

Enhancement of End of Life Vehicle Resource Recovery

Metropolitan Waste and Resource Recovery Group



Purpose

Preliminary evaluation of opportunities to enhance resource recovery from end of life vehicles (ELVs) processed in the greater Melbourne region.

Benefits :

- increased employment
- economic returns
- positive environmental outcomes.

Context

- Sustainability Victoria (2015) *“State-wide Waste and Resource Recovery Infrastructure Plan for Victoria 2015–2044”*; and
- MWRRG (2015) *“2015 Metropolitan Waste and Resource Recovery Implementation Plan”*.

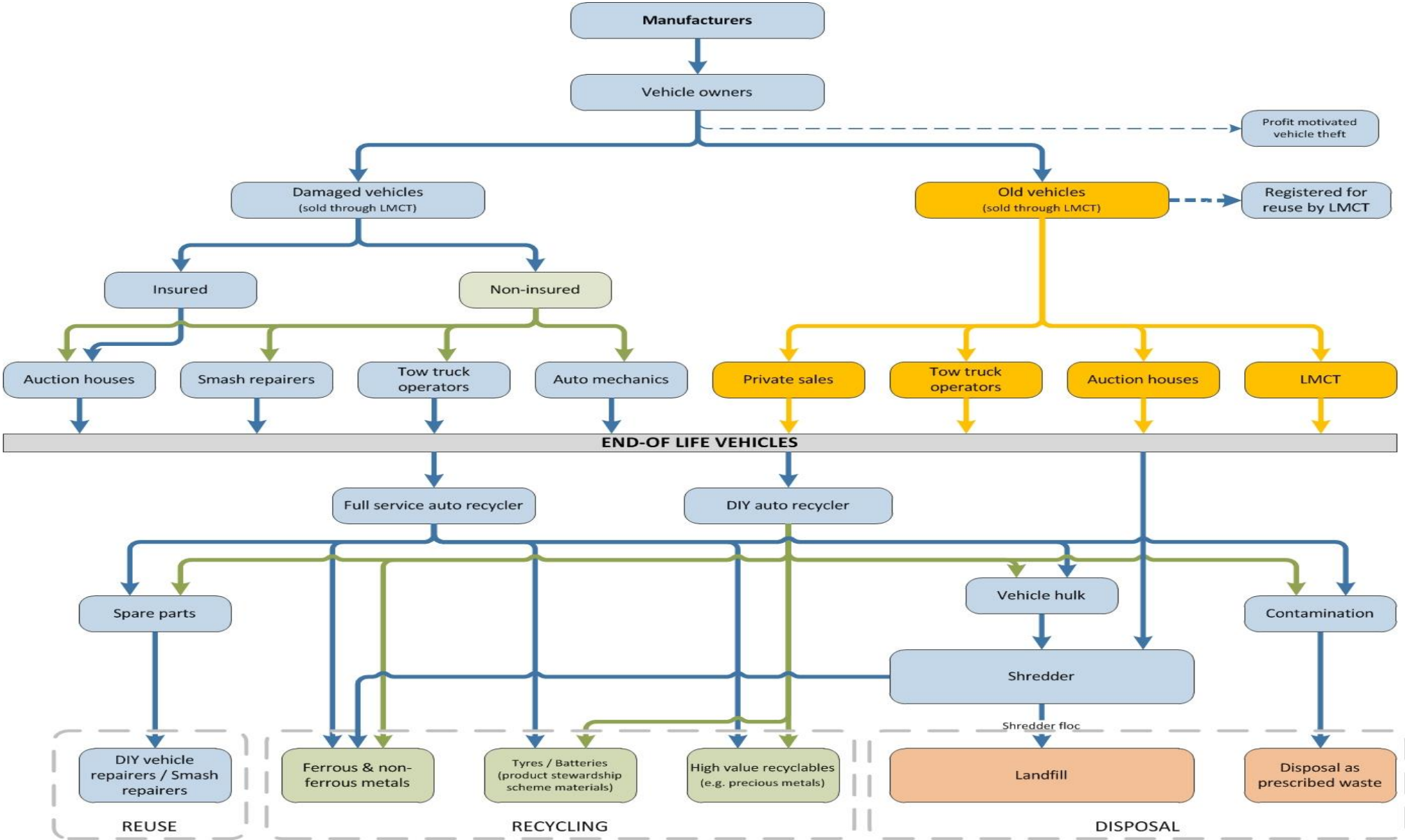
Scope

- estimating the available quantity and composition of ELVs
- describing the current system for ELV resource recovery
- identifying potential material recovery rates
- researching the status of ELV resource recovery in other jurisdictions
- identifying enhanced ELV resource recovery opportunities
- proposing a possible way forward.

