The Allen Consulting Group

Independent Review of the *Product Stewardship (Oil) Act 2000*

Prepared for the Minister for the Environment and Heritage

May 2004

Final Report

Independent Review of the *Product Stewardship (Oil) Act 2000*

Prepared by
The Allen Consulting Group
for
the Minister for the Environment and Heritage

May 2004

Final Report

Independent Review of the Product Stewardship (Oil) Act 2000

ISBN 0 642 55039 5

Publisher:

Australian Government Department of the Environment and Heritage
John Gorton Building
King Edward Terrace
Parkes ACT 2600
Australia

This publication is also available as a PDF document on the Department of the Environment and Heritage oil recycling website, www.oilrecycling.gov.au.

Authorship:

This report is an independent review prepared by The Allen Consulting Group. The views and opinions expressed in this publication are those of the authors and do not necessarily reflect those of the Commonwealth Government or the Minister for the Environment and Heritage.

The Commonwealth does not accept responsibility for the accuracy or completeness of the contents of this publication, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.

Printed by Pirion Pty Limited on Australian paper made from sustainable plantation timber.

The Allen Consulting Group

25 May 2004

The Honourable David Kemp MP
Minister for the Environment and Heritage
Parliament House
CANBERRA ACT 2600

Dear Minister,

In accordance with section 36 of the *Product Stewardship (Oil) Act 2000*, we have pleasure in submitting to you the independent report on the legislative arrangements underpinning the Commonwealth's Product Stewardship for Oil Program.

We would like to take this opportunity to acknowledge the support of the review's steering committee (comprised of representatives from the Department of the Environment and Heritage and the Department of Industry Tourism and Resources, Prof. Ian Rae from the Australian Academy of Technological Sciences & Engineering) and the officers from the Department of the Environment and Heritage's Automotive Waste Resources Section.

We would also like to thank those industry and government stakeholders who assisted us by taking the time to write submissions and participate in the public consultation forums.

Yours sincerely

Jeremy Thorpe
Director, The Allen Consulting Group.
Part-time Lecturer in the Faculty of Law at the University of New South Wales.

Dr John Bell
Associate Director, The Allen Consulting Group.
Fellow of the Australian Academy of Technological Sciences and Engineering.
Fellow of the Royal Australian Chemical Institute.
Companion of the Institution of Engineers.

The Allen Consulting Group Pty Ltd
ACN 52 007 061 930

Melbourne
4th Floor, 128 Exhibition St
Melbourne VIC 3000 Australia
Tel: (61-3) 9654 3800
Fax: (61-3) 9654 6363
www.allenconsult.com.au

Sydney
3rd Floor, Fairfax House,
19 Pitt St Sydney
NSW 2000 Australia
Tel: (61-2) 9247 2466
Fax: (61-2) 9247 2455

Canberra
Level 12, 15 London Circuit
Canberra ACT 2600 Australia
GPO Box 418 Canberra ACT 2601
Tel: (61-2) 6230 0185
Fax: (61-2) 6230 0149

Perth
Level 25, 44 St George's Tce
Perth WA 6000 Australia
Tel: (61-8) 9221 9911
Fax: (61-8) 9221 9922

Brisbane
Level 11, 77 Eagle St
Brisbane QLD 4000 Australia
PO Box 7034 Riverside Centre
Brisbane QLD 4001
Tel: (61-7) 3221 7266
Fax: (61-7) 3221 7255

In affiliation with Economists Incorporated, USA

Contents

Executive summary

This report fulfils a legislative requirement to review the Product Stewardship (Oil) Act 2000

Arrangements for the recycling, reuse and disposal of used lubricating oils were mandated under the *Product Stewardship (Oil) Act 2000* (the *PSO Act*) and have been operational since January 2001. Section 36 of the *Act* requires an independent review, to be undertaken within four years after the *Act's* commencement, of the:

- operation of the *Act*;
- relevant provision of customs and excise legislation; and
- extent to which the objectives of the *Act* have been achieved.

Rationale for the regulation of used oil

Significant quantities of oil are not reused or disposed of appropriately

Notwithstanding the independent waste minimisation arrangements of the States and Territories, and the coordinated efforts of Australian jurisdictions under the *National Waste Minimisation and Recycling Strategy*, significant quantities of lubricating oil remain unconsumed, unrecycled, or are not accounted for in appropriate disposal arrangements.[1]

Regulatory intervention is appropriate because …

There are two standard tests of regulatory appropriateness that are commonly used by the Commonwealth,[2] both of which are met with respect to the problems posed by used oil:

…the twin market failures of negative externalities and information asymmetries are considered to be significant and…

- the market for lubricating oil embodies at least two market failures:[3]
  - negative externalities (i.e. spillovers) — oil that is not recycled or disposed of appropriately is considered problematic because it may contain hazardous materials (i.e. toxic and carcinogenic) and hence is harmful to the environment and human health (i.e. not just the generator of the used oil);
  - severe information asymmetries — these are manifest in a number of different ways: producers of oil may not have a full understanding of consumers' willingness to use recycled oil (or a blend of virgin and recycled oil); and consumers of oil may not have a full understanding of the full range of potential costs associated with the improper disposal of used oil, the potential value of their used oil, and/or the location of sites and or organisations who can assist with the collection of used oil;

… the market circumstances are such that self-regulation is inappropriate

- self-regulation is inappropriate because:[4]

---

1 At the time the *Act* was first introduced, some 355 to 370 ML (i.e. 68 to 71 per cent of the annual domestic usage of virgin lubricant) was not recovered or reused according to Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

2 These tests are consistent with the approach adopted in Office of Regulation Review 1998, *A Guide to Regulation*, 2nd edn, Canberra.

3 Council of Australian Governments 1991, *Report of Task Force on Other Issues in the Reform of Government Trading Enterprises, Released as Part of the First CoAG Communique*, Canberra, p. 22.

4 Commonwealth Interdepartmental Committee on Quasi-regulation 1997, *Grey-Letter Law*, Canberra, p. xxii. A similar approach is endorsed to in Task-Force on Industry Self-Regulation 2000, *Industry Self-Regulation in Consumer Markets*, Canberra, pp. 21-2.

- the problem is high risk or of high impact/significance — the problem of used oil is seen as a significant problem for human and environmental health;
- the government requires the certainty provided by legal sanctions — the high capital cost associated with recycling operations means that government support (i.e. a positive sanction) needs to be guaranteed, which is best done through legislation;
- universal application is required — the universal problem of used oil is best addressed through a universal solution;
- there is a systematic compliance problem with a history of intractable disputes and repeated or flagrant breaches of fair trading principles — that there is so much unaccounted-for oil demonstrates that there is a systematic compliance problem; and
- existing industry bodies lack adequate coverage, are inadequately resourced or do not have a strong regulatory commitment — the fragmented and diverse group of stakeholders in the used oil industry makes effective industry self-regulation unfeasible.

Thus, it is appropriate for the Commonwealth to legislate to regulate the recycling, reuse and disposal of used oil.

Alternative regulatory approaches

Legislative options to address the problem of used oil should have a number of best-practice characteristics …

In seeking to address problems about inappropriate oil disposal and reuse, any legislative response should seek to:

- reduce the demand for the product that generates the costs (i.e. virgin oil);
- provide incentives for producers to reduce their production of used oil;
- avoid creating incentives for the inappropriate use of the product; and
- have low administration and compliance costs.

… but no single option fully captures every best-practice characteristic

A range of economic instruments were assessed against these characteristics: a per litre tax on virgin oil; a deposit refund scheme; an upstream combined tax-subsidy (i.e. like the *PSO Act*); and a tradeable certificate scheme. No individual scheme was found to perfectly embody all the characteristics.

The difference between the status quo and a tradeable certificate scheme is marginal …

The two approaches considered most appropriate are the *status quo* (i.e. an upstream combined tax subsidy) and the tradeable certificates scheme. A recent review of the merits of moving from the *status quo* to a tradeable used oil certificate scheme (UOCS) suggested that there was no compelling reason to change:

> Although a workable UOCS could be implemented, the benefits of moving away from the current levy/benefit scheme to a UOCS are more difficult to assert. Both the current arrangements and a UOCS could theoretically result in the same outcomes at broadly similar cost. …

> The current arrangements have delivered a high level of used oil recovery at modest cost. There is strong stakeholder support for the arrangements and scope to increase recovery levels within the current levy collections. To move to a new policy regime would require demonstrable net benefits, which are not yet apparent.[5]

... but the case for change has not been justified

The Review Team supports this conclusion and so supports the PSO-style upstream combined tax subsidy over other legislative approaches at this time.

The Product Stewardship for Oil Program

The PSO Act uses a system of ...

The *PSO Act* and its related legislation (collectively called the PSO Program) established two interrelated mechanisms:

... taxes on users of oil ...

- the imposition of a levy on domestically produced and imported oils — this is now fixed at 5.449 cents per litre; and

... and subsidies to recyclers

- payment of a variable benefit (i.e. a subsidy) to oil recyclers.[6]

The PSO Program seeks to adjust consumer and business behaviour so that there is a reduced reliance on virgin oil and more used oil is recycled

The PSO Program seeks to provide economic incentives to increase the uptake and appropriate recycling and use of used oil by:

- making it more financially attractive for firms to invest in recycling facilities and activities — this is done directly through the benefit payment and indirectly through the provision of transitional assistance funding for local used oil collection facilities so as to reduce collection costs;
- adjusting relativities between virgin and recycled oil through the provision of benefit support; and
- correcting information asymmetries through targeted information programs funded through the transitional assistance arrangements.

Administration of the PSO Program is shared among a number of Commonwealth bodies ...

More generally, the PSO Program mainly uses existing administrative structures for its ongoing operation:

- The collection of the levy occurs through the customs and excise system. The Australian Taxation Office (ATO) and the Australian Customs Service (ACS) collect the levy on domestic and imported oil products, respectively, through amendments to the customs and excise tariffs legislation.
- The product stewardship levy rate is set by the Treasurer; the ATO pays the product stewardship benefits in accordance with the provisions of the *Product Stewardship (Oil) Act* and the *Product Grants and Benefits Administration Act.*
- The Department of the Environment and Heritage has responsibility for ongoing monitoring and review of the product stewardship arrangements, and for administration and management of the transitional assistance funds.

---

[5] McLennan Magasanik Associates and BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

[6] This mechanism is supported by 'transitional assistance' funding to stimulate the uptake and environmentally sustainable management and re-refining of used oil and its use. The transitional assistance provisions of the *Act* have been subject to a separate review — Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra. Some stakeholders raised issues and offered reform opinions that might have better been addressed in this earlier review. Such issues and possible reforms have been passed on directly to the Department for the Environment and Heritage

... and is supported by an industry/government advisory body

In addition, the *Act* provides for the establishment of a joint industry/government advisory council — the Oil Stewardship Advisory Council (OASC) — whose task it is to advise the Minister for the Environment and Heritage on the operation of the PSO Program.

Program outcomes

Effectiveness

Ongoing data problems make it difficult to judge the PSO Program's effectiveness ...

A concern regarding the development of the PSO Program, and the ongoing monitoring of the Program's effectiveness, is the continuing differences in oil-related data collected by Commonwealth agencies, particularly when compared to commonly understood industry experiences.[7] Such data inconsistencies make it difficult to definitively comment on changed outcomes in the production, importation and recycling levels attributable to the PSO Program.

... but a number of observations can be made:

The PSO Program appears to have had some success in encouraging more sustainable management, re-refining and reuse of used oil. This is demonstrated by:

... there is strong demand for transitional assistance funding

- the strong local government support for the development of centralised used oil collection facilities.[8] This support appears to be particularly strong in rural and remote communities. Continued transitional assistance for the provision of such collection facilities will enhance the Program's effectiveness;

... take-up in the Program has been high amongst recyclers

- the majority of recyclers in the Australian industry are involved in the Program, which is conducive to maximising the Program's effectiveness and efficiency;
- investment has been made in lube-to-lube recycling equipment that would not otherwise have been made;

... oil recycling has increased relative to pre-implementation levels

- the finding that the Program is stimulating recycling from the annual flow of oil entering the market and/or from stockpiled used oil. The volume of recycled oil recorded under the Program remained almost constant from 2001-02 and 2002-03. However, these levels represents 47.9 and 41.9 per cent respectively of the total volume of virgin oil entering the market in those years. This performance looks particularly impressive when set against the proportion of recycled oil relative to total domestic sales in 1999 (33 per cent), the year immediately prior to the Program's implementation; and

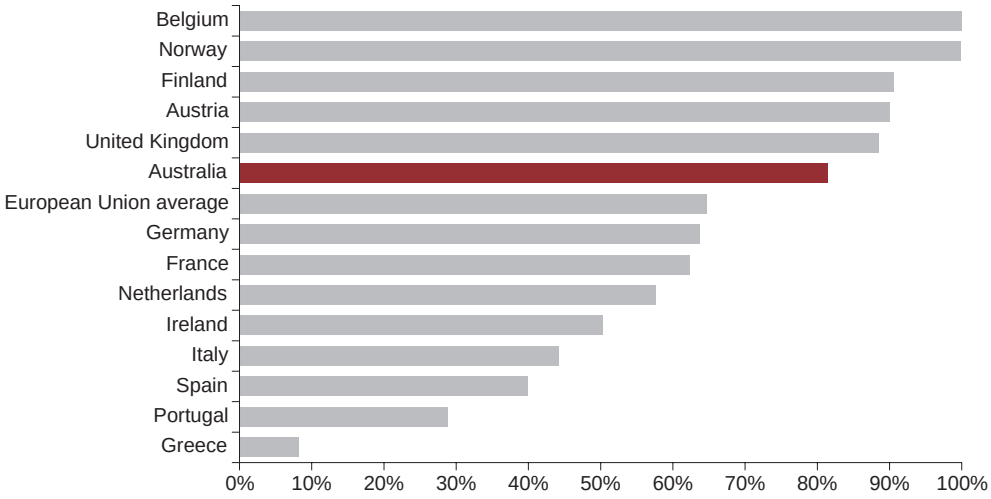
... and our recycling rate is comparable with leading overseas countries

- as shown in the figure below, Australia is now achieving oil recycling rates comparable to, but slightly below, those of the leading European countries.

[7] Ibid; Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

[8] See Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra. This is also evident in Australian Bureau of Statistics 2003, *Environmental Issues: People's Views and Practices*, Cat.No. 4602.0, Canberra, p. 39.

OIL RECYCLING AND REUSE AS A PERCENTAGE OF TOTAL USED OILS GENERATED (LATEST AVAILABLE YEARS)



Source: Australian Academy of Technological Sciences & Engineering 2004; Brodersen, Juul & Jacobsen 2002, pp. 38-9; Commission of the European Communities 2000, pp. 57-9.

There is scope for continued improvement ...

While these developments are positive, there remains continued scope for improvement:

... there remains large unaccounted for stockpiles of used oil

- the stockpile of used oil sitting in storage is not thought to have been appreciably eroded over the Program's first few years. However, this is expected to change somewhat as the existing lube-to-lube recycling facility in Wagga Wagga (and possibly future facilities) come fully on stream;

... community education remains a priority

- only about 40 per cent of households that have not used safe disposal facilities for hazardous wastes (including used oil) are aware of the location of such safe facilities.[9] This suggests that there continues to be a role for all governments to seek to better educate the community. In this regard, a closer working relationship between the Commonwealth and the State and Territory Governments would be advantageous.

Efficiency

Administrative costs have been reasonable ...

Administrative costs have been constrained by using, where possible, existing agencies (e.g. the ATO and the ACS) and systems (e.g. the excise system).

... and compliance costs are also not considered unreasonable

While the scheme is reasonably flexible for operators, there remains some concern about the paperwork burden, particularly for those firms that fall within category 8 (i.e. the category for which the benefit paid exactly offsets the levy).

... but both would be reduced by the some definitional changes

Clarification of a number of legislative definitions would:

- reduce the administrative difficulties for the ATO, improve transparency and clarify the broader policy environment; and
- reduce uncertainty for industry participants.

[9] Australian Bureau of Statistics 2003, *Environmental Issues: People's Views and Practices*, Cat.No. 4602.0, Canberra, p. 60.

... and there is room for improving the operation of OSAC

OSAC and its role has evolved over the life of the PSO Program, and will continue to do so. The Review Team considers that OSAC's usefulness would be enhanced if:

- the Minister has greater flexibility in determining OSAC's membership — this will better enable OSAC to evolve to address changing market circumstances; and
- clearer conflict of interest guidelines are in place — although only an advisory body, OSAC's legislative basis means that it should be held to a higher standard of transparency and accountability than would otherwise be the case.

Achievement of the legislative objectives

The PSO Program ...

While this review is supportive of the ongoing operation of the PSO Program (i.e. its efficiency and effectiveness), it is necessary to provide some overall sense as to the degree to which the three objectives set out in the *Act* have been achieved:

... falls short of being a full product stewardship arrangement

- 'development of a product stewardship arrangement for waste oils' — it is arguable that this objective has not been achieved. Product stewardship 'calls on those in the product life cycle (i.e. manufacturers, retailers, users, and disposers) to share responsibility for reducing the environmental impacts of products'.[10] While the producers of virgin oil all have various levels of involvement in addressing the problem of used oil, the Review Team considers that the oil producers have not become seriously engaged (eg blending used oil with virgin oil), suggesting that the current arrangements fall short of what could reasonably be called a complete product stewardship arrangement. That is, the burden of dealing with used oil is not shared appropriately amongst stakeholders. If Australia is to have real product stewardship in relation to used oil, the major oil companies need to be more engaged in the process. This should be a clear objective for the Minister, the Department and OSAC;

... generated positive environmental outcomes, but is too narrow in its focus

- 'ensuring the environmentally sustainable management, re-refining and reuse of waste oil' — as noted above, the PSO Program appears to have had some success in encouraging the collection of used oil and its recycling and reuse. However, recent life-cycle analysis suggests that the strong emphasis on lube-to-lube recycling in preference to high grade burning is not justified;[11] and

... supported the recycling industry, but should be broadened to support high grade burning oil recycling

- 'support for economic recycling options for waste oil' — with a 50 cents per litre subsidy, the PSO Program has clearly provided significant support to lube-to-lube recycling. With significantly lower benefit rates, support for other forms of recycling and reuse has been less pronounced. The Review Team considers that the overwhelming emphasis on the support of lube-to-lube recycling is misplaced given the marginal financial viability of high grade burning oil recycling and its comparable environmental benefits.

These observations suggest that ...

Given the observations with respect to the second and third objectives above, the Review Team has reached the view that:

[10] United States Environmental Protection Authority 2003, *What Is Product Stewardship*, viewed 30 April 2004, <http://www.epa.gov/epr/about/index.html>. See also Organisation for Economic Co-operation and Development 1998, *Extended and Shared Producer Responsibility: Phase 2 - Framework Report*, Env/Epoc/Ppc(97)20/Rev2, OECD, Paris, p. 10; Palmer and Walls 2002, *The Product Stewardship Movement: Understanding Costs, Effectiveness, and the Role for Policy*, Resources for the Future, Washington D.C., p. 10.

[11] See Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

... support for lube-to-lube recycling should be maintained ...

- the benefit paid for lube-to-lube recycling is not as significant as was originally envisaged when the PSO Program was introduced, but is sufficient given current market circumstances (particularly as stakeholders with an interest in lube-to-lube recycling are not calling for an increase, and acknowledge that the benefit may be reduced over time); and

... and support for high grade burning oil recycling increased

- the benefit available for high grade burning oil is too low relative to the benefits available for lube-to-lube oil recycling.

Looking forward

The PSO Program's reliance on the customs and excise system is problematic over the longer term ...

Going forward, the major longer term problem that the Review Team sees for the *PSO Act* is its interaction with the customs and excise system:

- the customs and excise system is complex, and was designed for purposes other than environmental regulation;
- the product stewardship levy rate is set by the Treasurer rather than the Minister for the Environment and Heritage; and
- the Commonwealth Treasury has a vision for the excise system that is likely to make the maintenance of a comprehensive environmental benefit system for used oil more complex and potentially unmanageable.

... and should not be relied upon ....

In effect, the future of the PSO Program as an effective and comprehensive environmental response is outside the control of both the Minister for the Environment and Heritage and the industry itself. Thus, it is necessary for the Minister, with the support of OSAC and the industry more broadly, to prepare for the further unwinding of the benefits payable to processors and users of used oil.

... and so a framework for moving to a tradeable certificates scheme should be developed and enunciated

The Review Team considers that, unless there is a real change in the major oil companies' involvement in product stewardship for used oil, a tradeable certificate scheme may be the only comprehensive model that is sustainable into the longer term. Thus, the next independent legislative review should include a study of the issues that need to be addressed to move to a tradeable certificates model as described by McLennan Magasanik Associates and BDA Group.[12]

Recommendations

Given the observations above, the following recommendations are provided:

Recommendation 1

Greater efforts by Commonwealth departments and agencies need to be made to ensure that statistics on the volumes of oil produced, imported and sold are consistent and are universally accepted as accurate.

Recommendation 2

The benefit rate for high grade burning oil should be increased relative to the benefit rate for lube-to-lube oil.

Recommendation 3

The PSO Act should be amended to clearly provide that it does not apply to vegetable oils.

Recommendation 4

The PSO legislation should be amended to require that the processes used by claimants of Category 1 benefits must include either thin film evaporation or vacuum distillation, followed by either solvent extraction or hydrofinishing. There

[12] See McLennan Magasanik Associates and BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

should also be a provision to allow the Minister to approve the substitution of other processes that are able to produce comparable outcomes.

Recommendation 5

Subsection 14(2) of the PSO Act should be amended to provide the Minister with greater flexibility as to the size and representative mix of the Oil Stewardship Advisory Council.

Recommendation 6

The PSO Act should provide a formal mechanism for an alternative representative, at a member's request, to temporarily deputise for that member.

Recommendation 7

The Oil Stewardship Advisory Council should adopt clearer and more stringent conflict of interest procedures.

Recommendation 8

The Department of the Environment and Heritage, the Department of Industry, Tourism and Resources and the Oil Stewardship Advisory Council should work with the oil companies to identify cost-effective ways in which they can become more involved in the product stewardship of oil in Australia.

Recommendation 9

There is a continuing need for the Department of the Environment and Heritage and the Oil Stewardship Advisory Council to raise the community awareness of the problem of used oil and the PSO Program in order to further increase recycling.

Recommendation 10

The Department of the Environment and Heritage and the Oil Stewardship Advisory Council should work better engage State and Territory environment agencies as part of the PSO Program. Progress in enhancing this engagement should be reported through the Environment Protection and Heritage Council.

Recommendation 11

Given the need for the PSO Program to move away from reliance on the excise system, unless a comprehensive self-regulatory product stewardship model for used oil develops over the next four years, the next independent review should include a further examination of the use of a tradeable certificate scheme for used oil.

Chapter 1

Introduction

This chapter sets out the background to the review of the Product Stewardship (Oil) Act 2000 and provides an overview of this report's structure.

Arrangements for the recycling, reuse and disposal of used lubricating oils were mandated under the *Product Stewardship (Oil) Act 2000* and have been operational since January 2001.

The arrangements are intended to provide economic incentives to increase the uptake and appropriate recycling and use of used oil, and to reinforce existing State and Territory regulations and arrangements in these areas. It seeks to do this through two mechanisms:

- the imposition of a set levy on domestically produced and imported oils; and
- payment of a variable benefit to oil recyclers; and

This mechanisms are supported by 'transitional assistance' funding to stimulate the uptake and environmentally sustainable management and re-refining of used oil and its use. The transitional assistance provisions of the PSO Program have been subject to a separate review.[13]

The arrangements set down in the *Act* fulfil a commitment made by the Commonwealth Government in May 1999 as an outcome of negotiations on the implementation of the *A New Tax System — Measures for a Better Environment*.

Section 36 of the *Act* requires an independent review, to be undertaken within four years after the *Act's* commencement, of the:

- operation of the *Act*;
- relevant provision of customs and excise legislation; and
- extent to which the objectives set out in section 3 of the *Act* have been achieved. The objectives provided in section 3 are to:
  - develop a product stewardship arrangement for waste oils;
  - ensure the environmentally sustainable management, re-refining and reuse of waste oil; and
  - support economic recycling options for waste oil.

It is to satisfy this provision of the *Act* that this report has been commissioned by the Department of the Environment and Heritage on behalf of the Minister for the Environment and Heritage.

The remainder of this report is organised as follows:

[13] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

- chapter 2 outlines, and comments, on the rationale for regulation of used oil;
- chapter 3 describes the regulatory arrangements under the Product Stewardship for Oil (PSO) Program (the title given to the *Product Stewardship (Oil) Act* and all its associated legislation);
- chapter 4 contains an assessment of the PSO Program against best practice program design principles;
- chapter 5 assesses a range of broad reform options, drawing on the preceding analysis, and concludes with a preferred approach for ongoing reform;
- chapter 6 then elaborates on specific reform issues that fall out of the chapter 4 analysis and the preferred approach identified in chapter 5; and
- chapter 7 concludes the report with an overall assessment of the PSO Program against the *Act*'s legislative objectives.

Supporting appendices provide the review terms of reference, a list of abbreviations and glossary, details on the stakeholders contributions to the review, some information on the financial modelling undertaken and the sources used in producing this report.

Part A

Background

Chapter 2

Rationale for the regulation of used oil

This chapter outlines the rationale for regulating used oil. This is a fundamental element of any legislative review because it frames the problem that the legislation is seeking to address.

