads/Lochan%2C%20R.%2039.pdf>

¹⁰⁴ Lochan. R., Used Oil Management – EPR in a Regulatory Environment (October 2014)

<a>https://iwmsa.co.za/sites/default/files/downloads/Lochan%2C%20R.%2039.pdf> ¹⁰⁵ R.O.S.E New Zealand, Product Stewardship, <https://rosenz.co.nz/product-stewardship/> (Accessed 8 October 2020)

¹⁰⁶ Ministry for the Environment, Recycling: Cost Benefit Analysis,

<https://www.mfe.govt.nz/publications/waste/recycling-cost-benefit-analysis/annex-3-analysis-willingness-

pay-results> ¹⁰⁷ The Department of the Environment, Water, Heritage and the Arts. '*Product Stewardship in North America* and Europe'. (June 2009) Prepared by Perchards Ltd and Martin Stewardship and Management Strategies Pty Ltd.

and/or co-regulatory approaches in opposition to mandated EPR approaches. ¹⁰⁸ As such, industry-led schemes for used oil have proven relatively successful through the collaboration and good-faith commitments from oil companies to achieving optimal outcomes.

Over the past 20 years, the PSO Scheme has worked to establish a used oil recycling industry in Australia. The Australian Oil Recyclers Association (AORA) represents members of the national oil recycling industry which encourage the collection, management and recycling of used oil and activities that prevent used oil from contaminating the environment.¹⁰⁹

¹⁰⁸ The Department of the Environment, Water, Heritage and the Arts. '*Product Stewardship in North America and Europe'*. (June 2009) Prepared by Perchards Ltd and Martin Stewardship and Management Strategies Pty Ltd.

¹⁰⁹ Australian Oil Recyclers Association (AORA), 'Welcome', <http://aora.asn.au/> (Accessed 19th October 2019)

Appendix B: Stakeholder consultation

Due to travel and gathering restrictions associated with COVID-19, stakeholder consultation was conducted virtually from August to October 2020. Some written responses were also received. Consultations and written responses were received from the following entities:

| Verbal consultation | Written response |
|---|--------------------------------------|
| Southern Oil Refining | Southern Oil Refining |
| Cleanaway | Cleanaway |
| J.J. Richards | J.J. Richards |
| Benzoil | Northern Oil Refining |
| Northern Oil Refining | Wren Oil |
| Wren Oil | Department of Home Affairs |
| Hagen Oil | Australian Oil Recycling Association |
| Department of Agriculture, Water and the Environment | |
| Australian Tax Office | |
| State Environment Protection Authorities: | |
| Queensland Victoria | |
| Western Australia | |
| Australian Capital Territory New South Wales | |
| Local Government Associations | |
| Regional New South Wales | |
| Queensland | |
| New South WalesWestern Australia | |
| Australian Oil Recycling Association | |
| Australian Lubricant Association | |

Limitation of our work

This report is prepared for the Department of Agriculture, Water and the Environment. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of advising on the efficiency and effectiveness of the Product Stewardship (Oil) Act 2000. You should not refer to or use our name or the advice for any other purpose.

Deloitte.

Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website: www.deloitte-access-economics

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities. DTTL (also referred to as "Deloitte Global") and each of its member firms and their affiliated entities are legally separate and independent entities. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Deloitte is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Our network of member firms in more than 150 countries and territories serves four out of five Fortune Global 500®companies. Learn how Deloitte's approximately 286,000 people make an impact that matters at www.deloitte.com.

Deloitte Asia Pacific

Deloitte Asia Pacific Limited is a company limited by guarantee and a member firm of DTTL. Members of Deloitte Asia Pacific Limited and their related entities provide services in Australia, Brunei Darussalam, Cambodia, East Timor, Federated States of Micronesia, Guam, Indonesia, Japan, Laos, Malaysia, Mongolia, Myanmar, New Zealand, Palau, Papua New Guinea, Singapore, Thailand, The Marshall Islands, The Northern Mariana Islands, The People's Republic of China (incl. Hong Kong SAR and Macau SAR), The Philippines and Vietnam, in each of which operations are conducted by separate and independent legal entities.

Deloitte Australia

In Australia, the Deloitte Network member is the Australian partnership of Deloitte Touche Tohmatsu. As one of Australia's leading professional services firms. Deloitte Touche Tohmatsu and its affiliates provide audit, tax, consulting, and financial advisory services through approximately 8000 people across the country. Focused on the creation of value and growth, and known as an employer of choice for innovative human resources programs, we are dedicated to helping our clients and our people excel. For more information, please visit our web site at https://www2.deloitte.com/au/en.html.

Liability limited by a scheme approved under Professional Standards Legislation. Member of Deloitte Asia Pacific Limited and the Deloitte Network.

©2020 Deloitte Access Economics. Deloitte Touche Tohmatsu