Stakeholder engagement

- Original equipment manufacturers
- Industry associations
- Auto recyclers
- Spare parts distributors
- Large metal recyclers
- Small metal merchants
- Government agencies

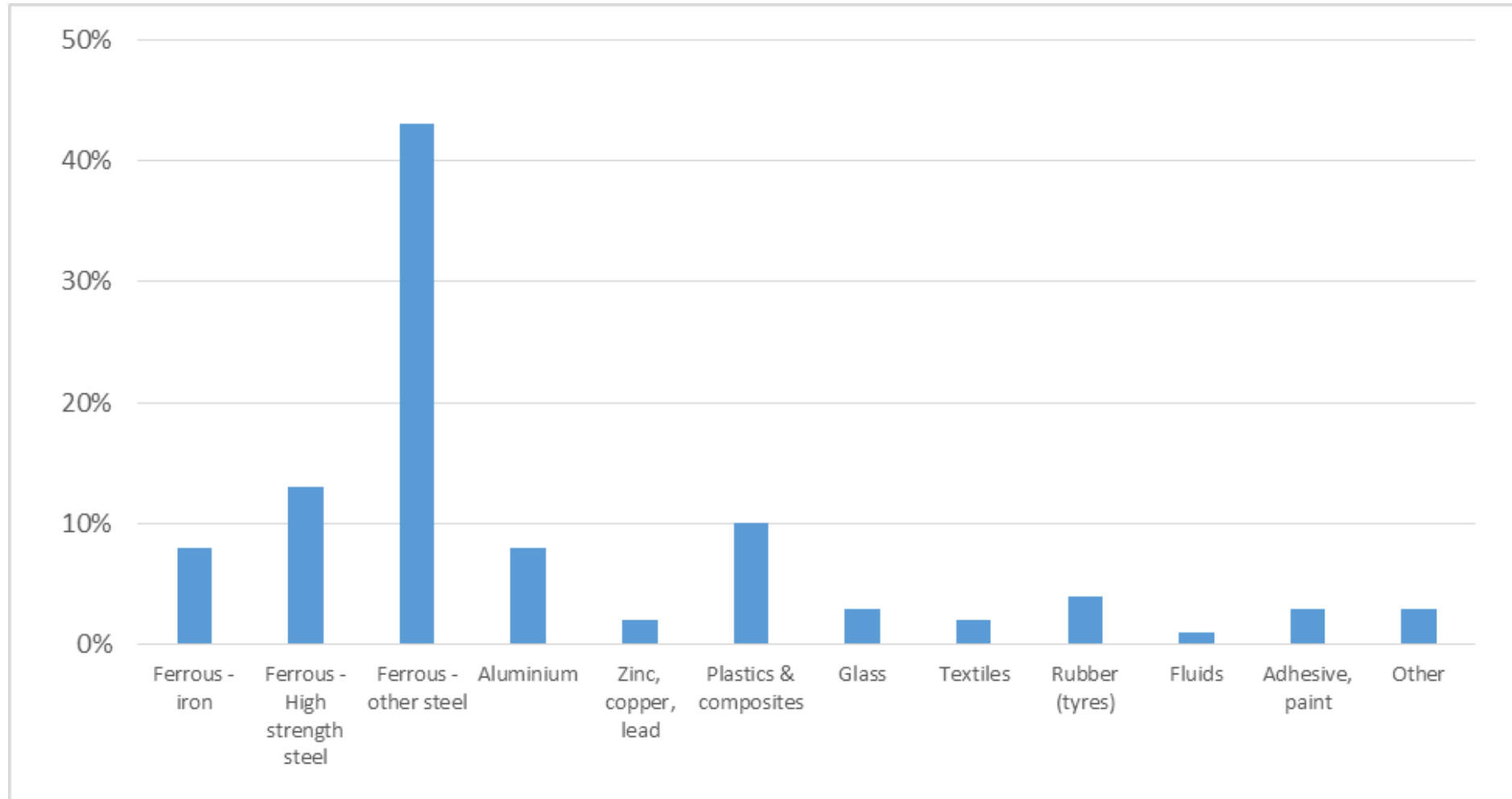
End of life flows



Registered vehicles in Australia in 2015 by category and annual growth rate

Vehicle category	2015 registrations ('000's)	Average annual growth 2010-15 (%)
Passenger vehicles	13,549	2.1
Campervans	58	3.9
Light commercial vehicles	2,907	3.5
Light rigid trucks	141	4.1
Heavy rigid trucks	332	1.0
Articulated trucks	95	3.0
Non-freight carrying vehicles	23	0.7
Buses	95	2.0
Motor cycles	807	4.3
Total motor vehicles	18,008	2.4