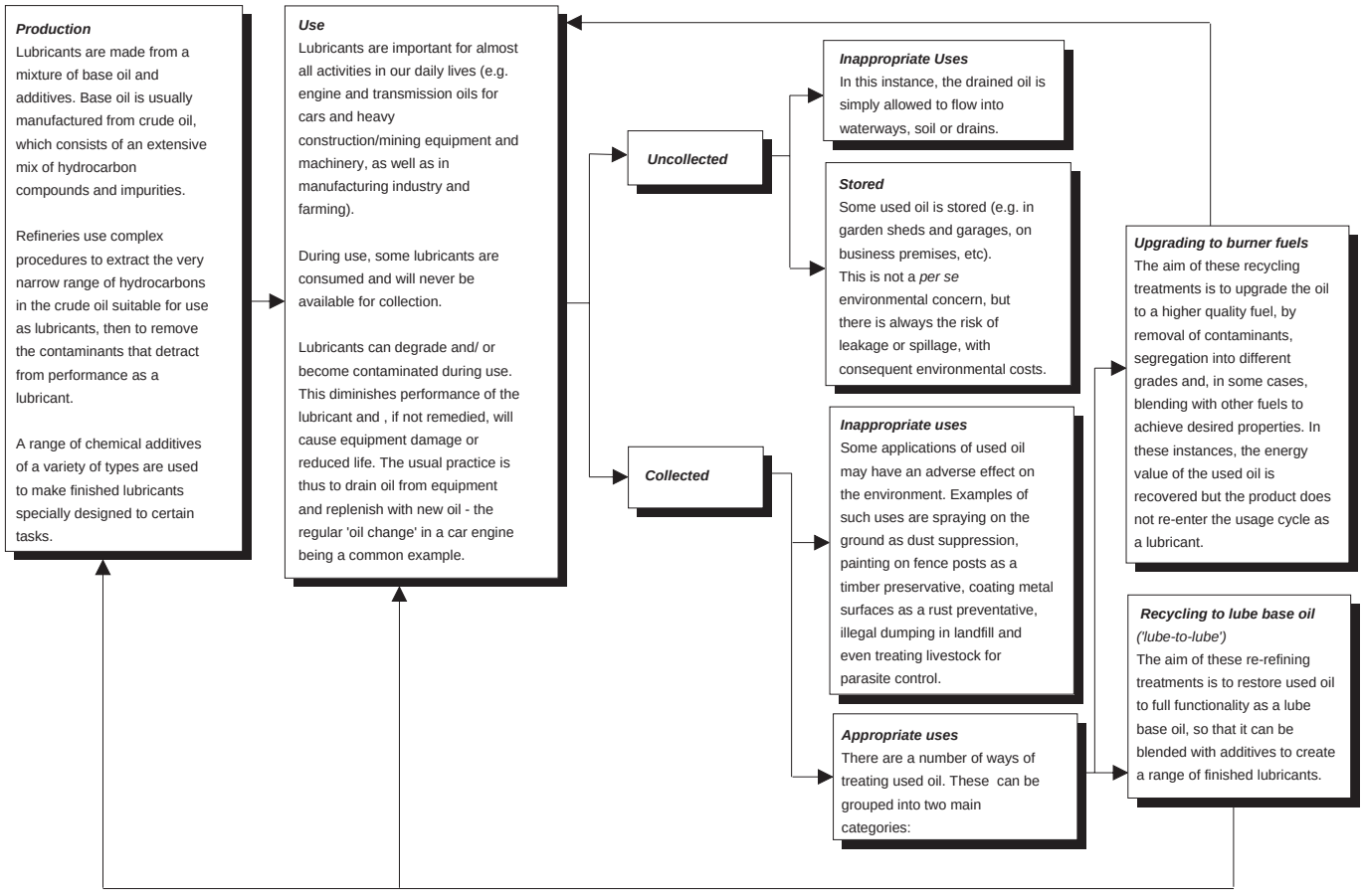
2.1 The problem

The used oil industry is comprised of producers and retailers of virgin lubricating oil, generators of used oil (both households and businesses), collectors and transporters of used oil, reprocessors of used oil, and users of recovered or recycled used oil products.

A highly simplified depiction of the supply, use and recycling chain for oil is shown in figure 2.1.

Figure 2.1

SIMPLIFIED SUPPLY USE AND RECYCLING CHAIN FOR LUBRICATING OIL



Note: For more information on recycling options see: Australian Academy of Technological Sciences & Engineering 2004; Institute for Prospective Technological Studies 2004.

Achieving an appropriate level of recycling, reuse and disposal of used lubricating oils is a longstanding problem facing modern industrial societies;[14] Australia is not exempt from this challenge.

Notwithstanding the independent waste minimisation arrangements of the States and Territories, and the coordinated efforts of Australian jurisdictions under the *National Waste Minimisation and Recycling Strategy*, used oil remains an ongoing and difficult problem in Australia.

Of all the oil that is produced in Australia or imported for domestic consumption, some remains unrecycled, unconsumed, or is not accounted for in appropriate disposal arrangements. This missing oil is either being used inappropriately or is being inappropriately disposed of. For example, it may be

- sitting in temporary stockpiles (e.g. in the garage or shed);
- retained in waste or scrap equipment (e.g. wrecked vehicles);
- lost to the environment at collection points (e.g. leaking, spills, etc);
- put out with household rubbish collection; or
- illegally dumped (in parks and reserves or in waterways, sewer systems and stormwater drains).[15]

The scale of this problem is significant. At the time the *Act* was first introduced, Australian oil refineries were annually producing around 800 megalitres (ML) of virgin base oil, from which lubricant is made:

- around 200 ML of this was exported;
- domestic users consumed some 520 ML of lubricant oil per year; and
- an estimated 150 to 165 ML of this domestic consumption was recovered.

This situation saw some 355 to 370 ML (i.e. 68 to 71 per cent) of the annual domestic usage of virgin lubricant not recovered or reused:

- an estimated maximum of 260 ML of this was lost to the system through combustion in engines, use as process and spray oils, and by spillage and leakage;
- around 60 ML of this unrecovered oil was thought to be uneconomic to recycle for a variety of reasons (e.g. remote location of original use). While the ultimate fate of this used oil is not known, a portion will inevitably find its way into the environment. Additionally, the storage of increasing quantities of used oil in unknown locations and conditions presents a significant and growing environmental hazard; and
- a further 35 to 50 ML annually of used oil could not be accounted for. The concern was that some of this oil was finding its way into the environment (i.e. catchments, waterways, storages and soils) and causing environmental degradation.[16]

[14] Irwin 1978, 'Used Oil: Comparative Legislative Controls of Collection, Recycling, and Disposal', *Ecology Law Quarterly*, vol. 6, no. 4, pp. 699-754.

[15] Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

[16] Ibid.

While there were a number of operations that already provided (or sub-contracted) crucial used oil collection services,[17] the extent and viability of these services was constrained by a variety of market factors (e.g. the distances involved, sub-optimal operational scales, etc).

While the focus of the discussion to date has been on the problem of used oil as a potential source of pollution, there is also a related potential problem that needs to be acknowledged. Crude oil is a nonrenewable energy source, and as such there is a breakdown in resource conservation to the degree that used oil is not reused to the degree possible.

2.2 Tests of the need for regulatory intervention

While markets can generally be relied on for the efficient provision of goods and services, there are circumstances where normal market forces may fail to either deliver goods and services or fail to do so at efficient prices or quantities. Where such circumstances occur, government intervention is often required to ensure that consumption, production and investment decisions are made which will deliver socially optimal outcomes.

There are two standard tests of regulatory appropriateness that are commonly used by the Commonwealth:

- a market failure test endorsed by the Council of Australian Governments;[18] and
- the Commonwealth Quasi-regulation Interdepartmental Committee's test for regulatory justification.[19]

In the following sections, these two complementary tests are applied to the problem of used oil.

Possible market failures

The Council of Australian Governments has stated that government interventions in markets should generally be restricted to situations of market failure and that each regulatory regime should be targeted on the relevant market failure or failures.[20]

There are four forms of market failure that may require government intervention:

---

17 In Australia, most used oil is collected free of charge, although charging for used oil occurs in some markets. Anecdotal evidence suggests that used oil generators are extremely price sensitive and the cost (to generators) of collecting oil acts as a disincentive for collection. Some generators (e.g. car dealerships) may in turn charge customers to dispose of oil but there is little evidence that any of the revenue raised in this way finds its way to collectors. Some agricultural users see used oil as a potential resource and store it, expecting to be paid for its proper removal. Some stakeholders argue that used oil generators are enjoying a 'free ride' by having hazardous waste (i.e. the used oil) removed at zero or nominal cost, or even charging the collector for the oil, and that this is perhaps the largest single reason for a lack of value in the used oil market.

18 Council of Australian Governments 1991, *Report of Task Force on Other Issues in the Reform of Government Trading Enterprises, Released as Part of the First CoAG Communique*, Canberra, p. 22. For a critical view of this framework in an environmental context see Raff 1999, 'Pollution, Politics and National Competition Policy — the National Competition Policy Review of the Environment Protection Act in Victoria', *Australasian Journal of Natural Resources Law and Policy*, vol. 6, no. 2, pp. 91-112, p. 96.

19 Commonwealth Interdepartmental Committee on Quasi-regulation 1997, *Grey-Letter Law*, Canberra.

20 Council of Australian Governments 1991, *Report of Task Force on Other Issues in the Reform of Government Trading Enterprises, Released as Part of the First CoAG Communique*, Canberra.

- severe information asymmetries — these exist where information is not evenly (or at least sufficiently evenly) distributed throughout the community. However, it needs to be stressed that:

  > There is nothing unusual about the asymmetry of information available to a supplier and a consumer. Many products are complex, difficult to compare, have considerable importance for the well-being of consumers or are provided over a long period of time.[21]

  Thus, a market failure can be said only to exist when the information asymmetries become so severe so as to distort actual market outcomes;

- public goods — these have two defining characteristics, they are non–excludable (i.e. providers of the good or service cannot stop others using it also) and non–rivalrous in consumption (i.e., the consumption of the good by one person does not diminish its availability for the next person). Where such goods are produced, the benefits can be enjoyed by additional parties at no extra cost, leading to incentives for under–production by the private sector;

- externalities — these are positive or negative impacts of market transactions which are not reflected in prices where an activity (i.e. the good or service) confers spillover benefits or imposes spillover costs on third parties;

- natural monopolies — these exist where it is most efficient for a single party to fulfil market demand (i.e. where the costs of establishment, resources or infrastructure mean that setting up competition is socially wasteful).

In the language of the Council of Australian Governments, the market failures that justify the specific regulation of used oil relate to:

- externalities; and
- severe information asymmetries.

These are discussed in turn.

Externalities

Oil that is not recycled or disposed of appropriately is considered problematic because oil is environmentally hazardous and hence is harmful to:

- the environment generally — the improper use of used oil can pollute land, waterways, underground reservoirs and the marine environment, and in so doing, harm biodiversity. The potential pollution can be disproportionate to the volume of used oil (e.g. one litre of used oil can contaminate up to one million litres of water); and

- human health — it is also poisonous if swallowed or inhaled and can present a fire hazard if not properly stored.

As noted by a number of stakeholders, such risks are not specific to used oil — i.e. they apply equally well to virgin and unused oil — but arise because of the manner in which used oils are generated and may, through contamination, create higher risks.

While some of these costs are likely to be borne by the final user of the oil (e.g. storage on site is likely to contaminate that site), the liquid nature of the used oil

[21] Financial System Inquiry 1996, *Discussion Paper*, Canberra, p. 97.

means that it has the potential to spread and contaminate other sites and therefore affect innocent third parties.

The scale of the problem is easily overlooked, but is in fact quite significant. For example:

- 'a 1996 study by CSIRO and the Tasmanian Department of Environment and Land management [estimated that] road run-off and industrial stormwater dumping wash as much as 20,000 tonnes of oils into Australian coastal waters each year';[22] and
- the United States National Research Council recently estimated that land-based contributions of oil and grease to the sea in the Oceania region is in the order of 199 247 tonnes per year.[23]

The existence of such negative externalities means that:

- the community is paying too little for oil because the price does not capture all the social costs associated with its use; and
- correspondingly, more oil is used than is socially optimal. However:
  - given that users of oil are relatively price insensitive (i.e. people need their cars to be operative and hence are willing to change their oil even in the face of an oil price increase) it is likely to be difficult to reduce this excess usage; and
  - the cost of oil is usually only a small portion of the 'installed cost' and so it would take a very large increase in the price of oil to change behaviour sufficiently to internalise the negative externality[24]

These spillover environmental impacts impose significant costs on the Australian economy arising from the need to redress the effects of used oil pollution and reduce the benefit of public expenditure on environmental restoration:

- prevention of environmental damage is cheaper and less wasteful of scarce human and economic resources than subsequent remediation and restoration (if such actions are actually possible and/or effective).[25] The burden of remediation falls most heavily on public resources rather than on those responsible for the problem; and
- through Natural Heritage Trust programs, Australia is investing significant financial and in-kind resources in environmental management programs to redress degradation issues, while at the same time unknown but potentially significant volumes of used oil are making their way into the environment, inhibiting and eroding the benefit of such restoration efforts. The effect of this community contribution is diminished by the inappropriate disposal of used oil.

---

22 CSIRO 1999, 'Illegal Oil Dumping Kills, Injures Penguins', *Media Release - Ref 99/05*, at p. 1.

23 National Research Council of the National Academies 2003, *Oil in the Sea III: Inputs, Fates, and Effects*, National Academies Press, Washington D.C., p. 245.

24 SWB submission.

25 See MacGarvin 1999, 'The Precautionary Principle, Science and Policy', in Harding and Fisher (eds), *Perspectives on the Precautionary Principle*, Federation Press, Sydney, pp. 225-39.

Information asymmetries

As noted above, information asymmetries exist where information is not evenly (or at least sufficiently evenly) distributed throughout the community.

Information asymmetries with respect to used oil manifest themselves in a number of different ways:

- producers of oil may not have a full understanding of consumers' willingness to use recycled oil (or a blend of virgin and recycled oil); and
- consumers (including both end users and mechanics) of oil may not have a full understanding of:
  - the full range of potential costs associated with the improper disposal of used oil. For example, in its submission, The Centre for Appropriate Technology suggested that in larger remote communities there may be variable awareness of pollution prevention principles among mechanics;
  - the potential value of their used oil; and
  - the location of sites and/or organisations who can assist with the collection of used oil.

The Commonwealth Quasi-regulation Interdepartmental Committee's test for regulatory justification

While the 'market failure' framework is most commonly used to assess the justification for regulatory intervention, a derivation of the framework provided by the Commonwealth Quasi-regulation Interdepartmental Committee (IDC) recommended that explicit government regulation should only be considered where:

- the problem is high risk or of high impact/significance (e.g. major public health and safety and/or environmental issues);
- the government requires the certainty provided by legal sanctions;
- universal application is required;
- there is a systematic compliance problem with a history of intractable disputes and repeated or flagrant breaches of fair trading principles; and
- existing industry bodies lack adequate coverage, are inadequately resourced, or do not have a strong regulatory commitment.[26]

These requirements are discussed in turn.

Risk and significance

The IDC recommended that explicit government regulation should only be considered where the problem is high risk or of high impact/significance (e.g. major public health and safety and/or environmental issues). As noted above, the problem of used oil entails significant risk to both human health and environmental health and biodiversity. Thus, this requirement is met.

[26] Commonwealth Interdepartmental Committee on Quasi-regulation 1997, *Grey-Letter Law*, Canberra, p. xxii. A similar approach is endorsed to in Task-Force on Industry Self-Regulation 2000, *Industry Self-Regulation in Consumer Markets*, Canberra, pp. 21-2.

Certainty

The IDC recommended that explicit government regulation should only be considered where the government requires the certainty provided by legal sanctions. While sanctions are generally thought of as a negative, they have the potential to be positive actions in certain circumstances.

In trying to encourage the development of an industry that requires significant capital investment a non-regulatory approach may be seen as too significant a risk from a financier's perspective. This is particularly so because profit margins in the oil recycling industry are low and thus incentives for the generation of new business to increase the capture of used oil are not great. For example, a review of the UK used oil market noted that:

> re-refining technologies carry with them a high-risk profile for most investors in the UK; as a result the required rate of return is likely to be in the range of 15% to 20%. These risks are associated with the poor past performance of similar investments, the complexity and novelty of technologies on offer and in particular the market perceptions of re-refined base oils. We have estimated the capital costs for two types of 35,000 tonne re-refining plant between £8.45 million and £17.85 million. Assuming construction on an existing site and a 10% rate of return, a gate fee of nil is possible.[27]

Similar observations about the low returns have recently been made with respect to the Australian used oil market.[28]

Thus, some form of regulatory backing is likely to be necessary to stimulate firm commitments by investors.

Universal application

The IDC recommended that explicit government regulation should only be considered where universal application is required.

While the collection industry operates under existing State and Territory legislation, there is considerable variation between and within jurisdictions.[29]

Given the universality of the problem of used oil, it is appropriate to see universality as a desirable characteristic of a solution. Thus, a national approach to the problem of used oil is considered appropriate.

Compliance

The IDC recommended that explicit government regulation should only be considered where there is a systematic compliance problem with a history of intractable disputes and repeated or flagrant breaches of fair trading principles.

That there has been so much unaccounted-for used oil demonstrates that there is a systematic compliance problem.[30]

---

[27] Oakdene Hollins 2001, *UK Waste Oils Market 2001*, viewed 9 February 2004, <http://www.oakdenehollins.co.uk/tes2.html>.

[28] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

[29] Burnbank Consulting and Tasman Asia Pacific 1999, *Oil Recycling and Excises*, Environment Australia, Canberra, pp. 16-23.

[30] Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

Industry coverage

The IDC recommended that explicit government regulation should only be considered where existing industry bodies lack adequate coverage, or industry participants are inadequately resourced or do not have a strong regulatory commitment.

The used oil collecting industry is fragmented, dispersed and has little economy of scale. Other participants in the oil industry are highly differentiated in scale and the nature of their operations (e.g. with the major oil companies at one end, and the thousands of retailers at the other end). This diversity makes it hard to develop an effective self-regulatory regime, which is reinforced by the impression that industry codes of practice and collection protocols are neither mandated nor widely observed.

2.3 Conclusion

As the *Explanatory Memorandum* accompanying the *Act's* introduction concluded, without some form of regulation it is likely that an expansion of Australia's capacity to re-refine and reuse used oil will not occur, or will only occur very slowly.[31] As a result, there is a potential for substantial quantities of used lubricants to be discharged into the environment with the result being significant environmental damage to natural and built environments. This would adversely affect water, soil and productive capacity, and in turn, the Australian economy could incur significant costs associated with environmental remediation. Thus, there is justification for a regulatory response to encourage increased recycling, reuse and appropriate disposal of used oil (although this should not be interpreted as a goal of recycling and reusing *all* used oil[32]).

[31] Hill 2000, *Explanatory Memorandum: Product Stewardship (Oil) Bill 2000; Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Excise Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Product Stewardship (Oil) (Consequential Amendments) Bill 2000*, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra.

[32] Recycling used oil confers benefits to the community. However, recycling can also be costly (i.e. costs are incurred in collecting, treating and recycling used goods). Given these costs, it is not in society's interests to maximise all recycling. For example, it may not be sensible to collect, recycle and reuse the oil from some activities, or to transport oil from all locations (i.e. to achieve a 100 per cent recycling rate). Rather, the goal should be to undertake an optimum level of recycling (i.e. a level that just balances all the environmental and other economic benefits and costs of undertaking additional recycling activities). Where current levels of recycling are less than the optimum level, increases in recycling would confer net benefits on society. Equally, though, where current levels of recycling exceed the optimum level, reductions in recycling would make society better-off (because the reduction in the benefits of recycling would be more than compensated for by the reduction in costs). In other words, increases in the levels of recycling of used oil should not be seen as an end in itself. This point is discussed in some detail in Office of Regulation Review 1991, *Response to ANZEC's Draft Report on Waste Lubricating Oil and Used Tyres*, Industry Commission, Canberra.

Chapter 3

An overview of the Product Stewardship for Oil legislative arrangements

This chapter describes the initial product stewardship legislation and subsequent amendments, and provides an overview of the operation of the PSO Program. It also outlines recent changes to excise arrangements that are likely to affect the operation and outcomes of the Program.

3.1 Initial regulation governing used oil

Fulfilling a commitment the Commonwealth Government made in May 1999 as an outcome of negotiations on the implementation of the *A New Tax System — Measures for a Better Environment*, the Product Stewardship for Oil (PSO) legislative package sought to achieve the objectives set out in section 3 of the *Product Stewardship (Oil) Act 2000* — to:

- develop a product stewardship arrangement for waste oils;
- ensure the environmentally sustainable management, re-refining and reuse of waste oil; and
- support economic recycling options for waste oil.

The PSO Program is underpinned by a package of legislation and associated regulations. These include the:

- *Product Stewardship (Oil) Act*, which is the primary piece of legislation that established the general framework and benefit entitlements. The policy settings for the stewardship arrangements are established and governed by the Minister for the Environment and Heritage. The *Act* also established the Oil Stewardship Advisory Council (OSAC), to provide the Minister with pertinent advice. The benefit rates are prescribed in the associated *Product Stewardship (Oil) Regulations 2000*;
- *Excise Tariff Amendment (Product Stewardship for Waste Oil) Act 2000*; and the *Customs Tariff Amendment (Product Stewardship for Waste Oil) Act 2000* (and associated regulations), which establish the Product Stewardship Levy on sales of new oil;
- *Product Stewardship (Oil) (Consequential Amendments) Act 2000* contributes to the establishment of the levy and the general administrative provisions in the *Product Grants and Benefits Administration Act 2000*; and
- *Product Grants and Benefits Administration Act*, which sets out eligibility criteria and establishes the administrative mechanisms used by the Australian Taxation Office (ATO) to pay benefits to recyclers. Grants provided under the *Act* are entitlement-based, with the full cost of the grants to be offset by revenue collected through tariff amendments contained in the *Customs Tariff Amendment (Product Stewardship for Waste Oil) Act* and the *Excise Tariff Amendment (Product Stewardship for Waste Oil) Act*.

As part of the original *Measures for a Better Environment* policy statement, the Government also announced $60 million in transitional assistance to support the implementation of the product stewardship arrangements.[33] Funding was originally to be provided in four equal tranches of $15 million over the financial years 2000-01 to 2003-04. Transitional expenditure, including general running costs of the product stewardship arrangements for used oil and general grant funding, is funded under the *Appropriation (Supplementary Measures) Act (No. 2) 1999*.

3.2 Subsequent changes to regulatory arrangements

There have been a number of material changes since the PSO arrangements took effect on 1 January 2001.

Exemptions

Experience over the first 18 months of the operation of the arrangements identified the need to exempt certain oils. As a consequence, in 2001-02, the Minister for the Environment and Heritage agreed that it was not the original intent of the product stewardship scheme to capture oils that are incorporated into products and that are not available as used oil to be recycled after use and do not present an environmental hazard or risk.

Exemptions for single-use oils such as food grade white oil, polyglycol brake fluids and aromatic process oils came into effect on 15 April 2002. These products have characteristics that are distinguishable from other oil products, and as such they are able to be clearly defined as exempt under the *Customs Tariff Amendment Act (No. 2) 2002* and the *Excise Tariff Amendment Act (No. 1) 2002*.

Providing exemptions for multi-use oils required a different approach, as both the oil and its use need to be specified in order to ensure the exemption is applied appropriately.

The *Product Stewardship (Oil) Legislation Amendment Act (No. 1) 2003*, provides the mechanism for exempting such oils from the levy. This amendment established a new category of benefit (the category 8 benefit) under the *Product Stewardship (Oil) Act 2000* which would be paid, at the same rate as the levy, for uses of oil as approved by the Minister for the Environment and Heritage by Gazette notice. The category 8 benefit was available from the date of introduction — 27 March 2003.

This method of announcing category 8 eligibility is designed to allow flexibility for future exemption requirements and remove the need for further legislative amendments.

Indexation of the levy

When the product stewardship levy was introduced it was agreed that, for the sake of consistency, it would be subject to the same indexation arrangements as other excises. However, in line with changes to the indexation on fuels, the Prime Minister, Treasurer and the Minister for Justice and Customs agreed in November 2002 to abolish the automatic indexation of the levy. The levy is now set at 5.449 cents per litre.

[33] For more information on the transitionary assistance arrangements see: Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

Transitional assistance funding

The transitional assistance funding, which was originally provided over a four year period commencing on 1 July 2000, was initially extended to 30 June 2006 following a re-phasing of the Program funding. In the 2003-04 Budget, the Government announced that transitional funding would be reduced from $60 million to $34.5 million and extended to 2006-07.

3.3 Operation of the product stewardship arrangements

The PSO Program is underpinned by the scheme elements and the administrative arrangements put into place to support them. These are briefly outlined in turn.

Scheme elements

While the plethora of relevant Acts and Regulations appear complex, the basic operation of the PSO Program is relatively straightforward and consists of a number of interrelated elements.

Firstly, the core of the Program is the financial incentives introduced to promote product stewardship:

- the product stewardship levy on oils — the levy (currently fixed at 5.449 cents per litre) is applied to domestic and imported oils, and is paid by oil producers and importers. Under the levy arrangements, no 'eligible' lubricant escapes the levy, imported and domestically-produced oils are treated equally (to the extent possible) and exported oil is not levied. At least part of this cost is passed on to consumers in the form of higher prices; and
- product stewardship benefits — the benefits (funded by levy collections) are paid to recyclers of used oil as volume-based incentives to encourage oil recycling with improved environmental outcomes. In this way, the cost of encouraging recycling used oil is borne by producers and users of lubricating oils. Benefits are provided at different rates (see table 3.1, next page), depending on the type of product produced — the lowest benefit being provided for basic burner fuels, and the highest for full recycling into lubricant base oil.

A key element of the Program is that the levy collections are, over the life of the Program, intended to fully offset the expected benefits. That is, no recourse to Budget funding is envisaged (although Budget contributions may be made if benefit payments exceed the accumulated pool of receipts from the levy in any year):

> The full cost of the grants will be offset by revenue collected through tariff amendments contained in the Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000 and the Excise Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000.[34]

Secondly, transitional assistance is provided to support the implementation of the product stewardship arrangements. The assistance is for strategic initiatives to stimulate the uptake of environmentally sustainable management and re-refining of used oil recycling and its reuse. The funding is intended to complement the levy-

[34] Hill 2000, *Explanatory Memorandum: Product Stewardship (Oil) Bill 2000; Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Excise Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Product Stewardship (Oil) (Consequential Amendments) Bill 2000*, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra.

benefit arrangements and is an interim measure to engender change that will ensure the long-term viability of the oil recycling industry.[35]

Table 3.1

PRODUCT STEWARDSHIP (OIL) ACT BENEFIT CATEGORIES

Item	Category	Amount (cents/litre)
1	Re-refined base oil (for use as a lubricant or a hydraulic or transformer oil) that meets the criteria listed in Schedule 1[36]	50
2	Other re-refined base oils (chain bar oil, oil incorporated into a manufactured product.)	10
3	Diesel fuels to which the *Excise Tariff Act* applies	7
4	Diesel extenders (filtered, de-watered and de-mineralised)	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
7	Industrial process oils and lubricants, including hydraulic and transformer oils (re-processed or filtered, but not re-refined)	0
8	Gazetted oil consumed in Australia for a gazetted use (payable since 27 March 2003)[37]	5.449
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.	9.557

Note: During the course of this review an additional benefit category (9) has been introduced as a response to recent changes to the *Excise Tariff Act* — Kemp 2004.

