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International Public Works Conference
HOBART • TASMANIA • 25-29 AUGUST 2019

State of Waste

Industry & Policy Update

[IPWEA – International Public Works Conference]
Time: 25 – 29 August 2019
Venue: Federation Ballroom (level 1)
Hotel Grand Chancellor
1 Davey St, Hobart TAS 7000

Presented by Mike Ritchie
Time: 8.47 AM – 9.23 AM
Structure: 30 min preso + 6 min Q&A

The specialists in recycling, waste and carbon

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Content

1. Waste Generation
2. China National Sword
3. Levies
4. Grants
5. Policies
6. Circular Economy
7. Climate Change

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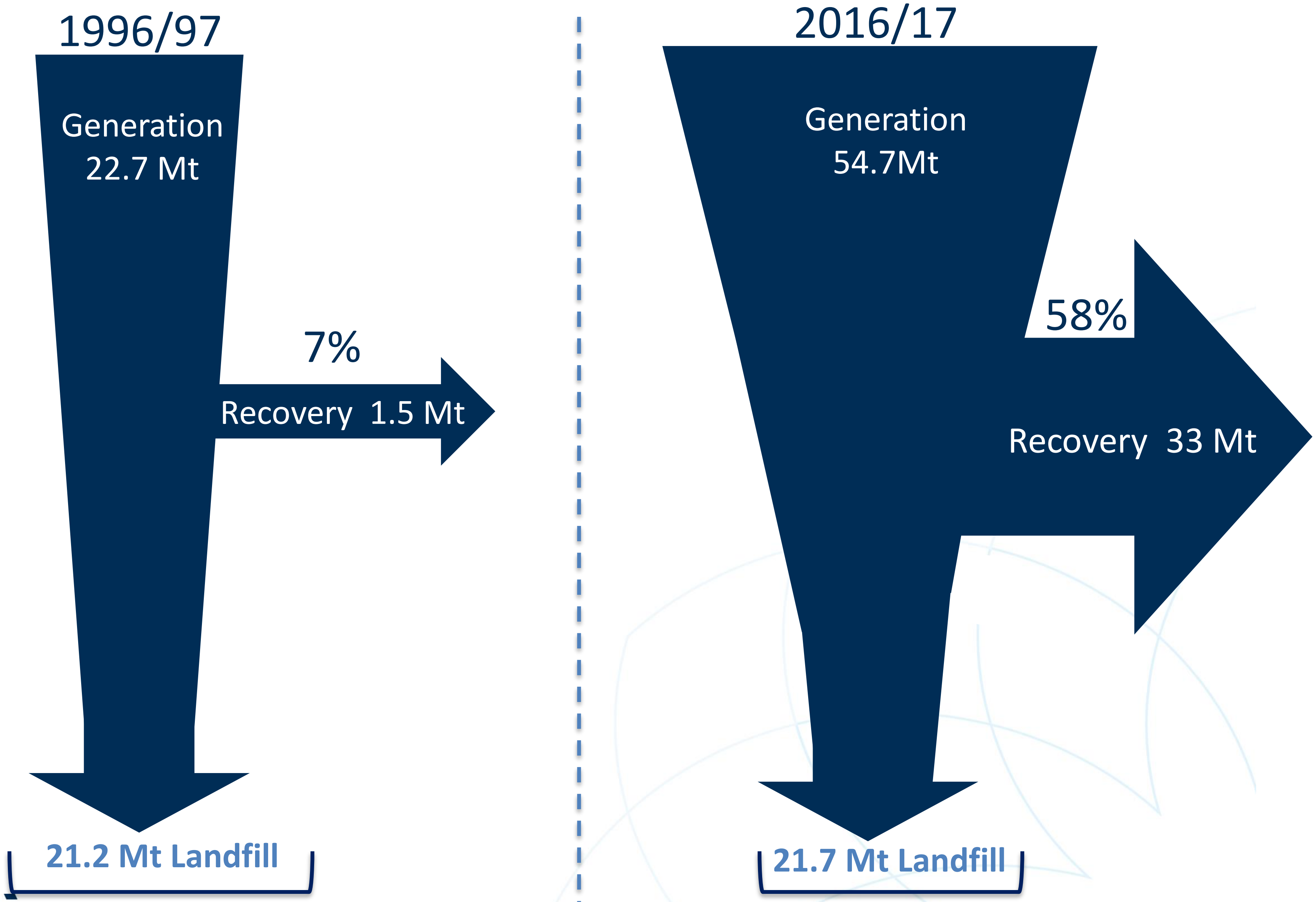
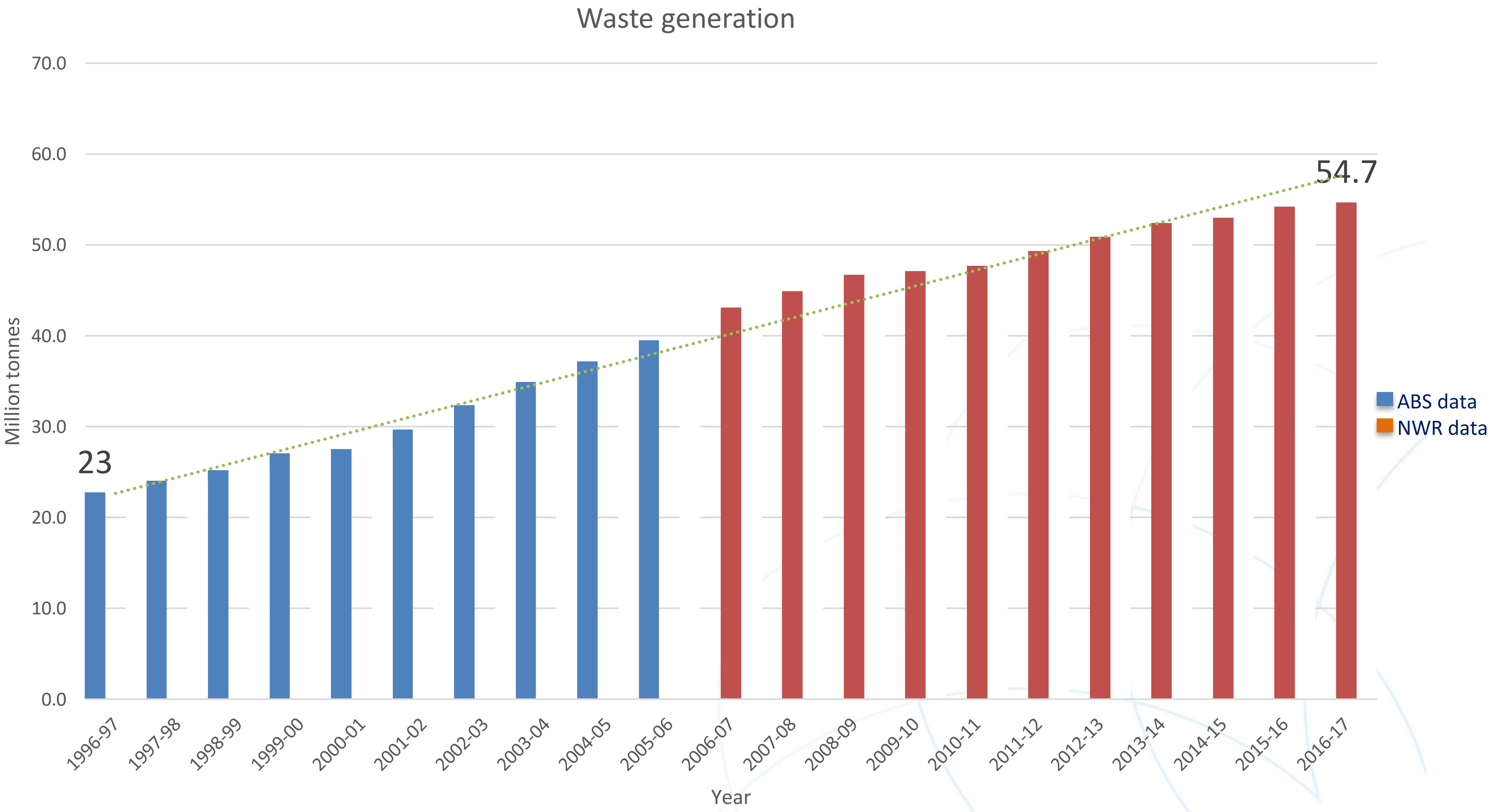
Total - Australia