Indicative estimate of passenger vehicle composition (% of total)



Trends

- cessation of vehicle manufacture in Australia
- lightweight materials
- design for recyclability protocols
- electronic systems include on-board computers
- growth in hybrid and electric vehicles
- models identical across world markets

Industry overview

- The 480 auto recyclers are generally small to medium enterprises with a diverse range of capital resources, experience and levels of compliance with the law.
- The five largest auto recyclers accept about 20% of the ELVs with each processing about 10,000 ELVs annually.
- The remaining 80% of ELVs is accepted by the 475 other auto recyclers.

Industry overview continued

- Motor Vehicle Dismantling and Used Parts Wholesaling industry in Australia generated a revenue of \$961.2 million in 2014/15.
- 1472 establishments, 926 businesses (431 in Victoria)
- average of 2.4 employees, and an average annual wage of \$42,000
- the number of businesses had reduced from about 1,300 in 2005/06

'High' level auto recyclers

Characteristics as follows:

- compliant with employment, OHS, and taxation legislation and regulations
- compliant with environmental legislation and regulations including de-pollution requirements
- professional business with skilled staff
- target late model vehicles (less than 8 years in age) purchases
- sound inventory management
- computerised yard management
- high level of disassembly
- all parts racked, numbered and traceable
- sophisticated sales team.

Source of vehicles-High level recyclers

- In Victoria about 30 auto recyclers are considered to be 'high' level.

The typical breakdown of supply sources :

- repairable write-offs 5%-15%
- statutory write-offs 35%-60%
- private vehicle owners 10%-20%
- smash repairers, tow, mechanics 5% - 20%

Compliance

- 90% of auto recycler and scrap metal recyclers processing ELVs were non-compliant to some degree with OHS and environmental protection regulations and 9 per cent were referred for moderate environmental breaches causing obvious and ongoing serious pollution to soil and waterways. *Source: Inter-Agency Task Force Discover (Victoria Police Crime Command; 2014)*
- Assumed that 70% of fluids, by volume, are removed and disposed of appropriately.

Parts sold by a high level recycler by weight

Category	Total
axles	70-80%
door panels	40%
drive shaft/clutch	70%
engine	90%
glass	20%
radiators	40-50%