Administrative arrangements

The scheme elements described above are supported by a range of administrative responsibilities and processes.

The policy settings for the PSO Program, including the establishment of the level of benefits, are the responsibility of the Minister for the Environment and Heritage.

To provide advice to the Minister, the *Act* has established an advisory body called the Oil Stewardship Advisory Council (OSAC). Members of OSAC are drawn from a range of backgrounds so that the oil producing and recycling industries, state and local government, consumers and other non-government interests are appropriately represented. The Environment and Heritage portfolio and the Commissioner for Taxation represent the Commonwealth on OSAC.

OSAC advises the Minister on:

[35] Transitional assistance arrangements were only recently reviewed — Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

[36] The Regulations specify a health, safety and environmental standard for re-refined lubricants that is consistent with the current requirements for 'virgin' products. The basic requirement of this standard is to produce a non-carcinogenic product.

[37] These oils include multi-use oils such as printing inks, paint defoamers and agricultural sprays. These are not available as waste oil to be recycled and do not present an environmental risk or hazard.

- the PSO Program;
- the recovery and recycling of used oil;
- the setting of benefit categories and rates;
- other matters that may relate to regulations under section 10 of the *Act*; and
- the state of the oil production and oil recycling industries.

More generally, the PSO Program mainly uses existing administrative structures for its ongoing operation:

- the collection of the levy and the payment of benefits occur through the customs and excise system. The ATO and the ACS collect the levy on domestic and imported oil products, respectively, through amendments to the Customs and Excise tariffs legislation. The product stewardship levy rate is set by the Treasurer;
- the ATO pays the product stewardship benefits under the provisions of the *Product Stewardship (Oil) Act* and the *Product Grants and Benefits Administration Act*; and
- the Department of the Environment and Heritage has responsibility for ongoing monitoring and review of the product stewardship arrangements, and for administration and management of the transitional assistance funds.

3.4 Excise arrangements for used oil

Recycled used oil products were included in the excise system for the first time in 1997 when the Excise Tariff was restructured as part of reforms to address fuel substitution concerns. The fuel substitution legislation package comprised nine Acts. The package also brought into the excise regime certain petroleum products, including products derived from used oil, that were previously not subject to excise but potentially gave rise to fuel substitutes.

The 1997 changes resulted in used oil products becoming subject to excise under sub-item 11(I) of the Schedule to the *Excise Tariff Act* and dutiable according to the intended end use of the product. Recycled used oil products became generally subject to a 'free' rate of duty if they contain a chemical marker and are not used as a fuel in an internal combustion engine. Those products not containing the marker became dutiable at the rate applying to diesel fuel.

In 1998 a number of refund and remission[38] provisions were introduced under Excise Regulation 50(1) to make unmarked used oil free of excise in certain uses as a blending agent. Provisions were also added under Excise Regulation 176(2) to allow for these blends to be exempt from the excise blending provisions under the *Excise Tariff Act*'s Schedule Item 12.

Thus at the time that the *PSO Act* was introduced, recently introduced arrangements in relation to products from used oil products existed within the excise legislation. No adjustments were made to these excise arrangements at the time.

[38] 'Refunds' are amounts paid back to certain classes of users and 'remissions' are amounts of excise which would have been paid on the virgin product but are not paid on the product derived from used oil.

Since the introduction of the *PSO Act*, the Government has preferred to provide incentives for recovering and reusing used oil through the *PSO Act* rather than through excise remissions and refunds.

Changes to excise arrangements were made with effect from 1 February 2004. Up to this date, recycled used oil intended for intended for blending (i.e. unmarked) was classified under Schedule Item 11(I)(1)(b)(ii) and subject to excise (38 cpl or 39 cpl depending on sulphur level). However, recyclers were eligible for a remission of excise under Regulation 50(1)(zk) when their unmarked recycled product was intended for blending with Light Fuel Oil[39] that met the requirements of Excise Regulation 50(1)(y). The net result was that no excise was paid on the recycled product.

On 31 January 2004, Excise Regulation 50(1)(y) remission was withdrawn to make way for by a payment of 30.586cpl delivered by the Energy Grants (Credits) Scheme (EGCS). As remission under Reg 50(1)(zk) was dependent on blending of that waste oil with a petroleum product defined under Reg 50(1)(y), the removal of Reg (50(1)(y) closed access to remissions under Reg 50(1)(zk).

Since this change, recycled burner fuel that is to be blended with Light Fuel Oil must be reported under Schedule Item 12 and is subject to excise of 38.143 or 40.143 cpl (less any previously paid duties).

However, the end users of this blended burner fuel can now claim back a grant of 30.586 cpl on the whole blended product under the EGCS[40] because the whole blended product meets the specifications of Light Fuel Oil.

The net result is that the end users are now effectively paying 7.5 or 9.5 cpl excise (assuming the recyclers will pass the full cost of the excise on to their customers) on the used oil portion of the blend, whereas they previously paid no excise on it. In order to maintain the effective support for this category of product, the Minster for the Environment and Heritage announced his intention to seek an amendment to the PSO Regulations, to be effective from 1 February 2004, to ensure that the producers of blended Light Fuel Oil continue to receive a level of benefit equivalent to that prevailing before the change in excise arrangements. During the course of this review, category 9 has been added to the PSO benefits[41].

Further changes to the excise provisions will occur on 1 January 2006 when some Excise Regulation 50(1) sunset provisions apply. After this date, unmarked burner fuel produced from used oil will attract full excise.

The current situation for different used oil products is summarised below.

Lubricating oil

Once used oil is processed back into engine oils and lubricants the recycler must report the goods to the ATO. These products are classified under Schedule Item 15B, and pay the 5.449 cpl PSO levy.

---

[39] Light Fuel Oil is only slightly heavier than diesel.

[40] Sub-section 53(70) of the *Energy Grants (Credits) Scheme Act 2003*.

[41] See Department of the Environment and Heritage 2004, *Used Oil Recycling: Product Stewardship Benefits*, viewed 18 May 2004, <http://www.oilrecycling.gov.au/benefits.html>.

Diesel

Diesel recovered from used oil (i.e. not produced by re-refining) is covered by Excise Tariff Item 11(C)(3) making it excise free. The rationale for this being free of excise is that duty has already been paid on the original diesel, which has not been consumed. Similar arrangements are in place for recovered gasoline under Excise Tariff Item 11(I)(1)(a).

Under administrative arrangements introduced by the Australian Customs Service in 1998, up to 15 per cent of the oil feedstock may be claimed to be recovered diesel (or 5 per cent for gasoline), is allowable provided records are maintained of the quantity and source of feedstock. This limit is based on advice obtained by Customs from industry as to how much diesel could be recovered from used sump oil. Proof of actual amounts recovered is not required.

Re-refined diesel is a product derived from processing (thermally cracking) used oil in Australia. It appears that no re-refined diesel is currently being produced. This product would fall under Tariff Items 11(C)(1) or (2) and the appropriate diesel excise paid (depending on the sulphur content) at a rate of 20 per cent less than the normal diesel excise rate.

Burning Oils

Burning oils containing a chemical marker come under Excise Tariff Item 11(I)(1)(b)(i). These oils are currently rated free of excise duty, and therefore do not attract the 7.557 cpl excise rate paid on virgin burning oils.

If used oil is to be blended with diesel, then it is not permitted to be chemically marked. Unmarked burner oils are classified under Tariff Item 11(I)(1)(b)(ii) and attract the same excise rate as diesel. However this product may be eligible for a remission or refund of excise under the current provisions of Excise Regulation 50(1) or 176(2). Excise Regulation 50(1) provides for certain circumstances where the ATO can remit/refund the full excise duty that would otherwise be payable, when the used oil product is intended for blending with:

- 'heavy' fuel oil for use as a burning oil (Excise Regulation 50(1)(zl);
- diesel for use in an internal combustion engine in stand alone power stations not connected to the electricity grid (Excise Regulation 50(1)(ze)/(zf); and
- a number of fuel types for use in gas turbine engines to generate electricity (Excise Regulation 50(1)(zi)/(zj).

All of the above are subject to sunset clauses that will cause them to cease on 1 January 2006.

Industrial process oils and lubricants

These PSO category 7 products are eligible for remission/refund of the PSO levy under the provisions of Excise Regulation 50(1)(zz).

3.5 Administrative issues

The PSO and the excise rates together provide a combination of benefits for some categories of used oil that has been re-processed. Some of these benefits derive from the process used while others reflect various end uses of the oil. Both sets of

benefits pose administrative challenges. Verification of the exact nature of the processes used in re-refining plants requires significant technical expertise and verifying how the oil has been used is also difficult. While ideally it would be better to avoid benefit payments based on end use, this seems unavoidable under the present arrangements. However, the changes scheduled for January 2006 will lead to a simplification of excise arrangements.

The lack of definitions in the *PSO Act* has also been raised as an administrative issue. The lack of a definition of 're-refined' in the legislation may result in Category 1 payments being claimed in circumstances that were not intended to qualify for this benefit. The fact that the benefit for re-refined lube oil under the *PSO Act* was set at 50 cents per litre clearly indicates a recognition of the significant investment required to produce a lube oil that can meet the requirements of engine manufacturers.

3.6 Possible effects of related policy changes

Changes to diesel fuel standards and excise have the potential to adversely affect the current markets for used oil in the diesel fuel and high grade industrial burning oils. These two markets accounted for 26 ML and 70 ML, respectively, of recycled used oils in 2002-03.

A new National Fuel Standard for diesel has seen the mandatory diesel specifications for sulphur reduced from 5000 ppm to 500 ppm in January 2003, with a further reduction to 50 ppm from 2006. Additionally, as a result of the Diesel Sulphur Excise Differential program, the excise rate for diesel with greater than 50 ppm increased to 40.143 cents per litre on 1 January 2004. With current technology, typical sulphur levels in re-refined diesel are 1000 to 9000 ppm. The combination of lower sulphur specification and increased excise can be expected to reduce and eventually remove the transport diesel fuel market for products derived from used oil.

In the high grade industrial burning oils market (where reprocessed base oil is commonly mixed with equal volumes of diesel to meet the viscosity requirements of customers), the excise changes noted above are also likely to adversely affect the use of used oils. Re-processors are affected in two ways. Firstly, the excise will apply to all components in the blend not just the diesel as is currently the case. Secondly, the full excise of 40.143 cents per litre is paid at the time of sale and this imposes an increase in the working capital requirements of the re-refiner.

Changes to the *Excise Tariff Act* relating to blend light fuel oils, resulting from the introduction of the EGCS, have the potential to have a similarly adverse effect on the market for used oil in this application.

As a result of those changes, makers of blended light fuel oils are required to pay full excise on their products,[42] and refiners are still able to claim the same product benefits (category 5 or 6). Overall, the changes mean that the end price of blended light fuel oils have increased by an estimated average of 9.557 cents per litre.[43]

---

[42] Kemp 2004, *Protecting Oil Recyclers and the Environment*, Media Release (K01), 31 January, Minister for the Environment and Heritage, Canberra.

[43] Oil Stewardship Advisory Council 2003, *Item 10 – Report from the Department of the Environment and Heritage on Excise Changes – 'Changes to the Excise Tariff Act Relating to Blend Light Fuel Oils'*, Agenda Paper – OSAC 9 (27 November), Canberra.

However, in response to those changes the Government has implemented new regulations to create a new benefit category under the *Product Stewardship (Oil) Regulations,* with effect from 1 February 2004. This is to ensure that producers of blended light fuel oil continue to receive an equivalent level of benefit and will not be disadvantaged by changes in excise.[44]

[44] Kemp 2004, *Protecting Oil Recyclers and the Environment*, Media Release (K01), 31 January, Minister for the Environment and Heritage, Canberra.

Part B

The performance of the Product Stewardship for Oil Program

Chapter 4

Assessment of the Program against best practice design principles

This chapter assesses the levy and benefit payment experience of the Product Stewardship for Oil Program against a best practice framework of principles for program design and evaluation, and a broader discussion of possible shortcomings and changes that may be required to improve performance.

In order to provide a critical appraisal of the performance of the PSO Program it is useful to assess it against a framework of best practice policy design criteria, such as those outlined in box 4.1.

Box 4.1

QUESTIONS DIRECTED AT BEST PRACTICE POLICY DESIGN PRINCIPLES

- Does the program target the problem effectively?
- Does it have acceptable take-up?
- Does the program have the right duration, scale and target group?
- Is it timely?
- Does it induce new activity?
- Are large overseas transfers avoided?
- Is it administratively efficient for government?
- Does it impose big compliance burdens on firms?
- Does it impose any significant costs on any group?
- Is it transparent and accountable?
- Is it financed in the least cost way?
- What are the risks posed by the program? For example:
  - Unforseen liabilities for the government
  - Adverse interactions with other policies
- Does it breach Australia's international obligations?

Source: Lattimore et al. 1998, p. xxi.

The following sections assess the PSO Program against the best practice principles outlined in box 4.1.

4.1 Targeting

Appropriately targeted programs are those that are problem-directed; they attempt to resolve economic problems directly by addressing the cause of the problem, rather than focus on addressing the symptoms of the problem or supporting particular businesses.

The PSO Program is aimed at addressing the externalities arising from the inappropriate use or disposal of used oil (see chapter 2). By imposing a levy on all

lubricating oil (effectively imposing a 'polluter pays' principle), and providing a payment to those who recycle used oil (effectively internalising to those agents some of the positive benefits to the environment obtained by reducing damaging misuse or inappropriate disposal of used oil) the Program appears well targeted.

Central to the ongoing ability of the PSO Program to induce recycling additional to that which would otherwise occur (and so deliver improved environmental outcomes) is whether benefit levels and relativities between different products remain appropriate. That is, does the PSO Program's categorisation of recycling options and the relative benefits provided target the appropriate outcomes?

The original setting of the level and relativities appear at first instance to have been done in the context of the cost structures and margins for the various product categories, and the environmental consequences of each product category use. For example, during the Second Reading of the group of Bills that implement the PSO Program, it was noted that:

> The subsidies that are available are graduated. You could say that the higher the environmental virtue of the reuse of the waste oil, the higher the level of subsidy. That is designed to recognise that there are a number of different things that can be done with waste oil. …
>
> There is a schedule of benefits to be developed that accompanies the subsidies. I just want to spend a moment talking about that. There are less virtuous ways of recovering and reusing waste oil and they will attract the least generous incentive. Those more virtuous ways, such as converting lubricants back into lubricants, will attract the highest level of incentive. So where you have the more sophisticated, the more complex and the more expensive process with the better environmental outcome, that will attract the higher level of subsidy.[45]

Of concern, the Review Team has not seen any evidence to show that the differential benefit levels appropriately target the environmental costs of alternative treatment methods and associated market returns.

With regard to environmental consequences there is evidence that the existing benefit levels and differentials are in need of revision. For example, the benefit accorded category 1 product use (with a 50 cents per litre benefit) compared to that for high grade industrial burning oil use (with a five cents per litre benefit) implies the environmental benefits of category 1 use are tenfold greater.

However, since the PSO Program's introduction a number of oil life cycle analyses have been undertaken (see box 4.2, next page). These studies challenge the perceived environmental supremacy of lube-to-lube recycling, and have confirmed that burning of high grade reprocessed used oil or, in the case of cement kilns even lower grade used oil, has an environmental impact similar to re-refined base oil.[46] For example, the recent review of the transitional assistance arrangements concluded that the environmental consequences of some burning might be little different from those of lube-to-lube recycling:

> Disposal to (cement) kilns is environmentally favourable because of the high temperature and long residence time in a typical kiln which leads to complete combustion of polycyclic aromatic hydrocarbons (PAHs) and suppresses the formation of polychlorodioxins. Metals, derived from used oil, are retained in the cement product.[47]

---

[45] Billson 2000, *Second Reading Speech*, viewed 12 February 2004, <http://parlinfoweb.aph.gov.au/piweb/view_document.aspx?id=481373&table=HANSARDR>.

[46] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

[47] Ibid., p. 18.

Box 4.2

OIL LIFE CYCLE ANALYSIS

'Life cycle analysis' is a tool for assessing material and energy requirements and the environmental impact of a product over the whole of its life, from raw material extraction, manufacture and consumption to product disposal. That is, it is a systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product or service system throughout its life cycle.

A number of studies have been undertaken to provide a life cycle analysis perspective on used oil reprocessing and use:

- a year 2000 report on life-cycle emissions analysis of alternative fuels by Beer *et al* found that while the use of used oil blended into diesel offers a 'slight reduction' in greenhouse gases, it also leads to increased air pollution. The authors suggest that the most favourable use of used oil is as recycled lube oil;
- an extensive life cycle analysis carried out by BHP on the environmental and economic aspects of recycling lubricating oils in Australia assessed seven case studies using a range of environmental key performance indicators (e.g. greenhouse gas emissions (as equivalent mass emission of CO_2 (CO_2-e)), resource energy consumption/depletion (of fossil fuels such as coal, oil, NG), NOx and SOx, and waste water and solid waste. The key findings supported the general conclusions that: recovery/reuse is preferable to replacement; and re-refining to a lube quality base oil has a marginal advantage over combustion applications. The results also showed that the environmental impacts from the transportation of used oil are minor;
- in 2001 a report prepared for the European Commission by Taylor Nelson Sofres Consulting critically analysed four major European life cycle analysis studies (including eight individual comparative studies) that had compared regeneration/re-refining and incineration of used oil. The environmental impact factors considered in the study were the consumption of fossil energy resources, the contribution to global climate change and regional acidifying potential, and emission of volatile organic compounds. The report came to broadly similar conclusions as the earlier Australian-focused BHP report;
- in 2003 Warnken Industrial and Social Ecology prepared a 'preliminary' qualitative life cycle analysis for combustion of used oil as a fuel concluded that used oils which have not been reprocessed, or used oils of which the quality is unknown, should not be used in the direct heating of greenhouses if humans or animals consume the produce; and
- a report by Fitzsimons, presented to the OECD Working Group on Waste Prevention and Recycling in 2003, included reference to the findings in the aforementioned European Commission. It supported the earlier Taylor Nelson Sofres Consulting conclusion that there is sufficient evidence to justify support for either re-refining or direct burning in cement kilns, and that the comparative environmental benefits are finely balanced between the two main methods of post-collection management.

In conclusion therefore, insofar as environmental impacts are concerned, the evidence provided by the BHP and Taylor Nelson Sofres Consulting reports supports the general conclusions that recovery/reuse of used oils is preferable to replacement and that re-refining has only marginal advantage over combustion applications. This broad finding received the endorsement of the Australian Academy of Technological Sciences and Engineering in its recent review of the PSO Program's transitional assistance.

Note: We acknowledge the recent Californian review by Boughton and Horvath that found a life-cycle preference for re-refining of used oil over its combustion. We consider this finding to be not readily translatable to Australia given the significantly higher levels in used in the US.
Source: Australian Academy of Technological Sciences & Engineering 2004; Beer et al. 2000; BHP 2000; Boughton & Horvath 2004; Fitzsimons 2003; Taylor Nelson Sofres Consulting 2001; Warnken Industrial and Social Ecology 2003.

With regard to cost structures and margins, there is evidence that market conditions have significantly altered since the Program's inception, threatening the viability of some products.[48]

Given that lube oil recycling is thought to have negative margins — i.e. lube-to-lube recycling is unprofitable without support — the PSO Program's support for such recycling appears well targeted.

However, the apparent marginal viability of elements of the burning oil market suggests that the Program is less than well targeted.[49] This is particularly so given the scale of the product most potentially at commercial risk; the high grade burning oil market accounted for some 68.3 ML (about 31 per cent) of the total 220 ML of recycled product in 2002-03.

Since the Program's inception, new market circumstances and technologies which have altered the environmental consequences of different use categories now point to the need for benefit levels and relativities to be changed.

4.2 Take-up

To make a significant difference to total economic activity in the sector of concern, the reach of a program — either directly through firm participation or indirectly through demonstration effects — must be broad. Unless this is the case, the impact of the Program on relevant overall economic behaviour (and thus the effectiveness of any changes it may induce) will be limited. Where this is not the case, effectiveness will be compromised.

Additionally, since there are often substantial fixed costs in developing and running programs, unless the reach of the program is relatively comprehensive, the overall administrative overheads may be higher than the program's benefits. Where this is the case, the efficiency of the program may be compromised.

The experience of the Program to date — with 34 recyclers registered for benefits as at 30 June 2001, 37 registered at 30 June 2002 and 42 registered at 30 June 2003 — has been interpreted by the Department of the Environment and Heritage as evidence that the majority of recyclers in the Australian industry are involved in the Program.[50] If this is accurate, it would appear that the take-up of the Program has been comprehensive and, thus, has been conducive to facilitating its effectiveness and efficiency.

The recent review of the transitional assistance arrangements has demonstrated that there has been strong community demand for the available funds, and consequent strong growth in community collection.[51] This finding supports the view that take-up of the PSO Program has been high.

---

48 Ibid.

49 While a number of stakeholders —submissions from: Master Waste, Wren Oil, Australian Waste Oil Refineries, Triple R Waste Management and Eco Waste — queried the estimated costs and margins identified in 2000 by the Department and in 2004 by the Australian Academy of Technological Sciences, there is a general consensus that margins are negative.

50 Department of the Environment and Heritage 2003, *Department of the Environment and Heritage Annual Report 2002-03*, Canberra, p. 246.

51 Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

4.3 Duration, scale and target group

Duration

Due to a delay in the passage of the enabling legislation, the *Product Stewardship (Oil) Act* only came into effect on 1 January 2001, some six months after its original target date of 1 July 2000.

The specific duration of the PSO Program is not spelt out in the *Act*, although the transitional assistance arrangements are due to run through to June 2007. However, two observations are pertinent in this regard:

- for meaningful change in economic behaviour to occur in used oil collection, treatment and recycling (including planning and implementing investment in expensive capital works, establishing new collection and distribution networks, and developing new markets), a minimum amount of time is needed for any new policies to have manifest results; and
- within the *Act* there is provision that the duration of the PSO Program will be subject to periodic critical review. Such a provision should ensure that the duration of the Program would be related to the ongoing need for such a Program and the net benefits it delivered to the Australian community.

Having regard to the circumstances of the used oil recycling industry and the review provisions inherent in the PSO Program, the Review Team considers that the Program is operating consistent with best practice design principles in this regard.

Scale and target group

The scale of the Program and its target group also appear to satisfy good design principles:

- by imposing a levy on domestic sales of lubricant oil and providing generally available benefits for recycling used oil, the Program appears to be well targeted at the problem of used oil;
- the environmental and health problems associated with the inappropriate use and disposal of used oil touches on many sectors of the economy, on economic agents large and small, and the economies and communities in all jurisdictions. Thus, the national focus of the scheme appears consistent with the scale of the problem and the actions needed to address it;
- as the Program has been able to engage stakeholders (such as local governments) through:
  - the transitional assistance funding arrangements; and
  - OSAC (via either membership or as a conduit for making stakeholder views known to the Minister);

  the target group has been augmented to the benefit of the Program's objectives.

However, the Review Team is concerned that the Program might not be particularly well targeted from a product stewardship perspective, rather than a simple recycling perspective. One of the objectives of a product stewardship

program is to seek to encourage those who produce the products with the negative externalities to adjust their behaviour so as to minimise the production of virgin oil (i.e. to 'design for environment').[52] There are a number of indications that suggest that this has not occurred to any great degree:

- major oil producers appear to have been reluctant to blend recycled oil with virgin oil, or to sell recycled oil on its own;
- the transitional assistance program may have actually reduced the burden on producers and retailers, and so reduced their incentive to reduce their reliance on virgin oil. As shown in table 4.1, the clear trend over the past seven years has been for households to deliver used oil to a central collection point, thus removing the responsibility of business; and
- these observations suggest that whatever the benefit achieved (see section 4.6), the PSO Program has not targeted producers and retailers to the degree that might have been expected for a 'product stewardship' program.

Table 4.1

METHODS OF DISPOSING OF MOTOR OIL (PERCENTAGE OF HOUSEHOLDS IN MARCH)

	1996	2000	2003
Usual collection from house	10.8	7.2	2.5
Special service from house	4.6	3.0	1.9
General area/s at dump/waste station	6.7	4.9	3.0
Special area/s at dump/waste station	23.0	17.5	11.1
Central collection point/s other than dump/waste transfer station	10.5	43.3	73.1
Taken to a business or shop	22.9	5.8	2.0
Poured down the drain	0.4	0.3	0.1*
Buried them	4.0	2.3	1.4
Other	18.7	16.7	5.8

* estimate is subject to sampling variability too high for most practical purposes
Note: Totals do not equal the sum of the individual items as more than one method may be specified
Source: Australian Bureau of Statistics 2003, p. 39.

4.4 Administrative and compliance costs

Administrative costs for government

The Program mainly uses existing administrative structures for the collection of the levy and the payment of benefits. The ATO and the ACS, for example, collect the levy on domestic and imported oil products, respectively.

The ATO has indicated concerns about the administrative costs associated with the excise system.

[52] See Calcott and Walls 2000, 'Can Downstream Waste Disposal Policies Encourage Upstream "Design for Environment"?' *American Economic Review: Papers and Proceedings*, vol. 90, pp. 233-7; Calcott and Walls 2001, *Waste, Recycling, and "Design for Environment": Roles for Markets and Policy Instruments*, Resources for the Future, Washington D.C.

The Department of the Environment and Heritage, the ATO and ACS work together to ensure the arrangements are simple to administer and understand.

The relationship between the Department and the ATO is governed by a *Memorandum of Understanding* and an *Implementation Agreement*.[53]

Amongst other things, the *Implementation Agreement* provides that the Department will annually:

- provide ongoing funding of $465 300; and
- reimburse the ATO's legal costs incurred in administering the *Act.*

Given that claims under the PSO Program have been lower than originally forecast, it is possible to suggest that the ATO workload has been lower than originally budgeted for, and hence there may be some scope for some adjustment in future years if the workload in processing PSO claims does not increase significantly.

In general, the relationship appears to be working reasonably well, with the ATO:

- monitoring the PSO Program for inconsistencies;
- providing prompt monthly reports to the Department; and
- generally sharing information with the Department.

There are, however, some areas for improvement, particularly with respect to ensuring that:

- there is adequate consultation between the ATO and the Department when the parties make a decision as to how to interpret a particular definition; and
- scheduled ongoing consultation between the ATO and the Department occurs.

On this basis the Program would appear to incur only incremental and not unreasonable additional administrative costs to government.