Source: ABS,2007-2018

National Waste Generation

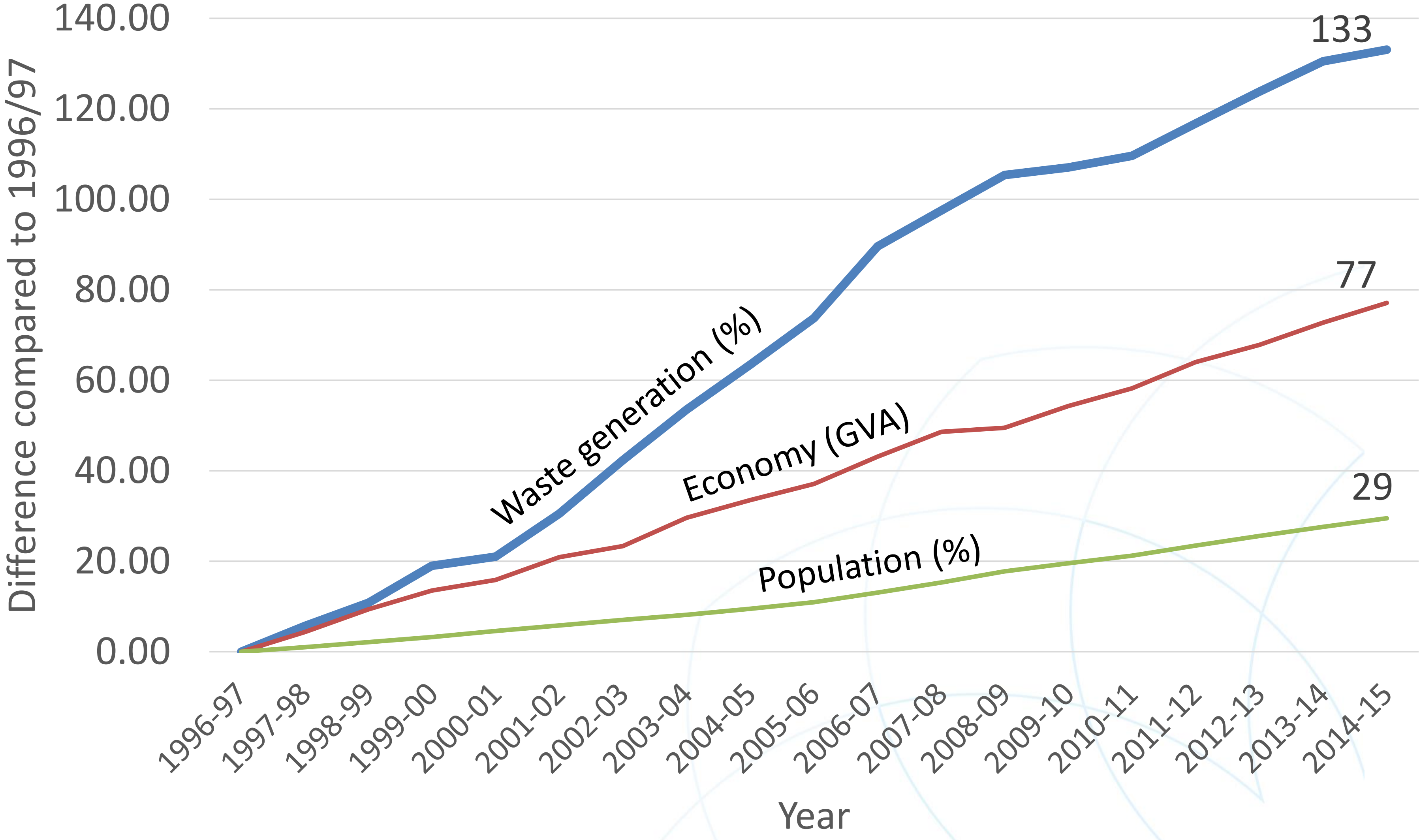
compound annual growth rate of 4.3%



Source: ABS,2007-2018

Waste generation growth