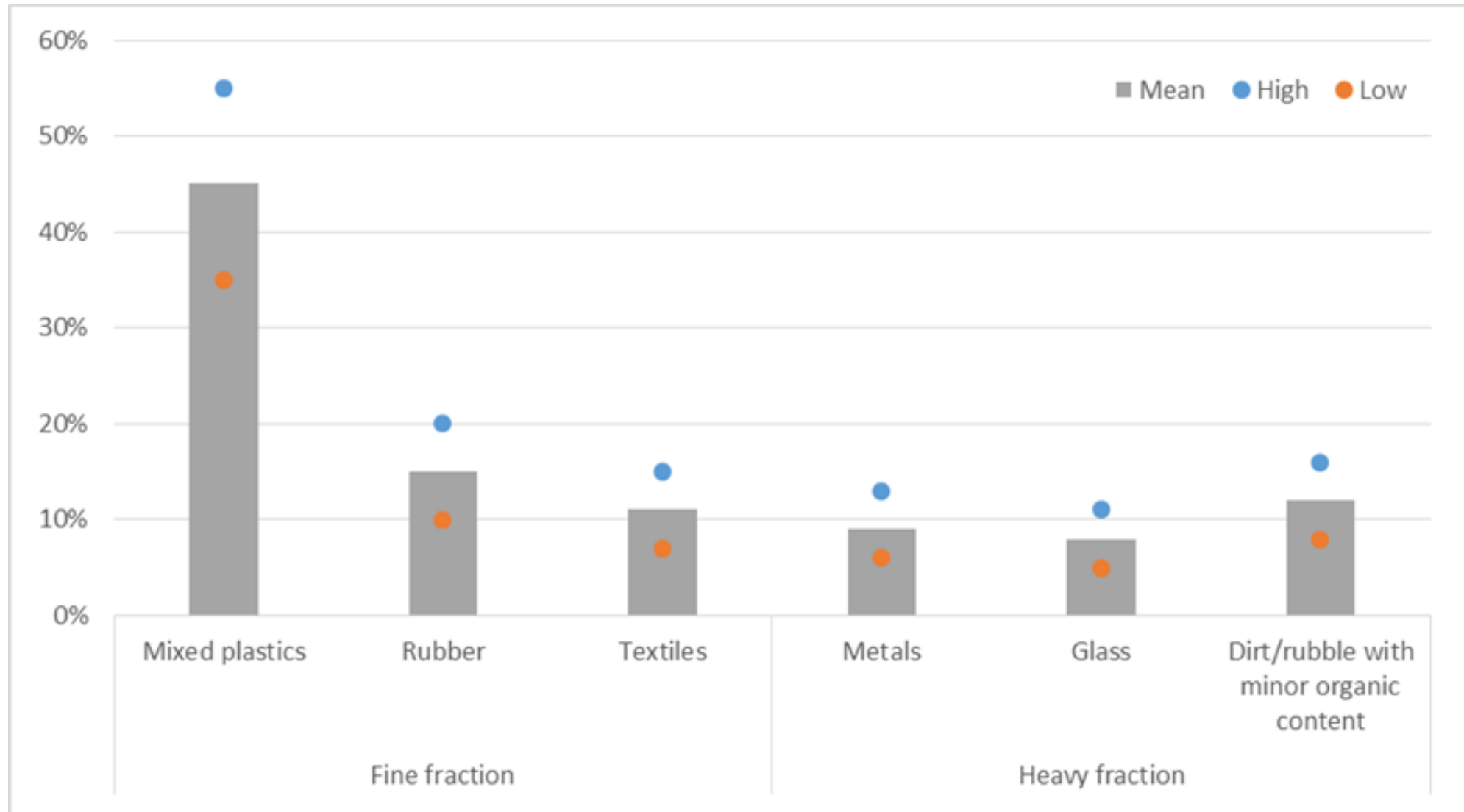
Quantities

- After allowing for export, about 300,000 tonne of ELVs are disassembled at Victorian auto recyclers.
- Approximately 70% of this mass (210,000 tonne) is received by shredders each year. The other 30% is recovered by auto recyclers.
- ELVs are shredded with whitegoods and other post-consumer and industrial scrap.
- Shredders estimate that ELVs make up 20% to 30% of shredder feedstock.

Residue quantity

- Automotive Shredder Residue (ASR) generated in Victoria is estimated as about 30% of the total weight of ELV hulks.
- This is equivalent to about 63,000 tonne of ASR.
- The above estimate is at the upper end of the range based upon shredder's advice that ASR is between 20% and 30% of the total shredder floc generated.

Shedder floc composition % by weight



Indicative auto recycler income per ELV

Source	\$/ELV
used part sales	\$170
scrap sales	\$170
ELV hulk sales	\$45
total	\$385

local and international insights

- ELV related product stewardship schemes
- United States environmental protection laws relating to ELVs
- technological advances in ELV recycling and recovery
- codes of practices for ELV processing.

Green Stamp program

A focus on:

- storage practices for chemicals and other hazardous substances
- pre-treatment of wastewater prior to approved disposal
- spill management to prevent pollution of ground and stormwater
- correct disposal of waste products
- air quality management
- energy and resource conservation
- environmental management plans.

Opportunities

The following have been identified:

- De-pollution
- Support for existing product stewardship schemes
- Enhanced use of spare parts
- Improved recycling through disassembly
- Improved recovery from ASR

Regulation

- the industry is not subject to an ELV product stewardship scheme and hence is not required to meet specific recycling and recovery targets
- the regulatory oversight of ELVs in Victoria is less than in many overseas jurisdictions.
- many overseas jurisdictions utilise a more regulated deregistration pathway
- this is often linked to product stewardship payments to drive the attainment of recycling and environmental outcomes.

POSSIBLE WAYS FORWARD

- refine the estimates of ELV export, disposal to shredders, the composition of ELV hulks, and the quantity and composition of shredder floc and ASR.
- engage with the Task Force Discover working party to develop responses and assess options including a de-registration system and responses to improve environmental performance
- encourage more active participation in the Green Stamp Program

POSSIBLE WAYS FORWARD

- undertake a review of barriers to the use of reconditioned spare parts which may result in a significant increase in revenue across the industry.
- work with industry to facilitate the disassembly and recycling of windscreen and windows, recovery of electronic components and rare metals and recovery of plastics and plastic polymers
- assess whether a Product Stewardship approach is required, what it may look like and what steps would be required.

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