Compliance costs for business

With regard to the compliance costs the PSO Program imposes on industry, at the PSO Program's legislative passage the then Minister considered the likely compliance costs to be slight:

> The arrangement will provide Commonwealth product stewardship benefits only to eligible claimants. The Government considers it appropriate that those seeking access to the product stewardship benefits maintain sufficient records and evidence to substantiate their claims. These records and evidence will also be needed to enable the Commissioner of Taxation to make a correct assessment of a person's entitlement to the product stewardship benefits.
>
> These compliance costs, however, will be minimal, as the record keeping that is required to access product stewardship benefits under legislation is essentially the same as the record keeping that occurs in the normal course of commercial life.[54]

---

[53] Australian Taxation Office and Department of the Environment and Heritage 2001a, *Implementation Agreement between the Australian Taxation Office and the Department of the Environment and Heritage in Relation to Product Stewardship for Waste Oil*, Canberra; Australian Taxation Office and Department of the Environment and Heritage 2001b, *Memorandum of Understanding between the Australian Taxation Office and the Department of the Environment and Heritage in Relation to Product Stewardship for Waste Oil*, Canberra. These agreements are up for renegotiation in mid-2004.

[54] Hill 2000, *Explanatory Memorandum: Product Stewardship (Oil) Bill 2000; Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Excise Tariff Amendment (Product Stewardship for*

In contrast, and as noted earlier, the ATO considers that there are considerable complexities surrounding the PSO Program, at least in comparison to other schemes such as the EGCS, which impose administrative burdens on claimants. For example, to claim a Category 1 benefit the oil must be tested every six months (i.e. there is an ongoing compliance burden on claimants which is not similarly imposed in, for example, the EGCS).

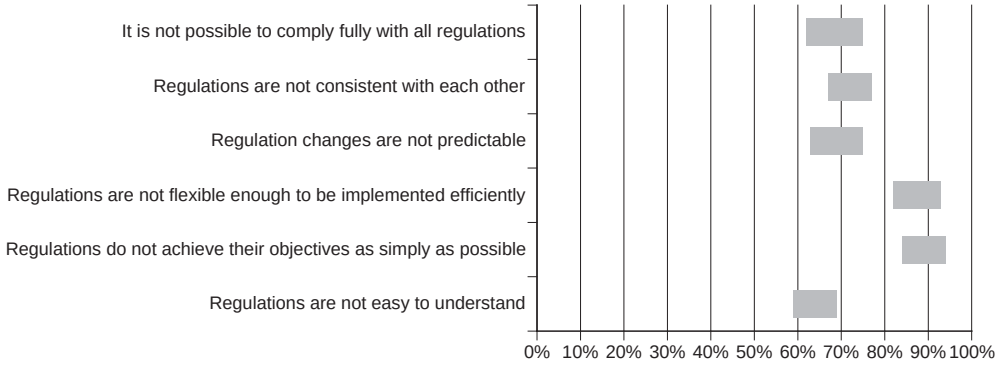
However, the scale of such compliance costs may be slight because, with relatively few firms registered to receive PSO benefits (42 registered as at 30 June 2003), compliance costs as a proportion of benefits paid would tend to be low.

One particular compliance cost raised in consultations related to the specificity of the levy rate. One stakeholder noted that the setting of the levy to 5 decimal places (i.e. $0.05449) had meant that their global SAP (accounting) system had to be specifically reconfigured at some considerable cost. The specificity of the levy rate is a hang-over from the period in which the levy was indexed, and otherwise serves no particular purpose.

Even though total compliance costs may be perceived as slight, Australian businesses are among the groups most critical of the quality of regulations and the associated red tape (see figure 4.1).[55]

Figure 4.1

THE PERCENTAGE OF BUSINESSES WHICH (REFERRING TO TAXATION, EMPLOYMENT AND ENVIRONMENTAL REGULATIONS) AGREE WITH CERTAIN STATEMENTS (EXPRESSED AS AN UPPER AND LOWER RANGE) IN 1998



Source: Organisation for Economic Co-operation and Development 2001b, p. 21.

While the concerns in figure 4.1 were expressed prior to the introduction of the Program, evidence presented to the recent Senate Small Business Employment Inquiry suggests that the burden of regulation on small business is likely to have increased since 1996, largely as a result of the introduction of the *New Tax System* (i.e. the Goods and Services Tax) and associated new environmental regulations.[56] The suspicion is that the PSO Program is one such scheme that adds to business red tape compliance costs. This is likely to be a particular concern where some businesses have imposed upon them a levy and an offsetting benefit (i.e. the

Waste Oil) Bill 2000; Product Stewardship (Oil) (Consequential Amendments) Bill 2000, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra.

[55] Organisation for Economic Co-operation and Development 2001b, *Businesses' Views on Red Tape: Administrative and Regulatory Burdens on Small and Medium-Sized Enterprises*, OECD, Paris.

[56] Senate Employment Workplace Relations and Education References Committee 2003, *Small Business Employment*, Parliament of the Commonwealth of Australia, Canberra, p. 111.

Category 8 benefit) is paid. In this case, as the levy and the benefit are set equally there should be no change in production and/or consumption incentives and so the Program provides a compliance cost with no environmental consequences.

4.5 Timeliness

The scheme appears to operate in a timely manner. For example, firms are provided with some timing flexibility in that they can make a claim for payment at any time (i.e. they are not required to lodge claims at predetermined intervals).

4.6 Additionality

One of the major issues in assessing the effectiveness of a program is determining the extent of additionality or behavioural change it induces. This is fundamental to determining the effectiveness of the PSO Program.

Has recycling and reuse of used oil been encouraged?

Interpreting the levy and benefit data for any indications of the effectiveness of the Program, requires caution.

It is difficult to draw any meaningful conclusions about the effect of operations from changes between 2000-01 and 2001-02. With regard to benefit payments, results from the initial months of the Program's operation were affected by the lead time required for awareness to percolate throughout the industry and for any response to manifest itself. Thus, the first six months of operation (i.e. second half 2000-01) would be a poor indicator of the effect of the Program, and certainly could not simply be doubled to extrapolate a full year's operation. The lead time factor would not apply with regard to levies, as they would have been comprehensively imposed from the outset of the Program. However, unless we know that oil production and imports were evenly spread over each half of the 2000-01 financial year, simply doubling the recorded collections in the second half of that year to obtain a full year equivalent may be highly misleading.

Accordingly, only the first and second *full* years of operation of the Program — i.e. 2001-02 and 2002-03 — yield any meaningful data for analysis. But these too must be used with caution, having regard to broader factors that may influence the supply and demand for lubricating oils and the economic climate for potential investment in recycling facilities. More generally, any conclusions about trends in effects and behaviour from just two full years for which data are available means those conclusions can only be tentative at best.

Notwithstanding these caveats, some interesting observations may be made from the data.

Virgin oil production and imports

As shown in table 4.2, in the first two full years of the Program's operation, total volume of oil levied rose 63 ML or about 14 per cent.[57] This increase was entirely the result of higher domestic production (395.9 ML to 458.8 ML) as the levied volumes of imports remained essentially unchanged at around 63 ML.

[57] Given the changes to the size of the levy over that time, it is more instructive to focus on the differences in the volume of oil rather than changes in the value of levies collected.

Table 4.2

VOLUMES OF OIL LEVIED (ML IN 2000-01 (PART YEAR) TO 2002-03)

	2000-01	2001-02	2002-03
Domestic production			
Lubricant base oil	52.7	95.8	116.5
Prepared lubricant additives	11.2	14.5	19.5
Engine lubricants	80.0	141.9	169.6
Gear, transformer, transmission and heat transfer oils	35.8	63.2	71.5
Hydraulic and brake fluids	25.0	40.6	40.1
Metal working and process oils	18.5	29.3	31.3
Petroleum based greases and synthetic equivalents	7.8	10.6	10.3
Total	*231.1*	*395.9*	*458.8*
Imports			
Petroleum based oils (inc. hydraulic fluids, lubricants and transformer oil)	10.2	28.7	29.4
Petroleum based greases	0.7	1.9	1.8
Preparations for treatment of textiles	0.6	0.9	0.0
Other preparations	5.3	11.7	11.0
Additives for lubricating oils	9.4	18.9	16.5
Hydraulic brake fluids	0.5	0.9	0.0
Other	0.0	0.1	0.0
Total	*26.8*	*63*	*62.4*
Total levy collection	***257.9***	***459***	***522***

Source: Department of the Environment and Heritage and McLennan Magasanik Associates & BDA Group 2003, p. 4.

Recycling levels

While the community has generally embraced the concept of recycling and reuse,[58] the Australian Bureau of Statistics suggests that percentage of households recycling used engine oil has actually decreased over the life of the PSO Program (see table 4.3).

[58] In March 2003 around 95 per cent of Australian households recycled waste and around 83 per cent reused wastes — Australian Bureau of Statistics 2003, *Environmental Issues: People's Views and Practices*, Cat.No. 4602.0, Canberra, p. 5.

Table 4.3

PERCENTAGE OF HOUSEHOLDS RECYCLING USED MOTOR OIL (MARCH)

	1996	2000	2003
New South Wales	11.1	13.3	11
Victoria	9.6	10.4	9.5
Queensland	13.1	14.8	16.2
South Australia	9.2	9.9	11.7
Western Australia	13.2	10.3	10.7
Tasmania	11.1	12.2	14.1
Northern Territory	6.8	12.5	12.1
Australian Capital Territory	20.3	20.8	18.0
Australia	***11.3***	***12.1***	***11.8***

Note: NT data refers mainly to urban areas
Source: Australian Bureau of Statistics 2003, p. 14.

However, a different picture is obtained by looking at aggregate oil recycling volumes before and after the PSO Program's introduction. Prior to implementation of the product stewardship for use oil arrangements, industry estimates reported by the Department of the Environment and Heritage indicate that 150 to 160 million litres of oil were being recycled. For the first two full years of the program's operation,[59] the aggregate volume of recycled oil on which benefits were paid was 194.6 million litres in 2001-02 and 193.9 million litres in 2002-03 (see table 4.4). However, given the relative infancy of the scheme and its operation, it is likely that several more years of data are needed to establish any meaningful trends in recycling levels.[60]

Table 4.4

VOLUME OF RECYCLING (ML IN 2000-01 (PART YEAR), 2001-02 AND 2002-03)

	2000-01	2001-02	2002-03
Re-refined base oil	0.0	0.0	3.0
Other re-refined base oil	0.0	0.1	0.2
Diesel fuel	7.7	25.2	26.1
Diesel extender	1.5	0.0	0.0
High grade industrial burning oil	15.8	65.8	68.3
Low grade industrial burning oil	26.9	103.5	96.3
TOTAL	***52***	***195***	***193.9***

Source: McLennan Magasanik Associates & BDA Group 2003, p. 6.

In view of the incentive the benefit payments provide, which would be expected to increase recycling, this constant aggregate volume appears disappointing.

[59] Leaving aside the problematic use of data from the first six months of operation.

[60] Department of the Environment and Heritage 2003, *Department of the Environment and Heritage Annual Report 2002-03*, Canberra, p. 249.

However, this apparently disappointing result must be qualified by a number of factors:

- the component figures appear to be somewhat volatile because of variations in the quantities of oil in storage and lags in submitting benefit claims;
- while the volume of recycled oil on which benefits were paid remained almost constant from 2001-02 and 2002-03, this represents 42.5 per cent and 37.1 per cent of the total volume of oil entering the market in those years;
- the figures in table 4.5 do not record recycled oil in category 7 of the program's benefits schedule, which is prescribed a zero cents per litre benefit. For 2002-03, the Australian Academy of Technological Sciences and Engineering estimated this category's volume to be 25 ML.[61] Taking account of this suggests recycling volumes as a percentage of oil sales would be more in the order of 47.9 per cent and 41.9 per cent for 2001-02 and 2002-03 respectively (see table 4.5);
- these levels look particularly impressive when set against the proportion of recycled oil relative to total domestic sales in 1999 (33 per cent),[62] the year immediately prior to the Program's implementation. Although only a crude measure of effectiveness, this is at least consistent with the thesis that the Program is stimulating recycling from the annual flow of oil sales and/or from stockpiled used oil;
- the aggregate performance of 220 ML and 219 ML[63] of oil recycled in 2001-02 and 2002-03 is consistent with pre-implementation modelling. That modelling estimated recycling under the Program in those years would be 215 ML and 219 ML respectively; and
- this recycling performance in line with expectations should, however, be qualified by doubts about the accuracy of the data used.

Table 4.5

RECYCLING AS A PROPORTION OF TOTAL SALES

	Pre-implementation (estimates)		Post-implementation (actual)[64]	
	2001-02	2002-03	2001-02	2002-03
Lubricant oil sales (ML)	489	484	459	522
Recycling (ML)	215	219	220	219
Recycling percentage	44.0	45.2	47.9	41.9

Source: Department of the Environment and Heritage; Australian Academy of Technological Sciences & Engineering 2004.

[61] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

[62] Pre-implementation modelling by ABARE indicated that, in 1999, recovered oil amounted to 165 ML compared to Australian domestic sales of virgin lubricant of 500 ML. However, recent studies have cast doubt on the integrity of the official data used to derive this estimate —Ibid.

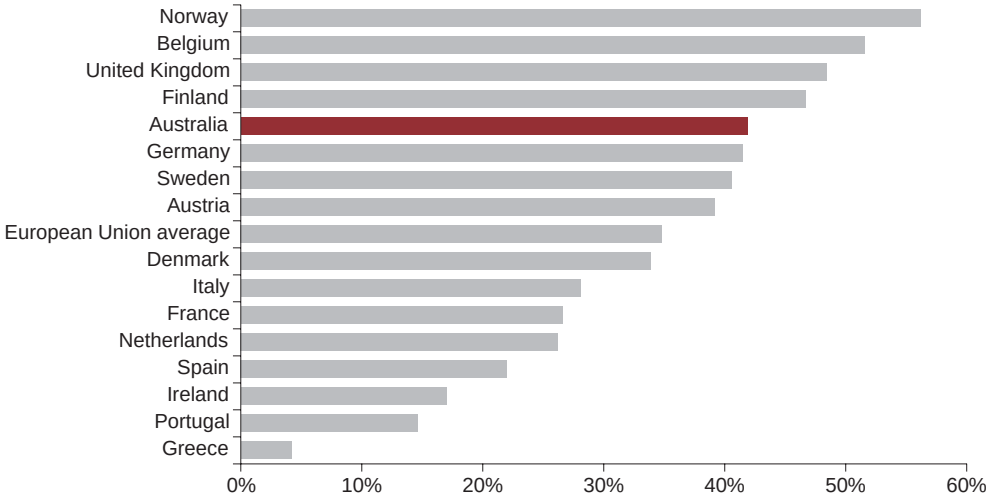
[63] Consisting of the 195 ML and 194 ML of 'benefit paid' recycled oil and the estimated 25 ML of 'zero benefit' recycled oil likely to have been collected and used in those two years.

[64] Recycled volumes include an estimated 25 ML for 'zero benefit' oil used.

Overall, even allowing for data problems associated with the Department of Industry, Tourism and Resource's tracking of oil sales, the Program appears to have been successful in inducing oil recycling, and current recycling activity is comparable with that in the leading overseas countries (see figures 4.2 and 4.3).

Figure 4.2

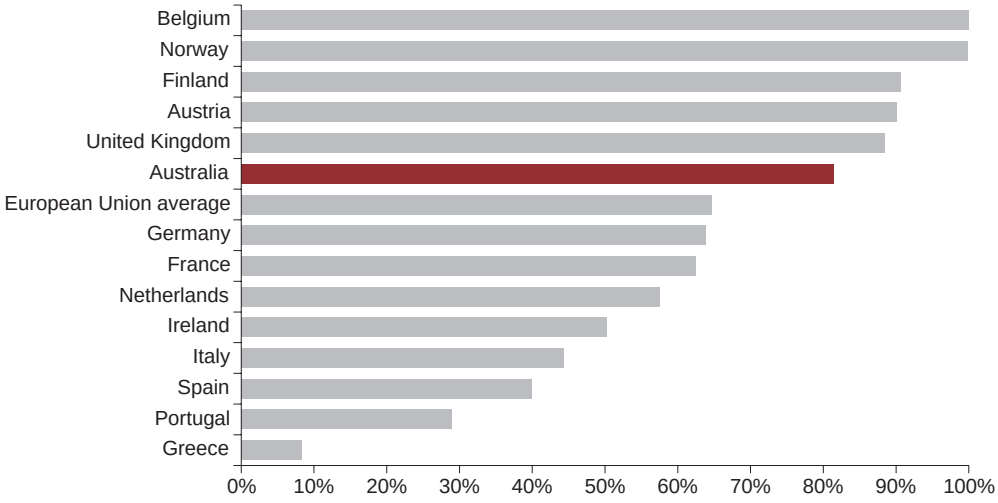
OIL RECYCLING AND REUSE AS A PERCENTAGE OF TOTAL VIRGIN OIL SALES (LATEST AVAILABLE YEARS)



Source: Australian Academy of Technological Sciences & Engineering 2004; Brodersen, Juul & Jacobsen 2002, pp. 38-9; Commission of the European Communities 2000, pp. 57-9; Natural Resources Canada 1998.

Figure 4.3

OIL RECYCLING AND REUSE AS A PERCENTAGE OF TOTAL USED OILS GENERATED (LATEST AVAILABLE YEARS)



Source: Australian Academy of Technological Sciences & Engineering 2004; Brodersen, Juul & Jacobsen 2002, pp. 38-9; Commission of the European Communities 2000, pp. 57-9.

Within these aggregate numbers, the composition of payments shows current recycling is dominated by high grade and low grade burning oil use (together accounting for 86.8 per cent and 84.9 per cent of recycling use for 2001-02 and 2002-03 respectively). This is comparable with overseas experience. In the United Kingdom, in 1999, more than 80 per cent of collected used oil was used for burning in various applications.[65] Elsewhere the proportions used for burning may even be higher. For example, a 1994 report notes that an estimated 80 per cent of used oil collected in Washington State is blended into heavy bunker fuels for use by ocean-going vessels, with a further 14 per cent burned in land-based facilities.

It is also apparent that the re-refined base oil category (the so-called lube-to-lube category) has increased from nothing in the first full year of operation to 3 ML in 2002-03. While 3 ML might not appear to be a large volume in comparison to the market as a whole, the Wagga Wagga lube-to-lube facility is only just coming on-line and so the volumes can be expected to increase in the coming years. As this category was, at the time of the Program's introduction, considered the most environmentally beneficial, the evidence of the slight growth to date and the prospect of further imminent growth is an encouraging sign the program is meeting it objective.

To what degree is any increase additional?

The aggregate experience of the Program (noted above) is that, following the introduction of the Program, recycled oil increased significantly in absolute volume and as a proportion of total production and imports entering the domestic market. However, this evidence is not proof that the additional recycling has been *caused* by the benefits available under the Program.

The real test of additionality (i.e. induced recycling) is how much extra activity has occurred over that which would have occurred anyway (i.e. what would the counterfactual situation be?). For example, were business plans already in place to invest in recycling facilities before the Program's introduction, and therefore would an increase have occurred anyway? This is a difficult question to answer.

- On one hand, it is likely that much of the volume attracting benefit payments would have been recycled or reused anyway. Where this is the case, the program expenditures are merely transfers, requiring costly administrative and compliance mechanisms, but producing no additional beneficial economic impacts.
- On the other hand, there clearly has been investment in recycling facilities in Wagga Wagga that would not have occurred had it not been for the Program (see figure 4.4 next page).[66]

[65] Oakdene Hollins 2001, *UK Waste Oils Market 2001*, viewed 9 February 2004, <http://www.oakdenehollins.co.uk/tes2.html>.

[65] Clean Washington Center 1993, *Used Oil to Diesel: An Alternative Technology*, Department of Trade and Economic Development, Seattle.

[66] Similarly, there is some industry speculation that stakeholders are currently considering the construction of one or more additional lube-to-lube recycling facilities.

Figure 4.4

THE LUBE-TO-LUBE RECYCLING FACILITY IN WAGGA WAGGA

Source: Southern Oil

A general issue with regard to the oil levy is the effect it might be having on demand.[67] The observed behaviour in total lubricating oil production and imports sold on the Australian market in 2001-02 to 2002-03 suggests it has little impact. Intuitively, one would not expect a decline in demand to occur as a result of an impost of the scale represented by the levy (i.e. around 1.7 per cent of the average per litre cost of such oils at the time of its introduction). Moreover, as the levy is

[67] Pre-implementation modelling, upon which the levy-benefit arrangements were partly based, assumed a negligible negative effect on lubricating oil sales would result from the levy.

now fixed at 5.449 cents per litre, its relative significance will continue to diminish as prices rise in line with inflation.

A review of sales data for lubricating oils in Australia over recent years indicates that sales for such oils in the period 1992-93 to 1999-2000 were broadly consistent with the 459 ML and 522 ML on which levies were collected in 2001-02 and 2002-03 respectively.[68] Sales in those years were relatively stable, in contrast to the generally sustained growth in sales for total petroleum products. It is apparent though that annual sale of lubricants as a proportion of total petroleum products has been generally trending down over this period (from 1.16 per cent to 1.06 per cent).

It is likely that this relative decline is in part a reflection of long term influences at work in the significant engine lubricant market — resulting from advances in engine and lubricating oil technology. For example, the recent report on transitional assistance elements of the product stewardship arrangements noted:

- dramatic increases in lubricating oil lifetimes in truck and passenger motor vehicles (see figure 4.5), so reducing the need for virgin oils; and
- in the case of the passenger motor vehicles, while their numbers continue to grow, the consumption of base oil used for lubricant manufacture has decreased (see figure 4.6, next page).

Determining whether the levy has induced any reduced demand for oils is not possible from studying the Program's performance data alone, nor is it apparent from the sales data noted above.

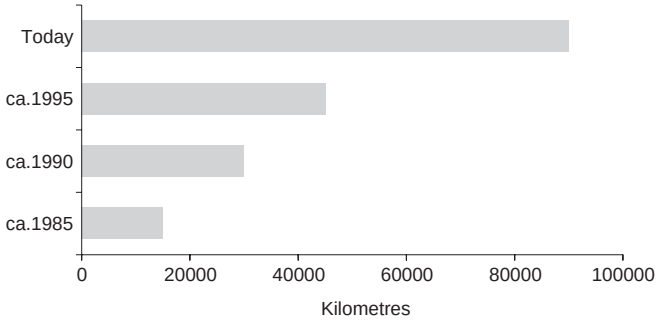
Evidence that the Program has indeed caused recycling levels above those which would otherwise occur is found in the observation that without the benefits under the Program, the commercial viability of recycling lube to lube, some high grade burning oils and diesel fuel is questionable. Given these markets accounted for some 97.4 ML of oil in 2002-03, the Program could be viewed as having caused either:

- greater volumes of oil to be recycled; and/or
- greater volumes of oil recycled for uses with better environmental outcomes;

than would otherwise have been the case.

Figure 4.5

OIL DRAIN INTERVALS FOR VOLVO HEAVY TRUCKS

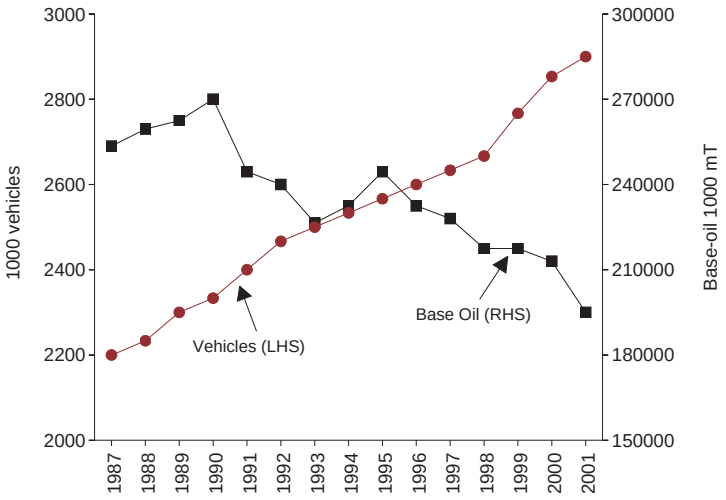


Source: Australian Academy of Technological Sciences & Engineering 2004.

[68] Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

Figure 4.6

NUMBER OF VEHICLES AND ENGINE OIL CONSUMPTION IN EUROPE



Source: Australian Academy of Technological Sciences & Engineering 2004.

The absolute and proportionate increase in recycled oil relative to pre-program levels noted in section 4.1 is powerful *prima facie* evidence that the Program has in fact induced a significant increase in recycling activity. Evidence of the apparently marginal commercial health of some recyclers (i.e. without the product benefits) strengthens that likelihood.

On balance, the Review Team considers the Program is soundly based to induce additional recycling and in this regard accords with good design principles.

The rise in the sales of virgin oil exhibited from 2001-02 to 2002-03, is important because this raises two related issues crucial to the future operation of the Program. These are:

- whether this increase in volume is consistent with assumptions used in the initial modelling upon which levy and benefit payments are based; and
- if not, and it genuinely reflects a trend not factored into that modelling, what implications might this have if accumulated levy collections continue to exceed the expected flow of benefit payments.

The significance of these issues is discussed in more detail in section 4.9.

4.7 Cost impositions

Aggregate levy collections and benefit payments since its inception are shown in table 4.6. The levy collections are a direct cost imposition upon the users of virgin oil.

Table 4.6

TOTAL LEVY COLLECTIONS AND BENEFIT PAYMENTS ($M 2000-01 TO 2002-03)

	Levy collections	Benefit payments	Ratio of collections to payments
2000-01 (final 6 months only)	13.3	2.8	4.8
2001-02	25.0	8.2	3.0
2002-03	28.4	9.7	2.9

Source: Department of the Environment and Heritage 2001, 2002, 2003.

The information in table 4.6 indicates a high collection-to-payment ratio for the Program to date. That is, the cost imposition appears higher than it need be and/or there is scope to increase benefits. The annual reports of the Department of the Environment and Heritage on the operation of the product stewardship arrangements consider this to be a reflection of three main factors:[69]

- pre-implementation modelling on the Program suggested that a lower levy would be required early in the Program and a higher rate later, once the quantity and quality of recycling increased. To avoid ongoing adjustments, a mid-range rate was selected which would remain constant for four to five years. This has contributed to the initial substantial surplus of collections over payments;
- a high levy rate was set to be able to provide sufficient incentive for lube-to-lube recycling. As the capital investment required for such recycling is very high, the benefit rate was set at 50 cents per litre — substantially higher than the next highest rate of 10 cents/litre. Until lube-to-lube recycling operations are established and absorb the excess revenue, this tendency for revenue to exceed payments will continue; and
- there is a lead time required for the arrangements to become fully effective. It takes time for stakeholders to become aware of and understand the operation of the scheme, and to subsequently develop and implement plans that would result in an increase in the production and use of recycled or reused used oil on which benefits would be paid.