4.5x population growth
1.5x economic growth



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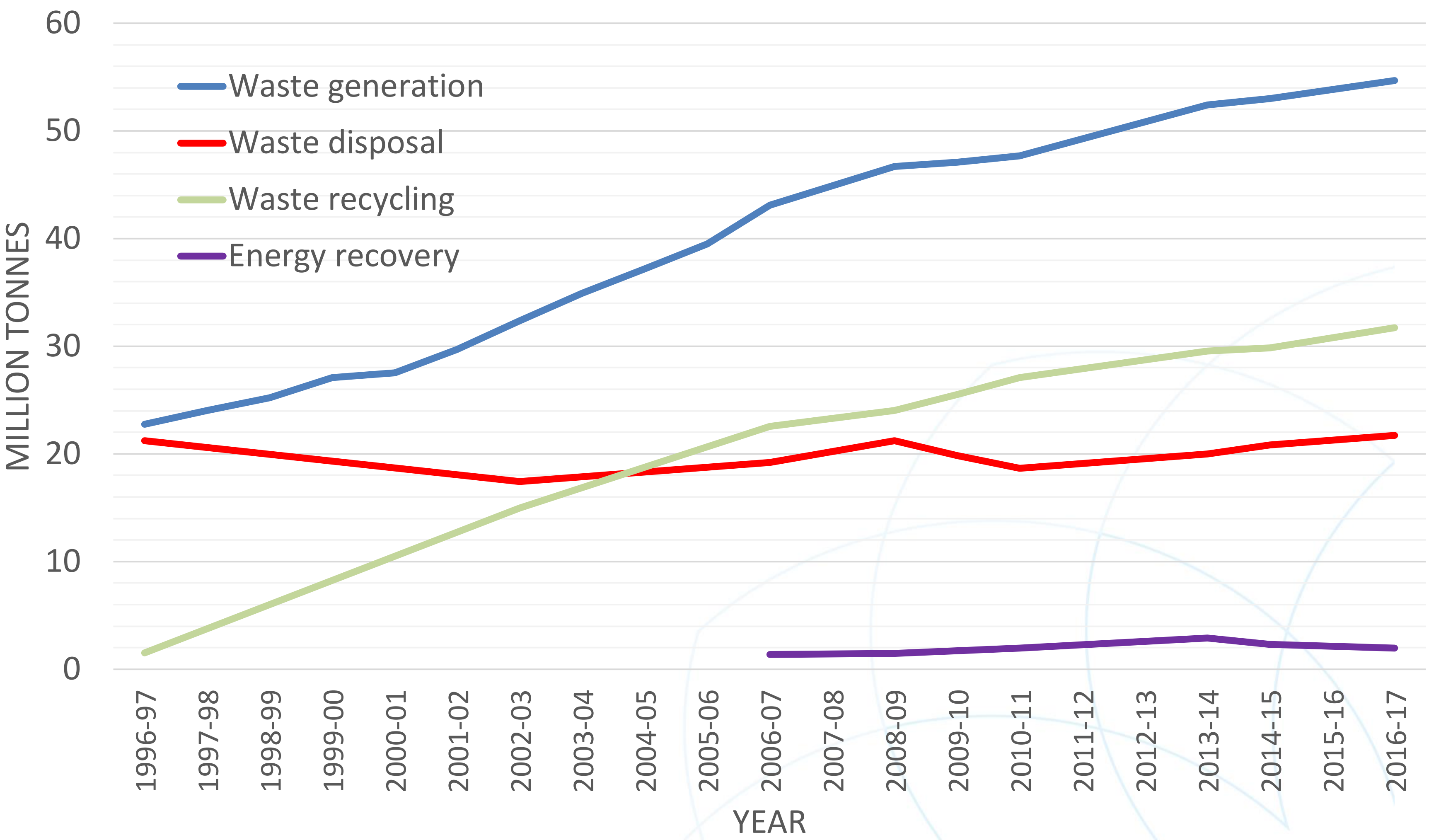
Source: ABS,2016

More waste, more recycling



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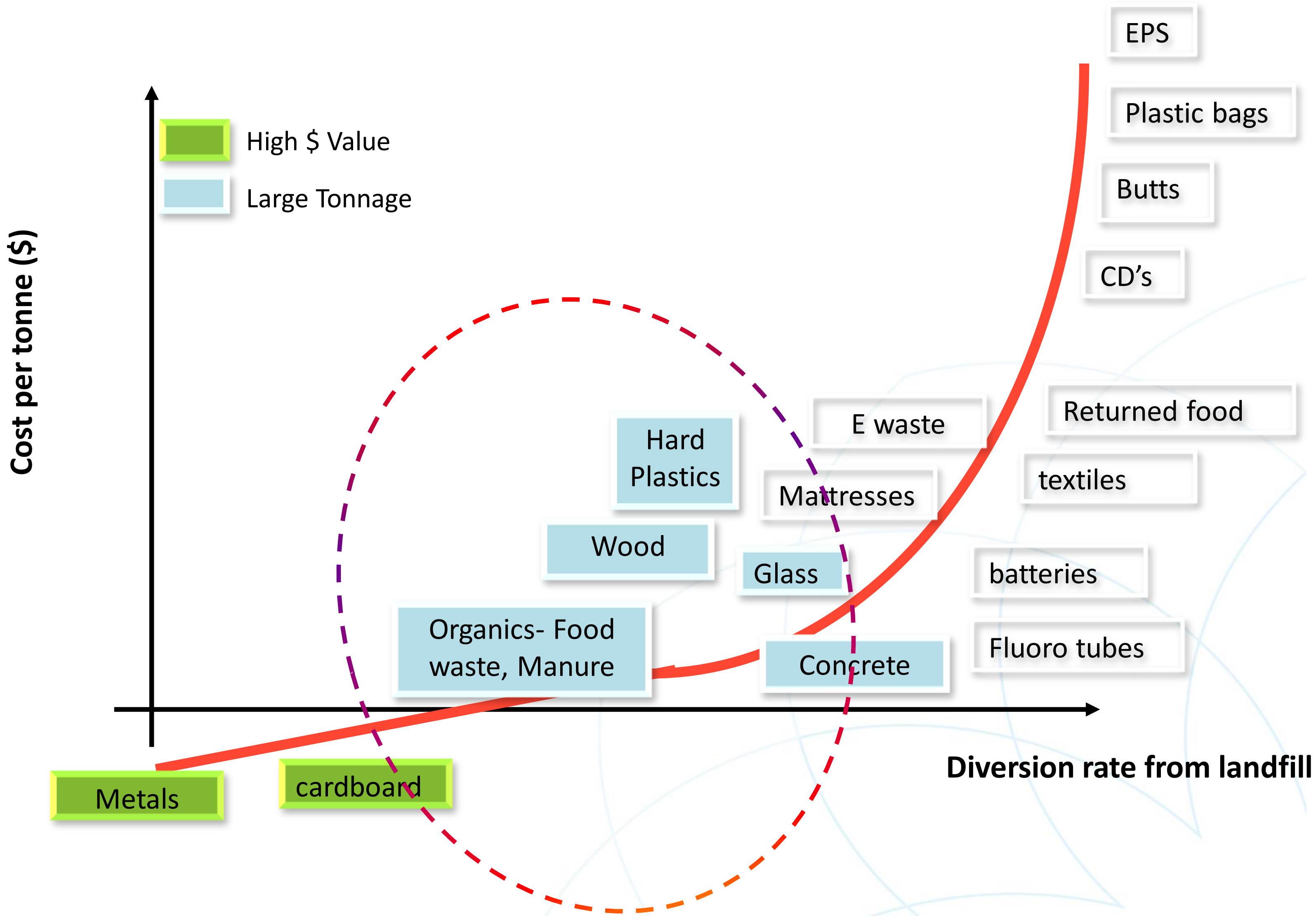
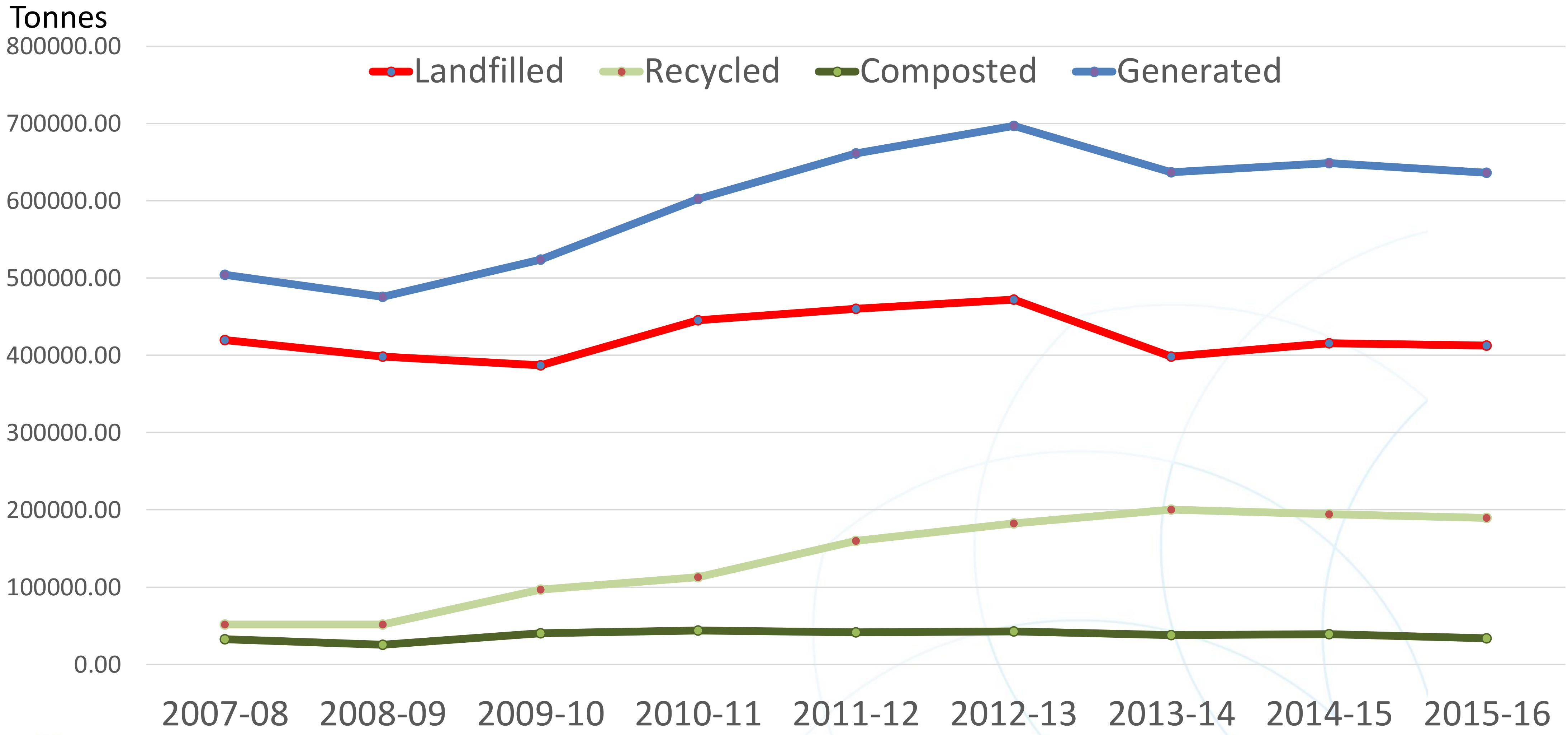
Source: ABS,2007-2018