Some sectors have expressed particular dissatisfaction with the additional costs imposed by the levy. For example, the Fuel Tax Inquiry Committee noted that:

> Submissions to the Inquiry argued that the scheme discriminates against lubricating oil users who consume all or part of the oil during the operating process of the machinery, especially the shipping industry … The shipping industry is concerned that, if the objective of the scheme is to eliminate waste oil as an environmental pollutant, then shipping — which consumes oil entirely with no waste products — should not pay the levy on oil designed to fund recycling operations (Australian Shipowners Association, Submission 216).[70]

[69] See Department of the Environment and Heritage 2003, *Department of the Environment and Heritage Annual Report 2002-03*, Canberra.

[70] Fuel Taxation Inquiry Committee 2002, *Fuel Tax Inquiry Report*, Canberra, p. 209.

Further, 'Other submissions argued that the system discriminated against those industries which used the specified oils as inputs to further products (such as paint and ink manufacturing).'[71]

These concerns are only somewhat valid:

- acknowledging that there is little environmental benefit from the levy when there is no used oil produced, the levy may nevertheless be beneficial from a resource conservation perspective (i.e. it provides a disincentive to use excessive virgin oil); and
- furthermore, in most cases the costs can be passed on to consumers (i.e. the burden is not borne by the industry itself), although in international markets (e.g. international shipping) this may not be feasible.

Overall, the Review Team considers that the cost imposition created by the levy has been slight, and has not unduly harmed any particular sector of the community.

4.8 Transparency and accountability

Data problems

The development of the regulatory regime has required data intensive analysis of the oil production and recycling industry.

A key concern that has been raised in a number of previous studies relates to the variations between data provided by a range of information sources such as the Australian Bureau of Agricultural and Resource Economics (ABARE), the Australian Institute of Petroleum, ATO and the Department of Industry, Tourism and Resources. The problem is multifaceted as, in some cases:

- the data provided to the collector appear to be incorrect;
- there have been differences in interpretations of some of the data;
- there is a lack of available data in some important areas (e.g. various sources of unaccounted-for used oil);
- data problems have arisen because the data collector has relied upon the willingness of commercial organisations to provide it, and it may be subject to commercial confidentiality or may not be reflective of the status of the industry as a whole; and
- reported data did not reflect general industry perceptions as to what was happening in the marketplace.

Some of these issues could be addressed by further research and/or greater coordination between sources of information currently reluctant to release and/or provide such information (e.g. State/Territory agencies). However, the difficulty in conducting this research,[72] the estimated size of the total amount of unaccounted-for

[71] Ibid.

[72] See Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra; Burnbank Consulting and Tasman Asia Pacific 1999, *Oil Recycling and Excises*, Environment Australia, Canberra; Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'. As an example of the difficulties, determining the volume of oil lost into the environment due to the way it is used is problematic — Fuchs Lubricants (Australasia) Submission.

oil, and the likely expense involved in further filling existing information gaps, suggests that the benefits of such additional research may not be worth the cost.

The setting of the benefit levels

The setting of the PSO benefit levels was said to:

- reflect environmental concerns associated with the particular forms of recycling and reuse; and
- have been determined in light of the prices paid for the products in the marketplace, and an attempt to provide an incentive to undertake more recycling, whilst avoiding windfall gains.

While the Review Team can confirm that an open assessment was conducted with respect to the second of these factors (i.e. the economic and financial considerations), there was no transparency associated with the first. That is, while there is a general view that lube-to-lube recycling is the most appropriate recycling/use outcome for used oil, the degree of the benefit differentials may not be correlated with a commensurate environmental differential. Indeed, at the time of the setting of the benefit levels, the supporting life cycle analysis lacked sufficient information to guide decision-making processes.

The Oil Stewardship Advisory Council

OSAC provides a valuable opportunity for the industry to participate in the decision-making process. In this regard, the publication of an annual report and meeting notes is a valuable accountability and transparency mechanism.

There are concerns, however, about potential conflicts of interest on OSAC. While perceptions of conflicts of interest will almost always exist for industry-focused bodies, the actual risk of there being a clear financial gain is harder to point to given that OSAC only has an advisory role. This was certainly a point made by the OSAC Steering Committee. However, a significant number of stakeholders (including current and former members of OSAC), both verbally and in submissions, suggested that preferential access to industry information does at times raise potential conflict of interest issues.

4.9 Financing

The PSO Program mainly uses existing administrative structures for the collection of the levy (and the payment of benefits). The ATO and the ACS collect the levy on domestic and imported oil products, respectively. Financing the Program on this basis therefore incurs only marginal additional administrative costs to government. In addition, by effectively imposing a 'polluter pays' levy on the sale of oils with the potential to generate environmental costs, the cost of financing the Program is offset.

The PSO Program is intended to be self-financing in that levy collections on lubricant oils sold in Australia are meant to fully offset expected benefit payments for recycled oil over the life of the Program.[73] The $66.7 million of levy collections over the current life of the Program (2000-01 to 2002-03) is well in excess of the corresponding benefit payments for those years ($20.7 million). On that basis, it

[73] Budget contributions may be made if benefit payments in any year exceed the accumulated pool of receipts from the levy.

appears that the prospect of recourse to Budget funding (with its attendant deadweight loss to society of the marginal excess burden of taxation) is highly unlikely in the immediate future of the Program.

However, differences in pre-implementation estimates of domestic lubricant oil sales and post-implementation sales volumes (see table 4.7) could have important implications for the longer-term financing of the Program.

Table 4.7

PRE-IMPLEMENTATION AND POST-IMPLEMENTATION LEVIED SALES OF LUBRICATING OILS

	2000-01	2001-02	2002-03	2003-04	2004-05
Forecast lube sales with levy	494	489	484	479	474
Actual lube sales with levy	n.a.	459	522	420 (est.)	420 (est.)
Percentage difference	-	(6.1)	7.9	(12.3)	(11.4)

Source: Department of the Environment and Heritage; Australian Academy of Technological Sciences & Engineering 2004.

Looking at the volume of oil levied, the first two full years of the Program's operation shows actual sales volumes have been marginally higher than initially forecast (981 ML compared with 973 ML). Estimates by the Australian Academy of Technological Sciences & Engineering, though, suggest that for the full years of the program's operation from 2001-02 to 2004-05, the total actual and estimated sales will be some 5.5 per cent below pre-implementation forecasts. The potential shortfall of total sales volumes below forecast levels over those years suggests a lower level of funds being collected than was initially envisaged.

The implications for the pool of levy collections and its ability to finance expected benefit payments is less dire than this comparison would suggest. This is because any reduction in oil sales will also result in a correspondingly smaller flow of oil to be recycled and, thus, a smaller call on accumulated levy collections.

In addition, two other factors appear to be outweighing the effect of likely lower sales volumes (and thus lower levy collections) in the longer term. These are:

- a slower-than-expected growth of recycling in the highest benefit oil use category (i.e. lube-to-lube); and
- the reported failure of substantial quantities of stockpiled oil to emerge for recycling in the initial period of operation[74] (as against the pre-implementation assumption that the bulk of the estimated 250 ML of such oil would be recycled in the first year).

These two factors in particular have led to a substantial excess of levy receipts over benefit payments to date.

[74] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

Assessing all these factors, the Review Team considers that the self-financing aspect of the PSO Program is not under threat and, thus, there is little cause to believe the Program's ongoing effectiveness will be compromised in this regard. This removes a degree of uncertainty otherwise attached to the Program if its future relied on Budget funding — particularly in an era when such funding is always likely to be critically reviewed.

It does, however, raise the issue of what might be done in response to the substantial — and apparently growing — excess of levy receipts over benefit payments.

4.10 Overseas transfers

The payment of benefits is based on Australian sales of recycled oil. The Review Team has no reason to believe that the recipients of the benefit payments would be disproportionately foreign owned relative to the economy in general, nor would be presented with a windfall gain that can be readily transferred overseas.

4.11 Additional risks

Compatibility with other regulatory schemes

In the *PSO Act*'s *Explanatory Memorandum* the PSO Program's objectives were lauded as being consistent with the Government's broader policy objectives under *Australia's Ecologically Sustainable Development*. Additionally, through Natural Heritage Trust programs, Australia is investing significant resources in environmental management programs to redress degradation issues. In this regard, the Program appears consistent with the goal of reducing environmental harm.

However, a perception expressed by some is that providing incentives to encourage the burning of used oil is inconsistent with beneficial environmental outcomes. This view has been challenged by the life cycle analyses presented in box 4.2.

The PSO Program is not at odds with other government policies designed to deliver improved environmental outcomes (e.g. such as the introduction of low sulphur fuels); they still operate and the use of recycled oils is fully cognisant of those policies and fully accommodates them within its operation.

Risk of undue reliance on lube-to-lube

The current benefit structure is heavily biased to stimulating re-refined base oil (the 'lube-to-lube' category). Re-refining used oil takes only about one third the energy required to produce lubricating oil from virgin material.[75] Initially justified on the basis of the superior environmental impact and resource consumption, the PSO benefit rate for this category implies a tenfold need for incentive in comparison to the next best category.

Leaving aside the question of whether the benefits of the lube-to-lube category are in fact of this magnitude, the current benefit structure brings with it considerable risk to achieving sound environmental outcomes. This might be viewed as an 'all the eggs in one basket' risk.

[75] United States Environmental Protection Authority 2004, *Wastes: Managing Used Oil*, viewed 18 May 2004, <http://www.epa.gov/epaoswer/hazwaste/usedoil/usedoil.htm>.

The technology for lube-to-lube recycling is such that some commentators believe that the Australian market can probably sustain only a single efficient scale plant.[76] The PSO Program is currently reliant on a single plant for the achievement of a substantial portion of future environmental benefits.

The cost of transporting used oil from Western Australia and other distant locations to a refining plant in the eastern states makes this option uneconomic. As a consequence it is important that alternative uses of oil are encouraged.

The first issue with such a scheme is whether it is indeed better to have a single plant operating at an optimal scale, or two (or more) sub-optimal plants which compete for the purchase of used oil and the sale of recycled oil.

The analysis shown in box 4.3 (next page) demonstrates that a preference for a single large recycling facility, while advantageous for the monopsonist facility owner, will harm the incentives for the collection of used oil. While having two or more recycling facilities will be less financially remunerative for the recyclers, this is precisely what the benefit payments are meant to address.

Relying on a single lube-to-lube facility poses significant risks. Australia has recently seen the consequences of catastrophic incidents in monopoly-type infrastructure facilities (e.g. the Longford disaster in Victoria, the gas explosion at the Santos facility in Moomba and the recent incident at an ethanol storage facility in Sydney). These highlight the potential for one incident to seriously disrupt or bring commercial failure to the lube-to-lube option. The possible consequences of such disruption or failure could severely compromise recycling in the short and longer term.

This scenario points to the need to have a benefit structure that supports a diversity of recycling options and facilities. Thus, a benefit structure which continues to provide incentives for new lube-to-lube recycling investments, even if those investments lack the scale to be operating at a least-cost scale, could provide a superior environmental outcome.

As has been the case in comparable economies overseas,[77] the trend in Australia is for stricter and more stringently enforced environment standards across a number of industries that rely on burning used oil. This regulatory trend is likely to constrain — and eventually, to significantly reduce — the use of recycled oil in some burning applications. This regulatory trend, however, is not consistent between jurisdictions in Australia.

4.12 International obligations

The Commonwealth Government is currently considering whether to be a signatory to the *Stockholm Convention on Persistent Organic Pollutants*. While this Convention has the potential to influence how Australia might deal with used oils in the future, it is premature to comment on any implications at this stage.

---

[76] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

[77] In the United Kingdom, from 2006, the European Union *Waste Incineration Directive* will prevent many recovered fuel oil users from burning it — Oakdene Hollins 2001, *UK Waste Oils Market 2001*, viewed 9 February 2004, <http://www.oakdenehollins.co.uk/tes2.html>.

Box 4.3

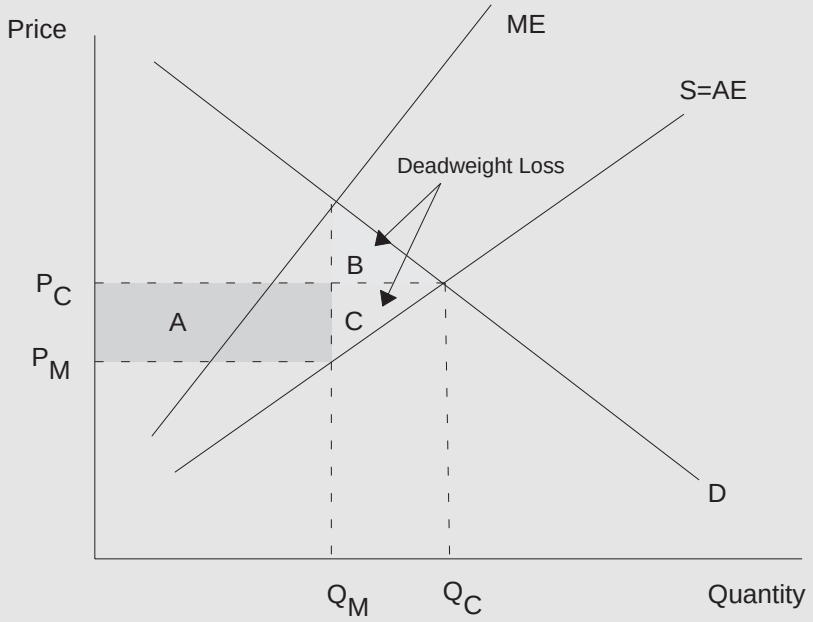
THE TRADEOFF BETWEEN OPTIMAL SCALE AND INCREASED COMPETITION

In the figure below, D represents the demand curve for used oil by recyclers.

When there are two recyclers it is assumed that they each operate in a competitive environment and supply of used oil (S) equates to demand for used oil (D). Thus, Q_C litres of used oil will be purchased from collectors at price P_C.

When there is a single recycler (i.e. a natural monopsonist) it will maximise its profits by equating the price of used oil with its marginal expenditure (ME) to determine the profit-maximising quantity it demands (Q_M), and by implication, the price of used oil (P_M).

In effect, moving from a competitive purchasing environment to a monopsony situation means that there will be lower prices for used oil collectors (i.e. $P_C > P_M$) and lower quantities of used oil sales (i.e. $Q_C > Q_M$).



It is assumed that in a competitive purchasing market the recyclers make zero 'economic' profits. In the figure, the area between the demand curve (D) and the price paid (P_C) represents the 'recycler surplus' (normally called the 'consumer surplus'). Similarly, the 'collector surplus' (normally called the 'producer surplus') accrues to used oil collectors and the area between the supply curve (S) and the price paid (P_C).

In a monopsony situation, the recycler and collector surpluses change due to the change in price and quantity:

- the collectors lose an amount of surplus, given by rectangle A, because of the reduced price. In addition, they lose the surplus given by triangle C because of reduced sales. The total loss for collectors is therefore A+C; and
- the recycler gains the surplus given by rectangle A by buying at a lower price. However, because of the lower quantity bought, there is a loss in recycler surplus represented as triangle B. Total gain for the recycler is therefore A-B.

Additionally, moving from a competitive recycling environment to a monopsony environment results in a lower total (i.e. recycler plus collector) surplus of B+C (referred to as a 'deadweight loss') because of the conscious decision to purchase less used oil than they feasibly could.

While this analysis suggests that monopsony situations are welfare destroying (i.e. there is a deadweight loss to the community of B+C), they can be welfare enhancing if the monopsonist can achieve sufficient economies of scale so that demand for the final product (i.e. recycled oil) leads to an increased demand for the input product (i.e. the used oil). Analysis by Sexton-Zhang shows that where there are such efficiencies, there is a very substantial wealth transfer from collectors to the recycler. Over a period of time, such a transfer would create a strong disincentive for potential collectors to enter the market or innovate, and hence there would be a long-run adverse competitive effect.

Source: Carstensen 2004; Sexton & Zhang 2001; Williamson 1968.

Part C

Reform options

Chapter 5

Broad reform options

This chapter considers a number of broad reform options that could be employed to achieve the PSO Act's section 3 objectives.

The conclusion to be drawn from chapter 2 is that there is a need for some form of legislative intervention in the market to regulate oil so as to achieve positive environmental outcomes.[78]

A threshold question for this review is the type of regulatory arrangements put into place by the *Act*.

There is now a general acceptance that 'economic' instruments are the most appropriate way to regulate:

> Instruments may certainly be labelled "economic" when they affect estimates of the costs and benefits of alternative actions open to economic agents. Their effect is to influence decision-making and behaviour in such a way that alternatives are chosen that lead to an environmentally more desirable situation than in the absence of the instrument. Economic instruments, in contrast to direct regulations, thus allow agents the freedom to respond to certain stimuli in a way they themselves think most beneficial. Indeed, if a certain environmental target is to be reached, economic instruments will at least in theory induce cost-effective behaviour.[79]

A clearer picture of an economic instrument arises by contrasting it with command-and-control instruments.[80] Command-and-control approaches to environmental problems include:

- design standards that require firms to use a particular technology;
- performance standards that specify a maximum amount of pollution from each polluter (or pollution per unit of some input or output); and
- outright bans on the use of something.

Obviously, command-and-control options provide incentives; they are necessarily accompanied by penalties for non-compliance, and so polluters have an incentive to comply to avoid the penalty. The main distinction between economic approaches and command-and-control approaches lies in the former's flexibility and the potential cost savings that result from allowing firms to respond to the incentives in different ways rather than forcing them all to do the same thing. The current *Act* embodies an economic approach in that it sets a number of subsidies and levies, and then encourages stakeholders to make decisions as whether to produce, recycle

---

78 This affirms the conclusion presented in the regulatory impact analysis accompanying the program *Bills* – see Hill 2000, *Explanatory Memorandum: Product Stewardship (Oil) Bill 2000; Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Excise Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Product Stewardship (Oil) (Consequential Amendments) Bill 2000*, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra.

79 Organisation for Economic Co-operation and Development 1994, *Managing the Environment: The Role of Economic Instruments*, OECD, Paris, p. 17.

80 Examples of command-and-control instruments could include: restrictions on the sale of oil so that only those people who can demonstrate that they are returning used oil to appropriate facilities can purchase oil; mandatory obligations on retailers of oil to accept the used oil; and so on.

and reuse within this framework. That is, economic instruments motivate firms to develop cheaper and more effective ways to reduce their waste or emissions.

The issue is whether the joint use of benefits and levies is the most appropriate economic instrument. The following sections consider a number of different economic instruments that could be used to achieve the product stewardship goals of the *Act*.

5.1 Principal options

Pigouvian tax

The quintessential incentive-based instrument is the Pigouvian tax.[81] A Pigouvian tax is levied per unit of emissions or waste, paid by each polluter on all units of its emissions or waste, and set at a rate equal to the marginal social costs of those emissions at the social optimum. The social optimum is the level of pollution or waste disposal where the extra benefit to society from eliminating another unit of the pollutant is exactly equal to the extra cost.

Although a Pigouvian tax has many desirable properties, there may be circumstances in which it introduces problems. One potential problem with a tax on waste disposal is that it could lead to illegal dumping.

Combined tax and subsidy schemes

An alternative policy that has many of the desirable features of a Pigouvian tax without the possible attendant dumping problem is:

- a product tax (e.g. a levy on virgin oil sales);
- with a recycling subsidy paid to consumers returning used oil to designated places (normally the place of purchase); and
- an obligation on designated firms (normally the place of purchase) to accept the used oil.[82]

This product tax-recycling subsidy policy is sometimes referred to as a deposit refund. In traditional deposit refund programs, consumers pay a deposit (tax) on a container at the time of purchase and receive a refund (subsidy) equal to their initial deposit when they return the container to a designated collection centre.

This combination of policy instruments has the two features of a Pigouvian tax that make it optimal:

- an output reduction effect — the product tax gives firms the incentive to produce less, and gives consumers the incentive to consume less; and

[81] See Pigou 1920, *The Economics of Welfare*, Macmillan, London.

[82] See: Calcott and Walls 2000, 'Can Downstream Waste Disposal Policies Encourage Upstream "Design for Environment"?' *American Economic Review: Papers and Proceedings*, vol. 90, pp. 233-7; Dinan 1993, 'Economic Efficiency Effects of Alternative Policies for Reducing Waste Disposal', *Journal of Environmental Economics and Management*, vol. 25, pp. 242-56; Fullerton and Kinnaman 1996, 'Household Responses to Pricing Garbage by the Bag', *American Economic Review*, vol. 86, pp. 971-84; Palmer and Walls 1997, 'Optimal Policies for Solid Waste Disposal: Taxes, Subsidies, and Standards', *Journal of Public Economics*, vol. 65, pp. 193-205.

- an input substitution effect — the product tax and recycling subsidy give firms the incentive to substitute recycled inputs for virgin inputs in production, and also gives consumers the incentive to consume less and recycle more.[83]

An approach with similar results but probably lower administrative costs for many products is an upstream combined tax-subsidy (UCTS).[84]

The difference between a UCTS and a traditional deposit refund scheme (i.e. the South Australian refund scheme) lies mainly in where in a product's life-cycle the tax and subsidy are placed. In Palmer *et al*, the UCTS combines a tax (i.e. deposit) on produced intermediate goods with a subsidy (i.e. refund) granted to collectors of used final products who subsequently sell the goods for reprocessing.[85] In the case of the PSO Program the tax is on final consumers, and the subsidy is provided to the recyclers.

Although the tax and subsidy need not necessarily be levied directly on consumers, consumers feel the effect through higher product prices, and if the tax is levied by volume then consumers can be expected to adjust their purchasing behaviour and favour lower consumption levels.

Tradeable certificates

Another policy instrument known for its potential to spur input substitution — often called 'design for environment' (DfE)[86] — is a tradable recycling credit system. Tradable recycling credits are similar in spirit to tradeable emissions permits.[87] One important difference between the two approaches is that a tradeable emissions permit system typically is associated with a cap on total emissions from all sources with trading allowed between sources, whereas a tradeable recycling credit system imposes a minimum recycling level or rate on a particular industry and allows trading between responsible parties to reduce the cost of achieving that minimum level.

A consultancy was recently undertaken to assess whether there is scope for the use of a tradeable certificate system in place of the current arrangements (see box 5.1, next page).

---

[83] For good discussions of the output and substitution effects, see: Fullerton 1997, 'Environmental Levies and Distortionary Taxes: Comment', *American Economic Review*, vol. 87, no. 1, pp. 245-51; Spulber 1985, 'Effluent Regulation and Long-Run Optimality', *Journal of Environmental Economics and Management*, vol. 12, no. 2, pp. 103-16.

[84] The UCTS described here is similar to the two-part instrument advocated in Fullerton and Wolverton 1999, 'The Case for a Two-Part Instrument: Presumptive Tax and Environmental Subsidy', in Portney and Schwab (eds), *Environmental Economics and Public Policy: Essays in Honor of Wallace E. Oates*, Edward Elgar, Cheltenham, They envision a combination tax on 'dirty' production and a subsidy for recycling or 'clean' production that can be implemented upstream in the production process; this system avoids transaction costs.

[85] Palmer, *et al.* 1997, 'The Cost of Reducing Municipal Solid Waste', *Journal of Environmental Economics and Management*, vol. 33, p. 128–50.

[86] Environment Australia 2001b, *Production Innovation: The Green Advantage - an Introduction to Design for Environment for Australian Business*, Department of the Environment and Heritage, Canberra.

[87] See Tietenberg 1985, *Emissions Trading: An Exercise in Reforming Pollution Policy*, Resources for the Future, Washington D.C.

Box 5.1

A TRADEABLE 'USED OIL CERTIFICATES SYSTEM'

A tradeable certificate system

Under a tradeable certificate system, Producers are required to hold certificates that they have achieved, either directly or through a third party, by recycling a certain percentage of their new product. The Regulator issues the certificates to Recyclers who are undertaking appropriate and approved reuse activities. The Producers then need to purchase certificates from the Recycler to satisfy their product stewardship obligations. This adds value to the market which is captured internal to it. The disadvantages of a tradeable certificate system include its apparent complexity and a greater exposure to commercial risk by Producers. There may also be cash flow difficulties for a Recycler, based on the long accounting period needed to determine the certificate debt of the Producer. Advantages include a light legislative hand on the market, the capturing of greater value within the market, and the potential for new markets to arise. One of the more significant advantages is the ease and flexibility of setting and measuring recycling targets.

A hybrid levy-tradeable certificate system

Most of the disadvantages of a tradeable certificate system can be overcome by including components of the levy system. Such a hybrid system would function by setting a levy on new lubricant product put onto the domestic market. This levy, which could be paid by Producers to the Regulator on a regular basis, for example bi-monthly, would be available for distribution to different players in the industry according to market circumstances. The levy would thus be the primary short term mechanism for ensuring effective market operations. Value is added to the used oil market quickly and does not need to wait until certificates are purchased, that is, near the end of an accounting period. The Regulator would also issue tradeable certificates to Recyclers undertaking acceptable activities. As with a 'pure' tradeable certificate system, the Producers would be required to hold a known quantity of certificates at the end of the accounting period. The certificates would thus be the primary mechanism for ensuring that product stewardship by the Producers achieved the level set for them in that accounting period. A specific recycling target can be set, measured, audited and adjusted by the Regulator. The hybrid system can be viewed as the levy adding value to the oil in the system, and the tradeable certificates adding value to the system overall.

Source: McLennan Magasanik Associates & BDA Group 2003, p. i.

5.2 Assessment of options

In seeking to address problems about inappropriate disposal and reuse, any scheme should seek to:

- reduce the demand for the product that generates the costs (virgin oil in this case);
- provide incentives for producers to reduce their production of the problematic product, particularly by substituting less harmful inputs and approaches;
- avoid creating incentives for the inappropriate use of the product (i.e. to encourage appropriate uses of used oil); and
- have low administration and compliance costs.

The options identified in the previous section were considered against these characteristics, as shown in table 5.1 (next page).

Table 5.1

ASSESSMENT OF ALTERNATIVE PSO PROGRAM MODELS

Option	Reduce demand	Reduce production	Avoid dumping	Low administration and compliance costs
Pigouvian tax	*Yes* Taxing the end user reduces demand, although the degree will depend on the level of the tax	*No* Taxing the end user provides no incentive for the producer to seek to reduce reliance on virgin oil	*No* There is no incentive for the end user to return the used oil, or for any party to collect the used oil	*Yes* Use of the tax system allows existing administrative mechanisms to be employed. Reliance on the tax system also means that changes in tax and administration and compliance costs will flow through to the Program
Deposit refund	*Yes* Taxing the end user reduces demand, although the degree will depend on the level of the tax	*Yes* Faced with having to deal with used oil, producers will have an incentive to seek to minimise its creation	*Yes* Provision of an incentive for collection (i.e. a refund) reduces the incentive for the dumping of used oil by end users	*No* Experience suggests that compliance costs can be significant for industry
Upstream combined tax-subsidy	*Yes* Taxing the end user reduces demand, although the degree will depend on the level of the tax	*No* Taxing the end user provides no incentive for the producer to seek to reduce reliance on virgin oil	*Yes* Provision of an incentive for collection (i.e. a subsidy) reduces the incentive for the dumping of used oil by encouraging recyclers to support its collection	*Yes* Use of the tax system allows existing administrative mechanisms to be employed. Reliance on the tax system also means that changes in tax and administration and compliance costs will flow through to the Program
Tradeable certificates	*Yes* Costs of collection are internalised and so the impact will be higher prices for end users of oil, and so a reduction in demand	*Yes* Faced with having to deal with used oil, producers will have an incentive to seek to minimise its creation	*Yes* Requiring producers to hold certificates that represent a certain percentage of recycling provides an incentive for producers to support recyclers, and in turn to support collectors of used oil	*No* The need to set up a regulator imposes additional administration costs, and industry compliance costs will be higher

The assessment of the options in table 5.1 suggests that no option is likely to be a perfect response to the problem of used oil.

For example, it is difficult to choose between a UCTS scheme which maximises incentives for the collection of oils, and a take-back scheme which maximises the potential for product redesign (i.e. the sale of recycled and blended oils). This is an acknowledged challenge as:

> providing incentives for DfE is very difficult and could be prohibitively costly. Requiring take-back and recycling of products by individual firms is likely to be expensive. But systems that collectively manage products through a third-party organization provide, at best, only minimal incentives for DfE. We believe it would be very difficult to design a policy that is flexible and inexpensive to implement that also provides efficient incentives for DfE. In our opinion, policymakers in the United States and elsewhere need to acknowledge the difficulty in designing such a policy and the trade-offs between flexibility and low cost on the one hand, and increased incentives for DfE on the other. We think it may be impossible to design a program that does it all.[88]

While deposit refund schemes appear attractive because they promote production substitution, it is important to note that in most deposit refund schemes the incentives for product substitution can be significantly muted because of the way the programs are implemented. For example, it is often the case that:

- individual producers do not recycle their own products at end-of-life, nor do they pay the cost of recycling their own products; and
- third-party organisations arrange collection and recycling of all member firms' products jointly.

Thus an individual firm has little incentive to redesign its products because the costs are borne by the firm itself while the benefits are reaped by everyone.

Calcott and Walls' modelling of producer design choices that affect product recyclability found that if recycling markets work perfectly — i.e. if recyclers pay consumers for used products and the prices they pay vary with the degree of product recyclability — then either a Pigouvian tax on disposal or a UCTS can yield a first-best, efficient level of waste disposal, recycling, and design for environment.[89]

If, however, recycling markets do not work perfectly — i.e. if it is too difficult and costly for recyclers to pay prices that vary with the degree of the products' recyclability — then a first-best outcome cannot be reached. The Review Team considers that the used oil recycling market is not perfect for a number of reasons:

- it is costly to collect and transport used oil; and
- it is difficult for recyclers to sort used oils according to their recyclability and pay consumers a price based on that degree of recyclability.

Calcott and Walls find that although transaction costs in recycling markets preclude achieving the social optimum, a constrained, second-best optimum can be reached. A UCTS combined with a disposal tax set at less than the Pigouvian rate

---

[88] Palmer and Walls 2002, *The Product Stewardship Movement: Understanding Costs, Effectiveness, and the Role for Policy*, Resources for the Future, Washington D.C., p. 41.

[89] Calcott and Walls 2000, 'Can Downstream Waste Disposal Policies Encourage Upstream "Design for Environment"?' *American Economic Review: Papers and Proceedings*, vol. 90, pp. 233-7; Calcott and Walls 2001, *Waste, Recycling, and "Design for Environment": Roles for Markets and Policy Instruments*, Resources for the Future, Washington D.C.

— i.e. less than the full marginal social costs of disposal — will achieve the second-best outcome.[90]

Given this finding, and the risk of dumping associated with a Pigouvian tax, the Review Team supports this preference for a UCTS above a Pigouvian tax.

The issue for consideration then becomes one of determining if a tradeable scheme is preferential to a UCTS.

The analysis presented by McLennan Magasanik Associates and the BDA Group supported the view that it would be feasible to implement a tradeable used oil certificates scheme (UOCS) that addressed a number of concerns raised by stakeholders.[91] However, the consultant noted that:

> Although a workable UOCS could be implemented, the benefits of moving away from the current levy/benefit scheme to a UOCS are more difficult to assert. Both the current arrangements and a UOCS could theoretically result in the same outcomes at broadly similar cost.
>
> - Slightly higher administrative costs and higher compliance costs for small recyclers. The higher costs arise from the costs of setting up a trading system and monitoring compliance. Recyclers will also need to be educated in the market and will need to dedicate staff to the registration and trading of certificates.
>
> - Opening up of lower cost collection and recycling options by engaging producers directly with the recycling of used oil. Whether or not this would lead to lower compliance cost, it is a key objective of the product stewardship program.[92]

Given the comparable nature of the likely net benefits attainable under either approach, it is suggested that the choice boils down to whether the focus of the regulatory scheme should be to provide certainty as to the quantities recycled or the compliance costs (see figure 5.2).

Table 5.2

SHOULD THE REGULATORY APPROACH BE CONCERNED WITH CONTROLLING RECYCLED QUANTITIES OR COMPLIANCE COSTS?

	Controlling quantities	Controlling compliance costs
Why it is important	The objective is to increase recycling levels, and given the data uncertainty this would be advantageous	As there is uncertainty compliance costs can be incrementally adjusted (via the benefit payments) to see marginal improvements
Why it is not so important	It is acknowledged that Australia is already a world leader in the percentage of oil recycled, and so the precise level is not so significant	

[90] Calcott and Walls also found that an alternative policy instrument yields the constrained optimum: a UCTS in which the product tax takes on one of two rates depending on whether the product is recyclable enough to be accepted by processors — i.e. processors do not incur a loss if they recycle it. The tax on products that do not reach that recyclability threshold is the standard Pigouvian tax and thus can be viewed as an advance disposal fee. Products that meet the threshold receive a subsidy when they are recycled that is equal to the tax paid up front.

[91] McLennan Magasanik Associates and BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

[92] Ibid., p. 51.

Given the already high level of recycling and the information gaps that preclude the setting of a specific recycling target,[93] the need to control quantities is reduced. Thus, an incremental approach is preferred that focuses on controlling compliance costs, and so the existing levy/benefit arrangements are supported. This is also the view of McLennan Magasanik Associates and the BDA Group:

> The current arrangements have delivered a high level of used oil recovery at modest cost. There is strong stakeholder support for the arrangements and scope to increase recovery levels within the current levy collections. To move to a new policy regime would require demonstrable net benefits, which are not yet apparent.[94]

As a result, the Review Team does not recommend a move to a tradeable permit scheme at this time.

Given this position, there are two outstanding design issues.

Firstly, it is necessary to decide whether the subsidy should be provided to:

- collectors of used oil; or
- recyclers of used oil.

While in a world of zero transaction costs it should not matter which party receives the subsidy,[95] in practice this is a key program design issue. In the absence of the provision of the transitional assistance arrangements, the Review Team would give serious consideration to subsidising both the collection and recycling of used oil. However, given that the transitional assistance arrangements have been an effective subsidy to collectors,[96] and the priority has been to support the development of increased recycling capacity, the financial support of the recyclers is considered appropriate.

Some submissions to the Review argues that a benefit should be paid to collectors of used oil. These submissions advised that payments by refiners and reprocessors to some collectors have not kept pace with inflation. However, as the demand by refiners for used oil increases, it is possible that the price paid to collectors may increase.

Secondly, it is necessary to decide whether the subsidy should be provided as a direct expenditure (i.e. as a Budget line item) or as a tax expenditure through the excise system. The Commonwealth Treasury has previously expressed the view that subsidy arrangements are best handled through direct expenditures rather than through the excise system. This is a consistent position put by Treasury across a range of policy areas because:

---

93 See the discussion of targets for oil recycling in Office of Regulation Review 1991, *Response to ANZEC's Draft Report on Waste Lubricating Oil and Used Tyres*, Industry Commission, Canberra. The failure to provide a range of reliable industry volume statistics reinforces the perception that it is difficult to set and monitor accurate targets. Furthermore, the inability of any stakeholder to precisely quantify the risks associated with used oil (although it is commonly understood that risks exist) means that it is not yet possible to say whether any particular target is or is not 'an acceptable pollution risk'. The submission of the Western Australian Local Government (Municipal Waste Advisory Council) Submission provides a contrary view.

94 McLennan Magasanik Associates and BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

95 Coase 1960, 'The Problem of Social Cost', *Journal of Law & Economics*, vol. 1, no. 1, pp. 1-44.

96 However, some smaller collectors (Campbell Wrecking and Towing, Environmental Waste Recycling and Northern Lubequip) have expressed criticisms.

> The significance from a public policy perspective is that even though tax expenditures are *effectively* equivalent to direct government spending, and in some cases are alternatives, they largely escape the detailed parliamentary scrutiny and accountability processes associated with budgetary outlays.[97]

While there have undoubtedly been some problems associated with the use of tax expenditures across a range of policy areas, the Review Team considers that the major concerns with tax expenditures are not overly relevant to the PSO Program because:

- the PSO Program and the excise system are highly transparent:
  - the Department publishes an annual report on the PSO Program and its expenditures;
  - OSAC oversees the Program's operations and reports to the Minister;
- the expenditure through the excise system is constrained — over the life of the program the expenditure is to be capped by the amount recovered through the levy. This is an important characteristics that distinguishes the PSO Program from many other tax expenditure arrangements;
- the expenditure through the excise system is well targeted;
- the administration of the PSO receipts and payments by ATO reduces administrative costs.

Indeed, even though critical of the use of tax expenditures, Smith acknowledges that:

> tax expenditures might be a useful tool of government policy in some circumstances. For example, such expenditures may be preferred where the tax system provides a natural means test and a ready-made administrative system that avoids creating a new agency. Tax expenditures may be most effective where the program objective is to provide assistance to a clearly defined but broad category of activities or taxpayers. Tax expenditures suggest themselves as a policy tool when wide access, a lack of stigma and high take-up rates are design priorities, and where limiting fraudulent or ineligible claims is a lesser priority.[98]

The Review Team considers that these characteristics apply well to the use of the excise as the mechanism by which PSO benefits are paid.

---

[97] Smith 2003, *Tax Expenditure: The $30 Billion Twilight Zone of Government Spending*, Research Paper No. 8 2002-03, Department of the Parliamentary Library, Canberra, p. 1. Emphasis in original.

[98] Ibid., p. 33.

Chapter 6

Specific reform issues

Accepting the merit in maintaining the continuation of the broad framework currently embodied in the PSO arrangements, this chapter looks at specific reform issues that may need to be addressed to enhance the efficiency and effectiveness of the Program.

6.1 Data reliability

As noted in section 4.8, an ongoing concern in the development of the PSO Program, and the ongoing monitoring of the Program's impacts, is the continuing differences in oil-related data collected by Commonwealth agencies, particularly when compared to commonly understood industry experiences. While steps have been taken to seek to address these deficiencies, greater vigilance is required.

Recommendation 1

Greater efforts by Commonwealth departments and agencies need to be made to ensure that statistics on the volumes of oil produced, imported and sold are consistent and are universally accepted as accurate.

6.2 Benefit categories and levels

The benefit levels currently provided were only committed for the first year, and were potentially subject to revision, although such a revision never occurred.

The Review Team suggests that the benefit levels should reflect the:

- cost of the refining/recycling processes;
- environmental impact of the reuse of oil;
- lack of neutrality in the excise regime;
- cost of capital, where excise has to be paid and then claimed back;
- need to encourage new uses of used oil (e.g. the re-refining of lube oil); and
- goal of equalising the levy funds collected and the benefit payments are broadly equal over the longer term.

The degree to which these factors have changed since the *Act*'s introduction are briefly considered in table 6.1 (next page).

Table 6.1

FACTORS AFFECTING BENEFIT LEVELS

	Change	Comment
Cost of the refining/recycling processes	The production cost estimates in table 4.1 suggest that production costs have fallen significantly for lube-to-lube, increased slightly for low grade oils, but have otherwise remained relatively constant	This change implies that there is scope for the benefit for lube-to-lube to be reduced (or the differential between lube-to-lube and other benefits to be reduced)
Environmental impact of the reuse of oil	Since the *Act*'s introduction there is a greater appreciation that high temperature burning applications are, in environmental life cycle terms, not significantly different to lube-to-lube recycling applications (see box 4.2)	This change in understanding suggests that the benefit differential between lube-to-lube and high grade burning oil is not justified on environmental grounds
Lack of neutrality in the excise regime	No significant change	
Cost of capital, where excise has to be paid and then claimed back	No significant change	
Need to encourage new uses of used oil	There is evidence that lube-to-lube recycling is now coming on line (see section 4.6)	This suggests that the 50 cents/litre benefit is providing an appropriate stimulus
Goal of equalising the levy funds collected and the benefit payments are broadly equal over the longer term	Benefit payments have significantly lagged levy revenues	This would appear to provide scope to: • increase payments for some benefit categories; • reduce the levy for some or all benefit categories. The issue is whether any such changes would pose a problem over the longer term financial balance of the Program

While it does not use the language of 'acceptability' and 'unacceptability' when referring to particular forms of recycling and reuse, by providing vastly different benefit levels, this is in fact what the PSO Program does. Although in the context of a critique of suggested recycling targets,[99] the Commonwealth Office of Regulation Review has previously been critical of such an approach because:

[99] See Australia and New Zealand Environment Council (ANZEC) Oil and Tyres Task Force 1991, *Waste Lubricating Oil, Used Motor Vehicle Tyres, Recycling and Reuse: Draft Report*, Adelaide.

> policies based around the categorisation of end-uses into acceptable and unacceptable are potentially inefficient. As noted above, the benefit-cost ratio of different end-uses will vary from circumstance to circumstance. A simple acceptable/unacceptable categorisation based on average outcomes, even if these could be reliably determined, would therefore be inappropriate in individual cases. Further, the 'acceptability' approach potentially impedes competition and effects technological development. If exemption from the unacceptable category is not easily forthcoming, domestic research and innovation into new uses of waste oil may be impeded and possible benefits to the community forgone. In the ORR's view, acceptability and value should be determined by individuals weighing up the benefits and costs of different uses, subject to appropriate government intervention to account for the external environmental and other economic affects of their activities.[100]

This criticism seems to imply that there should be no differential payments for alternative recycling and reuse approaches.

This is too narrow an approach; there may be validity in differentiating uses according to differential demonstrable environmental harm.[101]

In this case, however, the Review Team has been provided with no substantive environmental evidence that justified the differential levy benefit levels currently specified in the *Act*.

As noted in section 4.11, since the introduction of the PSO Program a number of life cycle analyses have been undertaken of oil. These analyses suggest that lube-to-lube recycling, which is explicitly favoured in the PSO Program, is likely to be the most beneficial form of recycling, but that high temperature burning of used oil and the burning of high grade reprocessed oils at lower temperatures provide similar (or at least only slightly smaller) environmental benefits. This in turn suggests that the existing differential, at least lube-to-lube versus high grade burning oil, should be narrower.

The Review Team has also considered whether the nine PSO benefits categories should remain. Since the permissible sulphur content of diesel used in on-road transport applications has been reduced it is unlikely that there will be claims for PSO benefits in relation to categories 3 and 4 but it may be possible to use diesel recovered from used oil and diesel extenders in other applications. The Review Team also considered discontinuing Category 6 (low grade burning oils) but came to the view that there are still some circumstances where this Category is acceptable. However, it appears necessary to distinguish more clearly between Categories 5 and 6 (see below).

The Review Team has reached the view that:

- the advantage (as expressed by the benefit paid) for lube-to-lube recycling is not as significant as was originally envisaged when the PSO Program was introduced, but is sufficient given current market circumstances (particularly as stakeholders with an interest in lube-to-lube recycling are not calling for an increase, and acknowledge that the benefit may be reduced over time); and
- the benefit available for high grade burning oil is too low relative to the benefits available for lube-to-lube oil recycling.

Recommendation 2

The benefit rate for high grade burning oil should be increased relative to the benefit rate for lube-to-lube oil.

[100] Office of Regulation Review 1991, *Response to ANZEC's Draft Report on Waste Lubricating Oil and Used Tyres*, Industry Commission, Canberra, p. 5.

[101] Apparently acknowledged by the ORR in Ibid., p. 4.

In order to ensure that this new benefit is paid only for those reprocessed oils that will not create environmental problems when burned, it may be necessary to either specify the processes which must be used to qualify for this benefit, or to set a quality standard which this processed oil must meet.

It is estimated that implementation of Recommendation 2 might not be completed until late in 2005. If this were the case, it would take effect about the same time as the changes in excise arrangements scheduled for January 2006. Implementation of Recommendation 2 in this time scale would be expected to make it unnecessary to make further changes to the *PSO Act* in order to compensate for the January 2006 changes in excise.

Financial modelling undertaken for this review (see appendix D) considered a number of possible benefit and levy scenarios. The analysis is predicated on the following core methodological and quantitative assumptions:

- the base case market scale (i.e. with no change to the levy or benefit rates) is as forecast by the Australian Academy of Technological Sciences & Engineering in the recent transitional assistance review;[102]
- change should be appropriately targeted to both address the key identified deficiencies and to reduce changes that may undermine market confidence;
- the levy rate should not be increased (although this assumption is relaxed in section 6.3); and
- a prudent financial buffer should be maintained — i.e. there is a bias to capturing more levy revenue than the level of benefit and transitional assistance paid out — so as to provide some financial flexibility in the event that benefit claims exceed projections.

The Review Team's modelling suggests that it would be feasible to increase the high grade burner oil benefit to somewhere in the vicinity of 14 to 15 cents per litre. This quantum is in the range identified by Transpacific Industries:

> Given that there is indeed a higher level of infrastructure required to produce such [high grade burner] fuels there needs to be higher reward for effort. Based on our analysis of margins as they currently exist we suggest an increase in the order of 15 to 20 cents per litre.[103]

Similarly it is, at the upper end, consistent with the benefit rate suggested by Triple R Waste Management and Australian Waste Oil Refineries.

It is slightly lower, however, than the levels suggested by some other stakeholders.[104]

The revised subsidy for high grade burning oil may mean that low temperature burners (e.g. in greenhouses) substitute the now cheaper high grade burning oil for their traditional low grade burning oil. On the face of it, this is a positive environmental outcome because high grade burning oil is less polluting than low grade burning oil. However, if such low temperature burners would have instead substituted natural gas instead of low grade burning oil, then the shift to high grade

---

[102] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra, p. 49.

[103] Transpacific Industries Submission.

[104] For example, Wren Oil Submission

burning oil is less environmentally advantageous. The Review Team is confident that an increased subsidy for high grade burning oil will not cause a substitution away from natural gas, and so will have beneficial environmental outcomes.[105]

Another benefit issue addressed by a number of stakeholders related to whether the benefits should be explicitly structured to encourage collection in remote areas.[106] For example, Interactive Environmental Solutions suggests that 'A distance based benefit should be developed to support the additional collection costs for rural used oil collections.'[107] The Review Team does not support such a change in the PSO Program. An increase in the benefit level for high grade burner oil will extend the range of economic collection locations, and so will make some rural and remote collection points feasible where, with the present level of subsidy they are not. Any special benefit for regional collections would:

- create additional administrative costs; and
- would promote the collection of used oil from uneconomic or marginally economic sites in preference to first collecting oil from slightly more marginal sites. This would represent, in effect, a decline in industry efficiency for no particularly different environmental gain.

In order to ensure that this higher rate of benefit is paid only in relation to used oil which has been appropriately processed, it is proposed that either:

- acceptable processes are prescribed; or
- a quality standard, possibly based on a measurement of ash content is defined in the legislation.

6.3 Levy rates

The PSO Program currently provides for a single levy rate of 5.449 cents per litre.

While there is no financial need to increase the levy at this stage, or in the foreseeable future, the flexibility to increase the levy should be available in the event that an increase is considered necessary (particularly given the additional PSO expenditure that will be incurred because of Recommendation 2).

That said, there is some attraction in rounding the levy to a rate that does not provide a false level of precision, and which is more easily accommodated by business accounting software (see section 4.4).

With the choice to round the levy up or down, the preference is to round up because it would provide marginal (and likely very marginal) benefits in reducing the attractiveness of purchasing oil. Financial modelling shows that rounding the levy to 5.5 cents per litre would have a negligible impact on the scheme's financial viability. There is a case for making this change and the cost implications for consumers are negligible.

[105] Transpacific Industries Submission.

[106] Submissions by Interactive Environmental Solutions and Northern Lubequip and possibly supportive comments in The Centre for Appropriate Technology submission.

[107] Interactive Environmental Solutions Submission.

6.4 Legislative terminology

What oils should fall within the PSO Program?

Given the focus of the PSO Program on the recycling and reuse of used oil it is reasonable to suggest that the PSO levy should not normally be payable on oil that:

- poses no (or negligible) environmental impact — this suggests that vegetable oils should not be covered by the PSO Program; and
- can't be reused or recycled — this suggests that synthetic oils should not fall within the PSO Program.

However exceptions may arise where there are verification problems (i.e. it is difficult to separately identify the quantities of such oil).

In the *Consultation Draft* the Review Team suggested the following Preliminary Recommendation: '*The PSO Act should be amended to clearly provide that it applies to mineral oils (i.e. not vegetable oils or oils not derived from base lube oil).*'[108]

There was a mixed response to this suggestion. Some stakeholders agreed with the proposal,[109] while others expressed some concerns about its practical implementation:

- Australian Waste Oil Refineries noted that 'Care should be taken in this recommendation not to exclude synthetic oils or they are a part of the used oil chain and are very hard not to collect as they are mixed with normal oils at the point of collection.'
- the Australian Institute of Petroleum recommended that 'rather than a blanket exemption for vegetable-based lubes, the *PSO Act* allows for an exemption on a case-by-case basis, based on a demonstrated level of environmental impact; in considering any exemption, the risk of opening up loopholes for excise evasion should be carefully analysed'.

One submission expressed outright opposition to the Preliminary Recommendation:

> Cannot agree with this recommendation given that synthetic oils and other oils used in the lubrication of plant and equipment will become contaminated and will require to be properly collected, recycled and or disposed of and therefore should not be exempt of paying levy on sale.[110]

Given that there are clearly some concerns about the practical implementation of Preliminary Recommendation 3, the Review Team nevertheless believes that there is a need to clearly state that oils solely of vegetable origin should not be included within the PSO Program, leaving within the Program synthetics and vegetable oils where these are blended with mineral oils.

Recommendation 3

The PSO Act should be amended to clearly provide that it does not apply to vegetable oils.

---

[108] The Allen Consulting Group 2004, *Independent Review of the Product Stewardship (Oil) Act 2000: Prepared for the Minister for the Environment and Heritage*, Consultation Draft, The Allen Consulting Group, Sydney, p. 60.

[109] Submissions from Wren Oil, Australian Oil Recyclers Association and Fuchs Lubricants (Australasia).

[110] Transpacific Industries Submission.

Other changes to the PSO Act

In order to ensure that Category 1 benefits flow to only those refiners that are producing lubricating oils of a quality and performance that meet the requirements of engine manufacturers. The *PSO Act* (or possibly Schedule 1) should be amended to define the term re-refining. This can be achieved by indicating that, in order to qualify for a Category 1 benefit, the oil must include either thin (or white) film evaporation or vacuum distillation, followed by either solvent extraction or hydrofinishing. Propane de-asphalting as a stand-alone process is not considered to be re-refining unless it were to be followed by fractionation/cracking. Similarly acid/clay treatment is not considered to be re-refining as a stand-alone process. It also creates toxic waste — a serious environmental drawback.

This change will ensure that the only re-refined lube oil subsidised by the PSO Program is of a high standard, which should engender confidence on the part of consumers.

A further legislative provision would allow the Minister to approve the substitution of other processes that are able to produce comparable outcomes.[111]

Recommendation 4

The PSO legislation should be amended to require that the processes used by claimants of Category 1 benefits must include either thin film evaporation or vacuum distillation, followed by either solvent extraction or hydrofinishing. There should also be a provision to allow the Minister to approve the substitution of other processes that are able to produce comparable outcomes.

6.5 The Oil Stewardship Advisory Council

The need for legislative backing

The role of OSAC is set out in section 12 of the *Act*:

> The functions of the Advisory Council are:
>
> (a) to advise the Minister on the product stewardship arrangements for oils; and
>
> (b) to advise the Minister in relation to the recovery and recycling of waste oil; and
>
> (c) to advise the Minister in relation to regulations under section 10 (working out the amount of product stewardship benefits); and
>
> (d) to advise the Minister on the state of the oil production and oil recycling industries; and
>
> (e) to give the Minister advice on such other matters as are specified by the Minister; and
>
> (f) to perform such other functions as are conferred on the Advisory Council by this Act or any other Act.

Consistent with its name, section 12 clearly indicates that the role of OSAC is as an advisory body.

At issue is whether OSAC needs to have legislative backing.

Stakeholders will generally participate in advisory bodies when:

- they see it as being in their commercial interest; and/or
- they see it as being consistent with their broader interests and/or objectives.

[111] SWB submission.

While the Review Team suggests that there is no particular need for OSAC to have legislative backing, and the Review Team would not have supported its legislative foundation at the time of the *Act*'s development, withdrawal of the legislative support for OSAC at this point could be seen as representing a threat to a working government-industry relationship. As such, the Review Team recommends the retention of OSAC within the *Act*.

Membership

Subsections 14(2) and (3) of the *Act* provide that:

> (2) The Minister must ensure that the membership includes the members representing the following:
>
> (a) the Commissioner;
>
> (b) the Commonwealth;
>
> (c) a national organisation representing oil producers;
>
> (d) a national organisation representing oil recyclers;
>
> (e) the users of recycled oils;
>
> (f) the body known as the Australian and New Zealand Environment and Conservation Council;
>
> (g) local government;
>
> (h) a national consumer organisation;
>
> (i) a national non-governmental organisation that has a substantial interest in sustainable industry.
>
> (3) The Minister must ensure that a majority of the members are not persons employed by the Commonwealth or Commonwealth agencies.

There are three principal problems with this membership list.

Firstly, one problem arises, in the requirement that there be a representative from the Australian and New Zealand Environment Conservation Council (ANZECC). Formed in 1991, ANZECC was a non-statutory Ministerial Council that provided a forum for member governments to exchange information and experience and develop coordinated policies in relation to national and international environment and conservation issues. ANZECC consisted of the Commonwealth, State, Territory, New Zealand and Papua New Guinea Ministers responsible for the environment and conservation. The Australian Government was represented on the Council by the Environment Minister and the Minister responsible for the CSIRO. From 2001, ANZECC is no longer an active Ministerial Council, and hence its reference in the *Act* is inappropriate. While the 2001 *Administrative Guidelines* suggest that the membership is open for an ANZECC representative 'or its equivalent',[112] this view is not supported by the *Act*.

Secondly, the Review Team is also concerned that the other stakeholders listed in subsection 14(2) are somewhat prescriptive through the reference to national representation (see subsections 14(2)(c), (d), (h) and (i)). The Review Team suggests that, while national representation would be advantageous, and should be

[112] Environment Australia 2001a, *Product Stewardship Arrangements for Waste Oil, Report for the Period 1 January 2001 to 30 June 2001*, Canberra.

a goal of the Minister, the *Act* is too prescriptive in requiring such national representation.

Thirdly, some concern has also been expressed that OSAC's membership is too large. While a large membership may have a number of negative consequences (e.g. more potential for conflict of interest, it makes it harder to get consensus, it is harder to organise convenient meeting dates), it provides a more representative outlook on what is a complex and diverse industry. It is the Review Team's view that a reduction in the number of OSAC members (from government and/or the private sector) would threaten the Council's legitimacy and effectiveness with no significant cost savings.[113]

The Review Team suggests that the *Act* should be amended to provide that:

> (2) A person is not to be appointed as a member unless he or she appears to the Minister to be qualified for appointment because of his or her knowledge of, or experience in, one or more of the following fields:
>
> (a) oil production;
>
> (b) oil recycling;
>
> (c) oil use;
>
> (d) environmental protection;
>
> (e) local government;
>
> (f) the Commonwealth Government;
>
> (3) The Minister must ensure that:
>
> (a) a majority of the members are not persons employed by the Commonwealth or Commonwealth agencies;
>
> (b) there is a mix of knowledge and experience among the members.

Recommendation 5

Subsection 14(2) of the PSO Act should be amended to provide the Minister with greater flexibility as to the size and representative mix of the Oil Stewardship Advisory Council.

The Review Team considers that, should the Minister decide that the representation on OSAC should change, such change would be progressive as current members' terms expired.

One government agency further suggested that there may be a problem with OSAC's operation in that individual specified members are appointed, rather than the organisations that they represent. As such, there is no formal ability to allow an alternative person to represent the member (or his or her organisation) should their absence be unavoidable. The OSAC steering group suggested that this was not a problem in practice. The Review Team considers that the specification of individual members remains appropriate, but that there should be some scope for the member to nominate a proxy should the need arise on an *ad hoc* basis.

Recommendation 6

The PSO Act should provide a formal mechanism for an alternative representative, at a member's request, to temporarily deputise for that member.

[113] Rather than addressing concerns about conflicts of interest by a reduction in membership, any such concerns should be addressed directly.

Committee performance

While there have been a number of teething problems associated with the operation of OSAC, this has not been unexpected given the diversity of the used oil industry.

Like most industry-based committees, OSAC members have potential conflicts of interest. At present potential conflicts of interest are declared at the meeting and recorded in the minutes.

However, the potential conflicts of interest associated with an advisory board such as OSAC are not as strong as would normally be the case because OSAC is not a decision-making body, and is not provided with all the documentation provided to the Minister when decisions are made. In this regard, the conflict of interest measures adopted to date are not inappropriate.

However, the Review Team considers that OSAC has a higher accountability and transparency obligation than most advisory bodies because of its legislative imprimatur. That is, because OSAC is established under the *PSO Act* there is a need to hold to it to a higher standard of transparency and accountability than for an advisory body that is otherwise constituted.

Other government bodies facing similar conflict of interest issues have adopted best-practice meeting procedures in order to minimise conflicts of interest. These procedures are as follows:

- meeting agendas are sent initially to members, but each agenda paper is sent to a member only when the secretariat receives confirmation that the member is unlikely to declare a potential conflict of interest on the item, based on a short description of the item;
- at the meeting, each member is required to declare a potential conflict of interest against an agenda item if they expect such a conflict to arise;
- members then consider whether the interest is material. If the interest is considered to be material, such conflicted members are excluded from attending for the duration of the agenda item; and
- to facilitate this process, the position of Chairman should be held by an independent person (i.e. a person with no potential for personal or associated financial gain). While the creation of an independent Chairman was supported by stakeholders, it was also generally acknowledged that 'the Chairman must have knowledge of the issues at hand. To have an independent Chairman with little knowledge of the subject at hand for independence sake would be folly'.[114]

The adoption of clearer and more stringent conflict of interest procedures drew broad support at the consultation forums and in submissions.[115]

Recommendation 7

The Oil Stewardship Advisory Council should adopt clearer and more stringent conflict of interest procedures.

In the *Consultation Draft* the Review Team further suggested that:

[114] Transpacific Industries Submission.

[115] Submissions from Australian Institute of Petroleum, Australian Oil Recyclers Association, Australian Waste Oil Refineries, Eco Waste and Transpacific Industries.

> the process by which OSAC prepares and provides comments to the Minister, and the Minister responds, would be made more transparent if OSAC were provided with independent secretarial support. This would clarify the Department's role while still allowing OSAC to provide expert assistance to the Minister. The challenge may be to find a suitable person (or persons) to act as the secretariat.[116]

This suggestion drew a mixed response from stakeholders.[117] The Review Team considers that whether or not the Department continues to provide secretariat support for OSAC should be determined jointly by OSAC and the Department in light of any alternative options available.

6.6 Competition between smaller and larger waste collectors

A number of submissions from small waste collectors raised concerns about the competitive practices of larger oil collectors.[118] Some of the claims potentially relate to behaviour that is addressed by the *Trade Practices Act 1974* and so should be referred to the Australian Competition and Consumer Commission.

[116] The Allen Consulting Group 2004, *Independent Review of the Product Stewardship (Oil) Act 2000: Prepared for the Minister for the Environment and Heritage*, Consultation Draft, The Allen Consulting Group, Sydney, p. 63.

[117] Support for the suggestion was provided by Eco Waste, and opposition was voiced by Interactive Environmental Solutions.

[118] Submissions from Campbell Wrecking & Towing, Environmental Waste Recycling and Northern Luibquip

Chapter 7

Conclusions

While supportive of the ongoing operation of the PSO Program (i.e. its efficiency and effectiveness), subject to the changes suggested in chapter 6, it is necessary to provide some overall sense as to the degree to which the three objectives set out in the Act have been achieved; this is done in the following sections. Furthermore, there is a need to look beyond the current review to the next review and the PSO Program's longer term role.

7.1 Have the *PSO Act's* objectives been met?

Development of a product stewardship arrangement for used oils

It is arguable that while the proportion of lubricating oil being recycled has increased, this objective has not been achieved.

The concept of product stewardship has evolved from the extended producer responsibility (EPR) movement:

> EPR shifts the ultimate responsibility for waste management from municipalities to final producers (including importers). This ultimate responsibility is the duty upon private-sector enterprises to substantially or fully internalise waste-management costs associated with their products. This duty is the core, primary, or fundamental element of post-consumer product responsibility. The producers' ultimate responsibility cannot be avoided or deflected.[119]

Product stewardship 'is broader than EPR but has similar core components like product responsibility'.[120]

Indeed product stewardship programs have:

> Two characteristics that differentiate them from extended *producer* responsibility: they assign responsibility up and down the product chain rather than solely to producers, and they address environmental effects throughout the product life-cycle rather than just at the post-consumer waste stage.[121]

Thus the concept of sharing the responsibility is core to product stewardship programs:

> Product stewardship is a product-centred approach to environmental protection. Also known as extended product responsibility (EPR), product stewardship calls on those in the product life cycle — manufacturers, retailers, users, and disposers — to share responsibility for reducing the environmental impacts of products.[122]

---

[119] Organisation for Economic Co-operation and Development 1998, *Extended and Shared Producer Responsibility: Phase 2 - Framework Report*, Env/Epoc/Ppc(97)20/Rev2, OECD, Paris, p. 10.

[120] Organisation for Economic Co-operation and Development 2001a, *Extended Producer Responsibility: A Guidance Manual for Governments*, OECD, Paris, p. 95.

[121] Palmer and Walls 2002, *The Product Stewardship Movement: Understanding Costs, Effectiveness, and the Role for Policy*, Resources for the Future, Washington D.C., p. 10.

[122] United States Environmental Protection Authority 2003, *What Is Product Stewardship*, viewed 30 April 2004, <http://www.epa.gov/epr/about/index.html>.

This concept of sharing responsibility is reinforced by the OECD: 'EPR (extended product responsibility) is not exclusive to final producers. The achievement of EPR objectives will require the collaboration of all of society.'[123]

The challenge is determining *how* responsibility is to be shared. The United States Environmental Protection Agency notes that 'in most cases, manufacturers have the greatest ability, and therefore the greatest responsibility, to reduce the environmental impact of their products.'[124]

However, under the PSO Program responsibility is only peripherally borne by the producers of oil.

Attempting to formally allocate the stewardship cost burden to any particular point in the oil chain would be extremely difficult and fraught with complications. Under the *Act* the costs are imposed at the most administratively feasible point (i.e. the producers, who pass it on to consumers), and it is left to market forces to determine how the cost is ultimately distributed.

One view is that it is reasonable to argue that consumers drive production through their consumption demands, and hence they should bear the cost burden. This would not only internalise the costs of product disposal, but may also act as an incentive to reduce consumption of environmentally damaging products.

However, a consistent message from the community is that the frequency of oil changes is being driven by car manufacturers, dealers and servicing centres.

Already, 54 per cent of people who have motor vehicles rely on mechanics to change their oil (see figure 7.1), and:

> Many expect this to increase, as new cars are becoming increasingly difficult to self service and there is a growing number of these on Australian roads. Many new cars come with a 2 or 3 year warranty that includes free servicing, which people are understandably inclined to take advantage of.[125]

This suggests, that the volume of recycling is increasingly being dictated by car manufacturers and mechanics (who sell the oil) rather than consumers themselves. That is, while there is obviously a demand-side factor (e.g. the number of vehicles purchased), within this bound the volume of oil used is industry driven.

It is important to appreciate that oil companies have an ongoing engagement with used oil arrangements including, among other things:

- Shell is a major shareholder in the largest collector/recycler (Nationwide Oil);
- the Australian Institute of Petroleum is working on the recycling of used oil containers (supported in part by the Department of the Environment and Heritage);

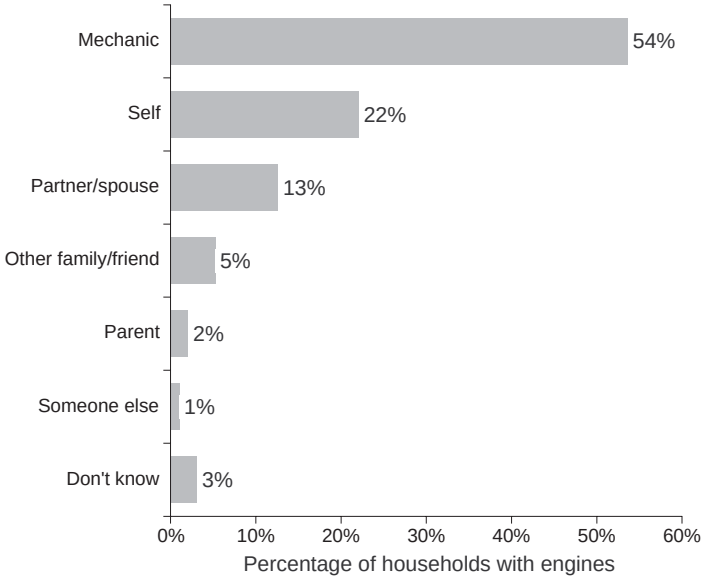
[123] Organisation for Economic Co-operation and Development 1998, *Extended and Shared Producer Responsibility: Phase 2 - Framework Report*, Env/Epoc/Ppc(97)20/Rev2, OECD, Paris, p. 10.

[124] United States Environmental Protection Authority 2003, *What Is Product Stewardship*, viewed 30 April 2004, <http://www.epa.gov/epr/about/index.html>.

[125] Millward Brown 2002, *Waste Oil Communications Research Report*, Environment Australia, Melbourne, p. 20.

Figure 7.1

THE PERSON WHO LAST CHANGED AN ENGINE'S OIL IN A HOUSEHOLD'S ENGINES



Source: Millward Brown 2002, p. 19.

- BP is heavily involved in a number of used oil collection programs;[126] and
- Shell, BP, Mobil, Caltex and Valvoline support the *Environmental Code of Practice for the Management of Used Lubricating Oil*.[127] This covers, among other things:
  - sound and unsound uses and disposal avenues of oil and packaging;
  - responsibilities of the lube oil companies to point of sale (covering both bulk and packaged lubes);
  - labelling;
  - transport;
  - provision of information on recycling, responsibilities after sale (primary roles, facilitation roles, customer information and collection); and
  - take-back — all companies engage in take-back of used oils from large commercial customers that request it (i.e. an opt in scheme).[128]

[126] See BP Australia 2001, *Waste Management and Used Oil*, viewed 12 March 2004, <http://www.bp.com.au/products/lubricants/waste_management/waste.asp>.

[127] Australian Institute of Petroleum 2003, *Code of Practice: The Management of Used Lubricating Oil and Lubricating Oil Packaging*, Australian Institute of Petroleum, Canberra.

[128] The Australian Institute of Petroleum Submission also claims that oil companies also are involved through their 'Payment of the excise levy that underwrites the whole system'. The Review Team considers this would only be an active form of involvement if the levy were not passed on to consumers. In this case it appears that the levy and associated costs are passed on.

Despite these commitments and actions, the Review Team considers this involvement to be relatively limited. This view is not shared by the Australian Institute of Petroleum[129] and by some members of the OSAC Steering Committee. However, submissions were overwhelmingly of the view that:

> Its [sic] time that the PSO require the oil companies as stakeholders to be more pro-active and responsible for the product stewardship of used oil and help the oil recyclers with access to markets and using recycled and re-refined oil both in Australia and overseas.[130]

If Australia is to have real product stewardship in relation to used oil, the major oil companies need to be more actively engaged in the PSO process. One way that the companies could contribute to this process is by providing relevant information on container labels and display stands. Lubricating oil suppliers could also sell re-refined used oil, or to blend it with virgin oil.

This view is supported by the Australian Academy of Technological Science & Engineering's recent observation that there should be:

> engagement of lube oil producers in a process to identify and eliminate barriers to use of this base oil in lube oil blends, recognising the quality, performance and commercial requirements of lube oil producers.[131]

In this light, the Review Team considers that there is a need to further explore the potential for oil companies to enhance the PSO Program's effectiveness.

Recommendation 8

The Department of the Environment and Heritage, the Department of Industry, Tourism and Resources and the Oil Stewardship Advisory Council should work with the oil companies to identify cost-effective ways in which they can become more involved in the product stewardship of oil in Australia.

Ensuring the environmentally sustainable management, re-refining and reuse of used oil

The PSO Program appears to have had some success in encouraging more sustainable management, re-refining and reuse of used oil. This is demonstrated by:

- the strong local government support for the development of centralised used oil collection facilities. This support appears to be particularly strong in rural and remote communities, and is supported by the fact that collection from remote areas currently appears to be encouraged by the strong demand for used oil. Government assistance in the provision of collection facilities will ensure that this continues and will improve the efficiency of such collection;
- the fact that majority of recyclers in the Australian industry are involved in the Program, which is conducive to maximising the Program's effectiveness and efficiency;
- the investment that has been made in lube-to-lube recycling equipment and facilities that would not otherwise have been made; and
- the finding that the Program is stimulating recycling from the annual flow of oil sales and/or from stockpiled used oil. While the volume of recycled oil on

[129] Australian Institute of Petroleum Submission.

[130] Australian Oil Recyclers Association Submission. Also submissions by Eco Waste, Wren Oil, and Australian Waste Oil Refineries.

[131] Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

which Program benefits were paid remained almost constant from 2001-02 and 2002-03, in the face of declining virgin oil sales volumes for those years this represents a significant increase as a percentage of the total volume of oil sold (i.e. from 47.9 per cent and 51.5 per cent for 2001-02 and 2002-03 respectively). These levels look particularly impressive when set against the proportion of recycled oil relative to total domestic sales in 1999 (33 per cent),[132] the year immediately prior to the Program's implementation.

While these developments have been positive, there remains continued scope for improvement:

- the stockpile of used oil sitting in storage is not thought to have been appreciably eroded over the Program's first few years. However, this is expected to change somewhat as the existing lube-to-lube recycling facility in Wagga Wagga (and possibly future facilities) come fully on stream; and
- only about 40 per cent of households that have not used safe disposal facilities for hazardous wastes (including used oil) are aware of the location of such safe facilities.[133] This suggests that there continues to be a role for all governments to seek to better educate the community.[134] In this regard, a closer working relationship between the Commonwealth and the State and Territory Governments would be welcomed.

Recommendation 9

There is a continuing need for the Department of the Environment and Heritage and the Oil Stewardship Advisory Council to raise the community awareness of the problem of used oil and the PSO Program in order to further increase recycling.

While the PSO Program has been most engaged with local councils, the perception in the Review Team is that there has been significantly less engagement with some State and Territory environmental agencies. This can possibly be explained by a number of factors, including the differing priorities of State and Territory agencies (i.e. not having a focus on used oil issues). The Review Team is concerned, however, that State and Territory agencies may be an important conduit for people looking to dispose of used oil, and hence there may be scope for such agencies to raise community awareness about used oil disposal options.

Recommendation 10

The Department of the Environment and Heritage and the Oil Stewardship Advisory Council should better engage State and Territory environment agencies as part of the PSO Program. Progress in enhancing this engagement should be reported through the Environment Protection and Heritage Council.

Support for economic recycling options for used oil

With a 50 cents per litre subsidy, the PSO Program has clearly provided significant support to lube-to-lube recycling, which will become more evident as the Wagga Wagga lube-to-lube recycling facility becomes fully operational.

---

132 Pre-implementation modelling indicated that, in 1999, recovered oil amounted to 165 ML compared to Australian domestic sales of virgin lubricant of 500 ML.

133 Australian Bureau of Statistics 2003, *Environmental Issues: People's Views and Practices*, Cat.No. 4602.0, Canberra, p. 60.

134 The Submission by the Western Australian Shires of Mount Marshall, Wyalleatchem, Trayning and Koorda noted that 'community awareness needs to be raised. This need not be an expensive exercise, and would appear to be local solutions for local problems, that is that utilization of local media would be more directed and substantially cheaper than mass media'.

With significantly lower benefit rates, support for other forms of recycling and reuse has been less pronounced. Rather, support for these forms of recycling has been provided somewhat less directly through Commonwealth assistance for the provision of centralised used oil collection facilities (which have reduced collection costs).

The Review Team considers that the overwhelming emphasis on the support of lube-to-lube recycling is misplaced. It is desirable to encourage a range of different uses for used oil because:

- not all used oil can be re-refined into lube oil;
- recent life-cycle analysis suggests that burning of high grade oils have similar environmental impacts to lube-to-lube recycling, and so favouring one form of recycling and reuse over another is not justified on environmental grounds;
- long-distance transport costs may make it impractical to re-refine used oil to produce lube oil; and
- as long as there is only one lube-to-lube facility in Australia there is the risk that any operational problems will mean that recycling rates for used oil will be reduced.

The need for a more diversified focus for the PSO Program underpins the view (see section 6.2) that the benefit available for high grade burning oil is too low relative to the benefits available for lube-to-lube oil recycling.

7.2 Looking forward

While this review has addressed the PSO Program's performance in its first few years, and has identified changes that should improve the Program's operation through to the next independent legislative review, there is also a need to take a longer term perspective.

The Review Team considers that, in the longer term, changes to the excise (and customs) provisions, and possibly to the Energy Grants (Credit) Scheme are likely to increase the complexity of providing incentives for environmentally sound uses of used oil through the *PSO Act*. As noted earlier, the collection of the levy occurs through the excise and customs systems and the payment of benefits occurs through the EGCS.

There are a number of interrelated problems:

- the excise system is complex, and was designed for purpose other than environmental regulation. This means, for example, that the excise system definitions of activities in the oil industry do not always fit neatly with the environmental objectives of the *PSO Act*;
- the product stewardship levy rate is set by the Treasurer rather than the Minister for the Environment and Heritage; and
- the Commonwealth Treasury is seeking to simplify the excise system and confine its role to revenue collection, rather than using it as an instrument to achieve environmental and resource conservation objectives. This position is incompatible with the use of the excise system to encourage the recycling of used oil.

In effect, the future of the PSO Program as an effective and comprehensive environmental response is, to a significant extent, outside the control of both the Minister for the Environment and Heritage and the oil industry.

Possibly related to this, a number of stakeholders at the consultation forums expressed some concern that there was no clear vision for the industry over the longer term. In particular, a number of stakeholders suggested that the four year rolling review structure embedded in the *PSO Act* provided an insufficient timeframe upon which to base major investment decisions.

While some stakeholders suggested that it was the responsibility of OSAC to provide a more strategic vision of the industry's future and the regulatory framework to support it,[135] the Review Team considers that this is an unfair burden on a body whose function is advisory.

Rather, it is desirable that the Minister, with the support of OSAC and the industry more broadly, prepare for the further unwinding of the benefits payable under the excise system by moving towards a different approach – one in which industry plays a greater role.

In this regard, the Review Team suggests that the next independent legislative review should focus on the detailed issues that need to be addressed in considering whether to move to a tradeable certificates model as identified by McLennan Magasanik Associates and BDA Group.[136] While this model is not supported by the Australian Institute of Petroleum[137] and some members of the OSAC Steering Group, it enjoys some stakeholder support.[138] The Review Team considers that, in the longer term, such an approach would lead to a more efficient allocation of resources and require less direct government involvement.

The Review Team considers that, unless there is a real change in the major oil companies' involvement in product stewardship for used oil, a tradeable certificate scheme is the only comprehensive model that is sustainable into the longer term.

Clear and early enunciation of this longer-term vision for the PSO regulatory structure should reduce the costs of transition and provide additional certainty for all industry participants.

Recommendation 11

Given the expected changes in the excise system, unless a comprehensive industry-based product stewardship model for used oil is developed over the next four years, the next independent review should include a further examination of the use of a tradeable certificate scheme for used oil.

[135] Eco Waste Submission.

[136] McLennan Magasanik Associates and BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

[137] Australian Institute of Petroleum Submission.

[138] Eco Waste Submission. Some possibility of support is also evident in Western Australian Local Government Association (Municipal Waste Advisory Council).

Part D

Appendices

Appendix A

Review terms of reference

Section 36 of the *Product Stewardship (Oil) Act 2000* provides:

> (1) The Minister must cause an independent review of:
>
> (a) the operation of this *Act*; and
>
> (b) relevant provisions of customs and excise legislation; and
>
> (c) the extent to which the objects set out in section 3 have been achieved;
>
> to be undertaken within 4 years after the commencement of this *Act* and thereafter at intervals of not longer than 4 years.
>
> (2) The persons who undertake such a review must give the Minister a written report of the review.
>
> (3) The Minister must cause a copy of each report to be tabled in each House of the Parliament within 15 sitting days of that House after its receipt by the Minister.
>
> (4) In this section:
>
> independent review means a review undertaken by 2 or more persons who:
>
> (a) in the Minister's opinion possess appropriate qualifications to undertake the review; and
>
> (b) include one or more persons who are not APS employees.

The Department of the Environment and Heritage has determined that the legislative review will determine the following:

1. The effectiveness and appropriateness of the operation of the *Act*, including:
   - the level of participation in and transparency of the *Act*; and
   - the adequacy of consultation in relation to the operation of the *Act*, and the ability of affected parties to determine their obligations and entitlements, including:
     – an assessment of the effectiveness of the Oil Stewardship Advisory Council; and
     – an assessment of the effectiveness of the administrative arrangements for the Act;
   - any unanticipated impacts of the operation of the *Act* on welfare, equity, health, safety, economic and regional development, consumer interests, industry competition and competitiveness, and resource allocation;
     – whether the primary *Act* and/or subordinate legislation are appropriately framed, including an assessment of:
     – the adequacy, efficiency, and equity of the existing levy benefit arrangements;
     – a differentiated compared with a non-differentiated benefit rate;

– the adequacy of existing categories; and

– whether there are any policy tensions between the objectives of the *Act* and other relevant Commonwealth and/or State and Territory environmental objectives; and

2. Where the review identifies any deficiencies in the operation of the *Act*, the review will identify:

- feasible alternatives to the current legislative provisions, including
  - consideration of the appropriateness of a non-differentiated payment system;
  - more appropriate categories and definitions;
  - if a differentiated payment system is preferred, the levels at which the levy and benefit payments could be appropriately set;
- the different stakeholders likely to be affected, and how they may be affected by the alternatives;
- analyse, and as far as practicable, quantify the benefits, costs and overall effects of the alternatives; and
- recommend a preferred course of action.

3. The relevant provisions of customs and excise legislation, including:

- the impact, including the economic, environmental and sustainability implications, of changes to the *Excise Tariff Act*.

4. The extent to which the *Act* has:

- contributed to the development of product stewardship arrangements for waste oil, including
  - the mix of markets and technologies that has resulted from the implementation of the Act; and
- ensured the environmentally sustainable management, re-refining and reuse of waste oils; and
- supported economic recycling options for waste oil.

5. The consultants will revise the existing modelling, undertaken prior to the implementation of the Act, to provide projections of the used oil market to 2007-08, including:

- revise the assumptions upon which future projections are based;
- provide an outline of a range of alternative scenarios, including levy and benefit rates, and projected impacts on the used oil industry; and
- identify a preferred approach including optimal levy and benefit rates.

The review will also provide advice regarding future direction to continue to meet, or more effectively meet the objectives of the *Act* and the broader Government objectives.

In assessing the above issues and producing the report, the consultants will also consider:

- the findings from the transitional assistance review currently being undertaken by the Australian Academy of Technological Sciences and Engineering; and
- data on participation and the levy benefit payments.

Appendix B

Abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ACS	Australian Customs Service
ANZEC	Australia and New Zealand Environment Council
ANZECC	Australian & New Zealand Environment Conservation Council
ATO	Australian Taxation Office
CO_2	carbon dioxide
CO_2-e	carbon dioxide equivalent
cpl	cents per litre
DfE	design for environment
EGCS	Energy Grants (Credit) Scheme
EPR	extended producer responsibility
IDC	Interdepartmental Committee
MB	marginal benefit
MC	marginal cost
ML	Megalitres
n.a.	not available
NG	natural gas
NO	nitrogen oxide
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
ORR	Office of Regulation Review
OSAC	Oil Stewardship Advisory Council
ppm	parts per million
PSO	Product Stewardship (Oil)
SO	sulphur oxide
UCTS	upstream combined tax-subsidy
UOCS	used oil certificates scheme

Appendix C

Stakeholder involvement in the review

This appendix outlines how stakeholder views were sought when undertaking the review.

Given the tight review timeframe a targeted consultation strategy was adopted following discussions with the review steering committee. The consultation strategy involved a number of inter-related components.

Firstly, members of the Review Team attended the public consultation sessions in Sydney and Melbourne that were organised for the transitional assistance review. At these meetings the Review Team spoke to all attendees (see table C.1) to discuss issues raised, and to alert them to the legislative review.

Table C.1

PARTICIPANTS AT THE TRANSITIONAL REVIEW PUBLIC FORUMS

Location	Participant
Sydney (2 February)	Steve Matthews
	Mark Glover (Oil Drop)
	Richard la Ganza (Fuchs Lubricants)
	Paul Lucas
	R Pullinger
	Greg Inglis
	Mike Williamson (Collex)
Melbourne (4 February)	M Weber
	D Trimm (CSIRO Petroleum)
	L Richmond (Ecorecycle)
	B Dobson (Ecorecycle)
	Martin Cooper

Source: Department of Environment and Heritage

Secondly, the Department of the Environment and Heritage used its stakeholder lists to identify and contact more than 600 potential stakeholders (individuals, State and local government bodies, and commercial and not-for-profit organisations) to alert them to the legislative review and to invite them to register their interest with the Review Team.

Thirdly, the Department placed an advertisement in national newspapers to alert other stakeholders to the legislative review and to invite them to register their interest with the Review Team.

Fourth, the Review Team released a *Consultation Draft*.[139] It was prepared to provide stakeholders with the Review Team's preliminary thinking on a range of issues, as well as to identify particular issues upon which stakeholders may have been able to provide additional perspectives and context to aid the Review Team's analysis. The Department sent:

- 60 hard copies of the *Consultation Draft* to stakeholders with limited email access; and
- around 600 letters to stakeholders notifying the of the *Draft's* availability on the Internet, and foreshadowing public consultation forums to discuss the *Consultation Draft*.

The Review Team also sent emails to around 30 stakeholders who had expressed an interest in the review, or who the Review Team considered would be interested, notifying them of the *Consultation Draft's* availability on the Internet.

Fifth, the Review Team held public consultation forums in Melbourne and Perth. This was an opportunity for stakeholders to hear the Review Team's summary of the *Consultation Draft*, and to provide verbal feedback on the *Draft*. Table C.2 lists those stakeholders who attended the public forums. Stakeholders were also provided an opportunity to meet with the Review Team on a confidential basis to discuss commercially sensitive matters, this offer was taken up by a small number of government and non-government organisations.

Table C.2

PARTICIPANTS AT THE LEGISLATIVE REVIEW PUBLIC FORUMS

Location	Participant
Melbourne (2 April)	Kerrie Hepworth (ATO)
	Jenny Black (ATO)
	Brian Gilbertson (ATO)
	Ken Elliot (Coopers Environmental)
	Martin Cooper (Triple R Waste)
	Kirrily Noonan (DITR)
	Wayne Morris (Ethyl (AsiaPacific))
	Mark Glover (Eco Waste)
Perth (5 April)	Bob Pullinger (Australian Waste Oil Refineries)
	Deserée Foley (Hagen Oil)
	Fred Wren (Wren Oil)
	Steve Beilby (WA Department of Environment)
	Paul Watt (WA Department of Environment)
	Mal Nichols (WA Department of Industry & Resources)

Source: Department of the Environment and Heritage

[139] The Allen Consulting Group 2004, *Independent Review of the Product Stewardship (Oil) Act 2000: Prepared for the Minister for the Environment and Heritage*, Consultation Draft, The Allen Consulting Group, Sydney.

Sixth, the Review Team specifically met with the steering committee of OSAC to discuss the portions of the report relevant to OSAC and its representatives more generally.

Seventh, stakeholders provided the Review Team with submissions throughout the review period. Submissions (some of which are confidential in whole or part) were received from:

- Australian Oil Recyclers Association;
- Australian Institute of Petroleum;
- Australian Taxation Office;
- Australian Waste Oil Refineries;
- Bauhinia Shire
- Campbell Wrecking and Towing;
- Diesel Fuel Industry Group;
- Eco Waste Ltd;
- Environmental Waste Recycling Pty Ltd;
- Fuchs Lubricants (Australasia) Pty Ltd;
- Launceston City Council;
- Master Waste Pty Ltd;
- Mulhern Waste Oil Removal;
- Nationwide Oil Pty Ltd;
- Northern Lubequip;
- Shires of Mount Marshall, Wyalkatchen, Trayning and Koorda;
- Southern Oil Refineries Pty Ltd;
- SWB Consulting;
- Teris (Aust) Pty Ltd;
- The Centre for Appropriate Technology;
- Transpacific Industries;
- T R Chemicals Pty Ltd
- Triple R Waste Management;
- Western Australian Local Government Association (Municipal Waste Advisory Council); and
- Wren Oil.

Of course, during the course of the review the Review Team has been in contact with numerous government and non-government stakeholders seeking information on an informal basis and responding to questions about the review.

Appendix D

Financial modelling

This appendix details the expected net impact of some key reform options considered by the Review Team.

To assess the net impact of various reform options, an economic model for costing the waste oil levy scheme was used. This model was prepared by staff from the Australian Bureau of Agricultural and Resource Economics (ABARE) and subsequently updated (with considerable modification) by The Allen Consulting Group.

The model is a series of Microsoft Excel spreadsheets. It estimates the required levy rate on lube oil sales sufficient to ensure that revenue from the levy scheme is equal to the expected subsidy costs. A detailed explanation of the model, along with its underlying assumptions, has been made available to the Department of Environment and Heritage.

For the purpose of this analysis a number of necessary adjustments were made to the model.

The adjustments relied upon in this appendix vary depending on the reform option modelled and include:

- a fixed levy rate — for reform options 1, 2, 3 and 4 the levy rate on virgin oil sales was fixed at 5.449 cents per litre. This reflects the fact that in November 2002 the Government fixed the levy rate at 5.449 cents per litre. For reform option 5 the levy rate was also fixed but at a rate of 5.5 cents per litre;
- calculation of excess levy receipts over benefits paid — for options 1, 3 and 5 the extent to which the current levy recovers excess funds over the total benefits paid is calculated. This calculation takes into account the current surplus of fund accumulated between 1 January 2001 and 30 June 2003. It also takes into account previous and future transitional funding allocations as announced by the Government in the 2003-04 Budget;
- consideration of the costs associated with administering the scheme — forecast estimates of these costs for the period 2003-04 to 2007-08 have been provided by the Department; and
- in each scenario it is assumed that the existing stockpile of used oil is 35 ML. While this is somewhat lower than official estimates,[140] it reflects current estimates provided by stakeholders.

Four different reform options and their likely outcomes are detailed in the following sections.

[140] See Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

D.1 Option 1 — Base case scenario

This scenario calculates the impact of making no change to the current scheme. That is it assumes that both the product stewardship levy rate and the product stewardship benefit schedule remains unchanged. It also assumes growth in demand for the various product types consistent with that forecast by the Australian Academy of Technological Sciences and Engineering.[141]

As detailed in table D.1, based on current demand patterns and expected market developments, total demand for recycled oil products is forecast to increase from 199 ML to 240 ML over the period 2003-04 to 2007-08 A surplus of levy receipts over benefit payments will accompany this growth resulting in an accumulated surplus of around $122 million.

Table D.1

OPTION 1 OUTCOMES (BASE CASE)

	2003-04	2004-05	2005-06	2006-07	2007-08
Levy rate	$0.05449	$0.05449	$0.05449	$0.05449	$0.05449
Volume of Virgin Oil (ML)	531	531	531	531	531
Volume of recycled product (ML)	199	204	211	222	240
Yearly surplus	$18.11	$16.35	$13.43	$8.57	$0.50
Accumulated surplus at end of period	$68.97	$89.46	$105.73	$117.41	$122.02

D.2 Option 2 — Increased benefits for high grade burning oils

This scenario calculates the maximum benefit rate for the production of high-grade industrial burning oils consistent with the following assumptions:

- there is no change to the product stewardship levy rate over the period 2003-04 to 2007-08;
- there is no change in benefits awarded to other eligible product types over the period 2003-04 to 2007-08; and
- that over the period the excess of levy receipts over benefits paid is minimised.

To achieve a minimal surplus over the period the benefit rate for high-grade industrial burning oils should be set at no more than 14 cents per litre (an increase of 9 cents per litre). This would increase the production of high-grade burner oils by approximately 39 per cent in financial year 2007-08 and would, over time, start

[141] Australian Academy of Technological Sciences & Engineering 2004, *Mid-Term Review of the Transitional Assistance Elements of the Product Stewardship Arrangement for Waste Oil (PSO): Working Draft Report*, Department of the Environment and Heritage, Canberra, p. 49.

to run down the current accumulated surplus of levy receipts over benefit payments (see table D.2).

Increased production volumes of high grade industrial burner oils would be achieved by:

- a net increase in the total volume of recycled oil products (around 31.2 per cent in 2007-08); and
- a 25.0 per cent reduction in the volume of low-grade industrial burning oils produced.

Table D.2

OPTION 2 OUTCOMES

	2003-04	2004-05	2005-06	2006-07	2007-08
Levy rate ($/litre)	$0.05449	$0.05449	$0.05449	$0.05449	$0.05449
Volume of Virgin Oil (ML)	531	531	531	531	531
Volume of recycled product (ML)	199	209	223	245	261
Yearly balance	$13.70	$11.58	$8.41	$3.02	-$6.23
Accumulated surplus at end of period	$64.56	$80.28	$91.53	$97.66	$95.54
Benefit rate for high grade industrial burning oils ($/litre)	$0.1400	$0.1400	$0.1400	$0.1400	$0.1400

D.3 Option 3 — Lower than expected production of re-refined base oil

This scenario examines the likely outcomes associated with lower than expected production of re-refined base oil products. Specifically, it assumes that production volumes for re-refined base oil products are 25 per cent lower than those assumed in the base case.

As detailed in table D.3, lower production of re-refined base oil products would reduce overall product volumes by around 10 ML in 2007-08 and increase the total accumulated surplus by around $9.21 million.

Table D.3

OPTION 3 OUTCOMES

	2003-04	2004-05	2005-06	2006-07	2007-08
Levy rate ($/litre)	$0.05449	$0.05449	$0.05449	$0.05449	$0.05449
Volume of Virgin Oil (ML)	531	531	531	531	531
Volume of recycled product (ML)	199	203	209	218	230
Yearly surplus	$18.26	$16.81	$14.56	$11.04	$5.50
Accumulated surplus at end of period	$69.12	$90.07	$107.47	$121.62	$131.23

D.4 Option 4 — Increased benefits for high grade burning oils and lower than expected production of re-refined base oil

This scenario is a combination of options two and three. It calculates the maximum allowable benefit rate for high-grade industrial burner oils assuming that:

- production volumes for re-refined base oils are 25 per cent lower than those assumed in the base case;
- there is no change to the product stewardship levy rate over the period 2003-04 to 2007-08;
- there is no change in benefits awarded to other eligible product types over the period 2003-04 to 2007-08; and
- that over the period the excess of levy receipts over benefits paid is minimised.

Under this scenario the benefit rate for high-grade industrial burner oils should not be increased to anymore than 15 cents per litre. An increased benefit rate for high grade burner oils would increase the total production of recycled oil products to 261 ML in financial year 2007-08 and would, over time, start to run down the current accumulated surplus of levy receipts over benefit payments.

Table D.4

OPTION 4 OUTCOMES

	2003-04	2004-05	2005-06	2006-07	2007-08
Levy rate ($/litre)	$0.05449	$0.05449	$0.05449	$0.05449	$0.05449
Volume of Virgin Oil (ML)	531	531	531	531	531
Volume of recycled product (ML)	199	209	223	245	261
Yearly balance	$13.26	$11.21	$7.74	$2.13	-$6.44
Accumulated surplus at end of period	$64.12	$79.48	$90.05	$95.29	$92.96
Benefit rate for high grade industrial burning oils ($/litre)	$0.1500	$0.1500	$0.1500	$0.1500	$0.1500

D.5 Option 5 — Increasing the ley to 5.5 cents per litre

This scenario calculates the accumulated surplus likely to result in an increased levy rate of 5.5 cents per litre.

As shown in table D.5, increasing the product stewardship levy rate by 0.051 cents per litre increases the accumulated surplus by $1.35 million. The increase does not have any impact on the volumes of recycled oil or the volume of virgin lube oil sales.

Table D.5

OPTION 5 OUTCOMES

	2003-04	2004-05	2005-06	2006-07	2007-08
Levy rate ($/litre)	$0.055	$0.055	$0.055	$0.055	$0.055
Volume of Virgin Oil (ML)	531	531	531	531	531
Volume of recycled product (ML)	199	204	211	222	240
Yearly surplus	$18.38	$16.62	$13.70	$8.84	$0.77
Accumulated surplus at end of period	$69.24	$90.00	$106.54	$118.49	$123.37

Appendix E

Sources

In preparing this report the Review Team was provided with access to a range of confidential documents that are neither referenced in the report's body or this appendix. Some reports listed in this appendix may not be publicly available.

Australia and New Zealand Environment Council (ANZEC) Oil and Tyres Task Force 1991, *Waste Lubricating Oil, Used Motor Vehicle Tyres, Recycling and Reuse: Draft Report*, Adelaide.

Australian Academy of Technological Sciences & Engineering 2004, *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program: Public Consultation Draft*, Department of the Environment and Heritage, Canberra.

Australian Bureau of Statistics 2003, *Environmental Issues: People's Views and Practices*, Cat.No. 4602.0, Canberra.

Australian Institute of Petroleum 2003, *Code of Practice: The Management of Used Lubricating Oil and Lubricating Oil Packaging*, Australian Institute of Petroleum, Canberra.

Australian Taxation Office & Department of the Environment and Heritage 2001a, *Implementation Agreement between the Australian Taxation Office and the Department of the Environment and Heritage in Relation to Product Stewardship for Waste Oil*, Canberra.

---- 2001b, *Memorandum of Understanding between the Australian Taxation Office and the Department of the Environment and Heritage in Relation to Product Stewardship for Waste Oil*, Canberra.

Beer, T, Grant, T, Brown, R, Edwards, J, Nelson, P, Watson, H & Williams, D 2000, *Life-Cycle Emissions Analysis of Alternative Fuels for Heavy Vehicles – Stage 1*, Atmospheric Research Report C/0411/1.1/F2 to the Australian Greenhouse Office, CSIRO.

BHP 2000, *The Environmental and Economic Aspects of Used Lubrication Oil in Australia (Based on Lca)*, Environment Australia.

Billson, B 2000, *Second Reading Speech*, viewed 12 February 2004, <**http://parlinfoweb.aph.gov.au/piweb/view_document.aspx?id=481373&table=HANSARDR>**.

Boughton, B & Horvath, A 2004, 'Environmental Assessment of Used Oil Management Methods', *Environmental Science & Technology*, vol. 38, no. 2, pp. 353-8.

BP Australia 2001, *Waste Management and Used Oil*, viewed 12 March 2004, <**http://www.bp.com.au/products/lubricants/waste_management/waste.asp**>.

Brodersen, J, Juul, J & Jacobsen, H 2002, *Review of Selected Waste Streams: Sewage Sludge, Construction and Demolition Waste, Waste Oils, Waste from Coal-Fired Power Plants and Biodegradable Municipal Waste*, European Environment Agency, Copenhagen.

Burnbank Consulting & Tasman Asia Pacific 1999, *Oil Recycling and Excises*, Environment Australia, Canberra.

Calcott, P & Walls, M 2000, 'Can Downstream Waste Disposal Policies Encourage Upstream "Design for Environment"?' *American Economic Review: Papers and Proceedings*, vol. 90, pp. 233-7.

---- 2001, *Waste, Recycling, and "Design for Environment": Roles for Markets and Policy Instruments*, Resources for the Future, Washington D.C.

Carstensen, PC 2004, 'Buyer Power and Merger Analysis — the Need for Different Metrics', paper presented to Federal Trade Commission Workshop on Merger Enforcement, Washington D.C., 17 February.

Clean Washington Center 1993, *Used Oil to Diesel: An Alternative Technology*, Department of Trade and Economic Development, Seattle.

Coase, R 1960, 'The Problem of Social Cost', *Journal of Law & Economics*, vol. 1, no. 1, pp. 1-44.

Commission of the European Communities 2000, *Report from the Commission to the Council and the European Parliament on the Implementation of Community Waste Legislation for the Period 1995 - 1997: Directive 75/442/EEC on Waste, Directive 91/689/EEC on Hazardous Waste, Directive 75/439/EEC on Waste Oils and Directive 86/278/EEC on Sewage Sludge*, Commission of the European Communities, Brussels.

Commonwealth Interdepartmental Committee on Quasi-regulation 1997, *Grey-Letter Law*, Canberra.

Council of Australian Governments 1991, *Report of Task Force on Other Issues in the Reform of Government Trading Enterprises, Released as Part of the First CoAG Communique*, Canberra.

CSIRO 1999, 'Illegal Oil Dumping Kills, Injures Penguins', *Media Release - Ref 99/05*.

Department of the Environment and Heritage 2001, *Product Stewardship Arrangements for Waste Oil Administrative Guidelines Covering Product Stewardship Benefits and Transitional Assistance*, Department of the Environment and Heritage,, viewed 14 January 2004, <**http://www.deh.gov.au/industry/waste/oilrecycling/adminguidelines.html#1.2>**.

---- 2002, *Product Stewardship Arrangements for Waste Oil - Report for the Period 1 July 2001 to 30 June 2002*, Environment Australia, Canberra.

---- 2003, *Department of the Environment and Heritage Annual Report 2002-03*, Canberra.

---- 2004, *Used Oil Recycling: Product Stewardship Benefits*, viewed 18 May 2004, <**http://www.oilrecycling.gov.au/benefits.html>**.

Dinan, TM 1993, 'Economic Efficiency Effects of Alternative Policies for Reducing Waste Disposal', *Journal of Environmental Economics and Management*, vol. 25, pp. 242-56.

Environment Australia 2001a, *Product Stewardship Arrangements for Waste Oil, Report for the Period 1 January 2001 to 30 June 2001*, Canberra.

---- 2001b, *Production Innovation: The Green Advantage - an Introduction to Design for Environment for Australian Business*, Department of the Environment and Heritage, Canberra.

Financial System Inquiry 1996, *Discussion Paper*, Canberra.

Fitzsimons, D 2003, 'Improving Markets for Used Lubricating Oils', paper presented to Addressing the Economics of Waste, Paris, 14-15 October 2003.

Fuel Taxation Inquiry Committee 2002, *Fuel Tax Inquiry Report*, Canberra.

Fullerton, D 1997, 'Environmental Levies and Distortionary Taxes: Comment', *American Economic Review*, vol. 87, no. 1, pp. 245-51.

Fullerton, D & Kinnaman, TC 1996, 'Household Responses to Pricing Garbage by the Bag', *American Economic Review*, vol. 86, pp. 971-84.

Fullerton, D & Wolverton, A 1999, 'The Case for a Two-Part Instrument: Presumptive Tax and Environmental Subsidy', in P Portney & R Schwab (eds), *Environmental Economics and Public Policy: Essays in Honor of Wallace E. Oates*, Edward Elgar, Cheltenham.

Hill, R 2000, *Explanatory Memorandum: Product Stewardship (Oil) Bill 2000; Customs Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Excise Tariff Amendment (Product Stewardship for Waste Oil) Bill 2000; Product Stewardship (Oil) (Consequential Amendments) Bill 2000*, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra.

Institute for Prospective Technological Studies 2004, *Integrated Pollution Prevenion and Control: Draft Reference Document on Best Available Techniques for the Waste Treatment Industries*, January 2004 edn, European Commission, Seville.

Irwin 1978, 'Used Oil: Comparative Legislative Controls of Collection, Recycling, and Disposal', *Ecology Law Quarterly*, vol. 6, no. 4, pp. 699-754.

Kemp, D 2004, *Protecting Oil Recyclers and the Environment*, Media Release (K01), 31 January, Minister for the Environment and Heritage, Canberra.

Lattimore, R, Madge, A, Martin, B & Mills, J 1998, *Design Principles for Small Business Programs and Regulations*, Productivity Commission Staff Research Paper, AusInfo, Canberra.

MacGarvin, M 1999, 'The Precautionary Principle, Science and Policy', in R Harding & E Fisher (eds), *Perspectives on the Precautionary Principle*, Federation Press, Sydney, pp. 225-39.

McLennan Magasanik Associates & BDA Group 2003, *A Tradeable Certificate System for Used Oils: Report to the Department of the Environment and Heritage*.

Meinhardt Infrastructure & Environment Group 2002, 'Used Oil in Australia'.

Millward Brown 2002, *Waste Oil Communications Research Report*, Environment Australia, Melbourne.

National Research Council of the National Academies 2003, *Oil in the Sea III: Inputs, Fates, and Effects*, National Academies Press, Washington D.C.

Natural Resources Canada 1998, *Recycling Technology Newsletter*, viewed 11 February 2004, <**http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/rnet/autoarte.htm>**.

Oakdene Hollins 2001, *UK Waste Oils Market 2001*, viewed 9 February 2004, <**http://www.oakdenehollins.co.uk/tes2.html>**.

Office of Regulation Review 1991, *Response to ANZEC's Draft Report on Waste Lubricating Oil and Used Tyres*, Industry Commission, Canberra.

---- 1998, *A Guide to Regulation*, 2nd edn, Canberra.

Oil Stewardship Advisory Council 2003, *Item 10 – Report from the Department of the Environment and Heritage on Excise Changes – 'Changes to the Excise Tariff Act Relating to Blend Light Fuel Oils'*, Agenda Paper – OSAC 9 (27 November), Canberra.

Organisation for Economic Co-operation and Development 1994, *Managing the Environment: The Role of Economic Instruments*, OECD, Paris.

---- 1998, *Extended and Shared Producer Responsibility: Phase 2 - Framework Report*, Env/Epoc/Ppc(97)20/Rev2, OECD, Paris.

---- 2001a, *Extended Producer Responsibility: A Guidance Manual for Governments*, OECD, Paris.

---- 2001b, *Businesses' Views on Red Tape: Administrative and Regulatory Burdens on Small and Medium-Sized Enterprises*, OECD, Paris.

Palmer, K & Walls, M 1997, 'Optimal Policies for Solid Waste Disposal: Taxes, Subsidies, and Standards', *Journal of Public Economics*, vol. 65, pp. 193-205.

---- 2002, *The Product Stewardship Movement: Understanding Costs, Effectiveness, and the Role for Policy*, Resources for the Future, Washington D.C.

Palmer, K, Sigman, H & Walls, M 1997, 'The Cost of Reducing Municipal Solid Waste', *Journal of Environmental Economics and Management*, vol. 33, p. 128–50.

Pigou, AC 1920, *The Economics of Welfare*, Macmillan, London.

Raff, M 1999, 'Pollution, Politics and National Competition Policy — the National Competition Policy Review of the Environment Protection Act in Victoria', *Australasian Journal of Natural Resources Law and Policy*, vol. 6, no. 2, pp. 91-112.

Senate Employment Workplace Relations and Education References Committee 2003, *Small Business Employment*, Parliament of the Commonwealth of Australia, Canberra.

Sexton, R & Zhang, M 2001, 'An Assessment of the Impact of Food Industry Market Power on U.S. Consumers', *Agribusiness*, vol. 17, no. 1, pp. 59-79.

Smith, J 2003, *Tax Expenditure: The $30 Billion Twilight Zone of Government Spending*, Research Paper No. 8 2002-03, Department of the Parliamentary Library, Canberra.

Spulber, DF 1985, 'Effluent Regulation and Long-Run Optimality', *Journal of Environmental Economics and Management*, vol. 12, no. 2, pp. 103-16.

Task-Force on Industry Self-Regulation 2000, *Industry Self-Regulation in Consumer Markets*, Canberra.

Taylor Nelson Sofres Consulting 2001, *Critical Review of Existing Studies and Life Cycle Analysis on the Regeneration and Incineration of Waste Oils*, European Commission.

The Allen Consulting Group 2004, *Independent Review of the Product Stewardship (Oil) Act 2000: Prepared for the Minister for the Environment and Heritage*, Consultation Draft, The Allen Consulting Group, Sydney.

Tietenberg, TH 1985, *Emissions Trading: An Exercise in Reforming Pollution Policy*, Resources for the Future, Washington D.C.

United States Environmental Protection Authority 2003, *What Is Product Stewardship*, viewed 30 April 2004, <**http://www.epa.gov/epr/about/index.html>**.

---- 2004, *Wastes: Managing Used Oil*, viewed 18 May 2004, <**http://www.epa.gov/epaoswer/hazwaste/usedoil/usedoil.htm>**.

Warnken Industrial and Social Ecology 2003, *Characterisation and Assessment of Waste Oil Utilisation as a Fuel for Heating in the Hydroponics and Greenhouse Industries*, Environment Australia.

Williamson, OE 1968, 'Economies as an Antitrust Defense: The Welfare Trade-Offs', *American Economic Review*, vol. 58, pp. 18-36.