Economics of Waste



Tasmania – Waste generation (tonnes)



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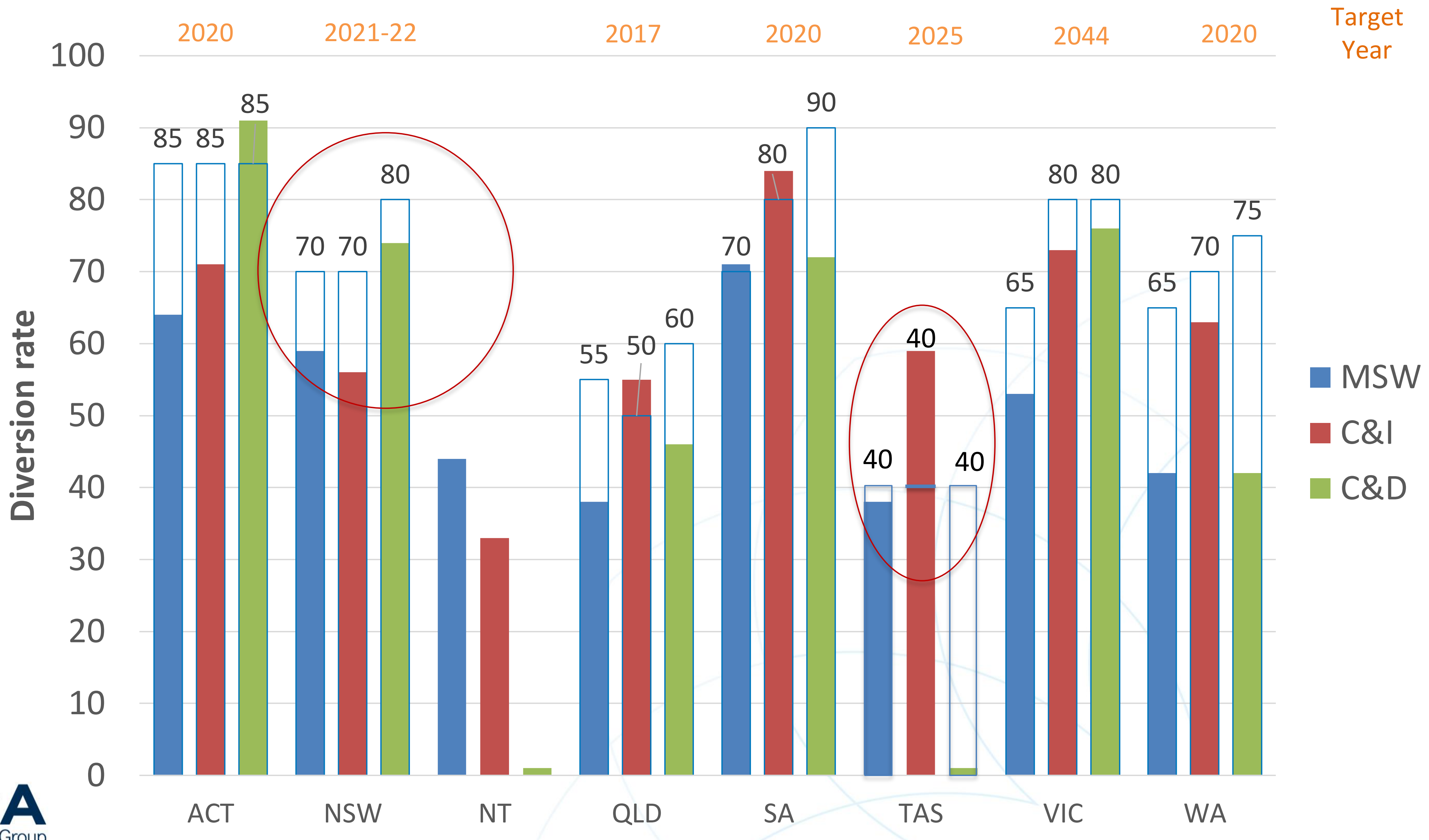
State/Territory Targets



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2. China National Sword

China National Sword

"Imports of solid waste that can be substituted by domestic resources will be phased out by the end of 2019" – State Council of China

- It is NOT about contamination. It is about industry policy.
- 0.5% contamination – difficult for MRFs to meet
- India, Malaysia, Vietnam, Indonesia swamped with Containers and Fibre

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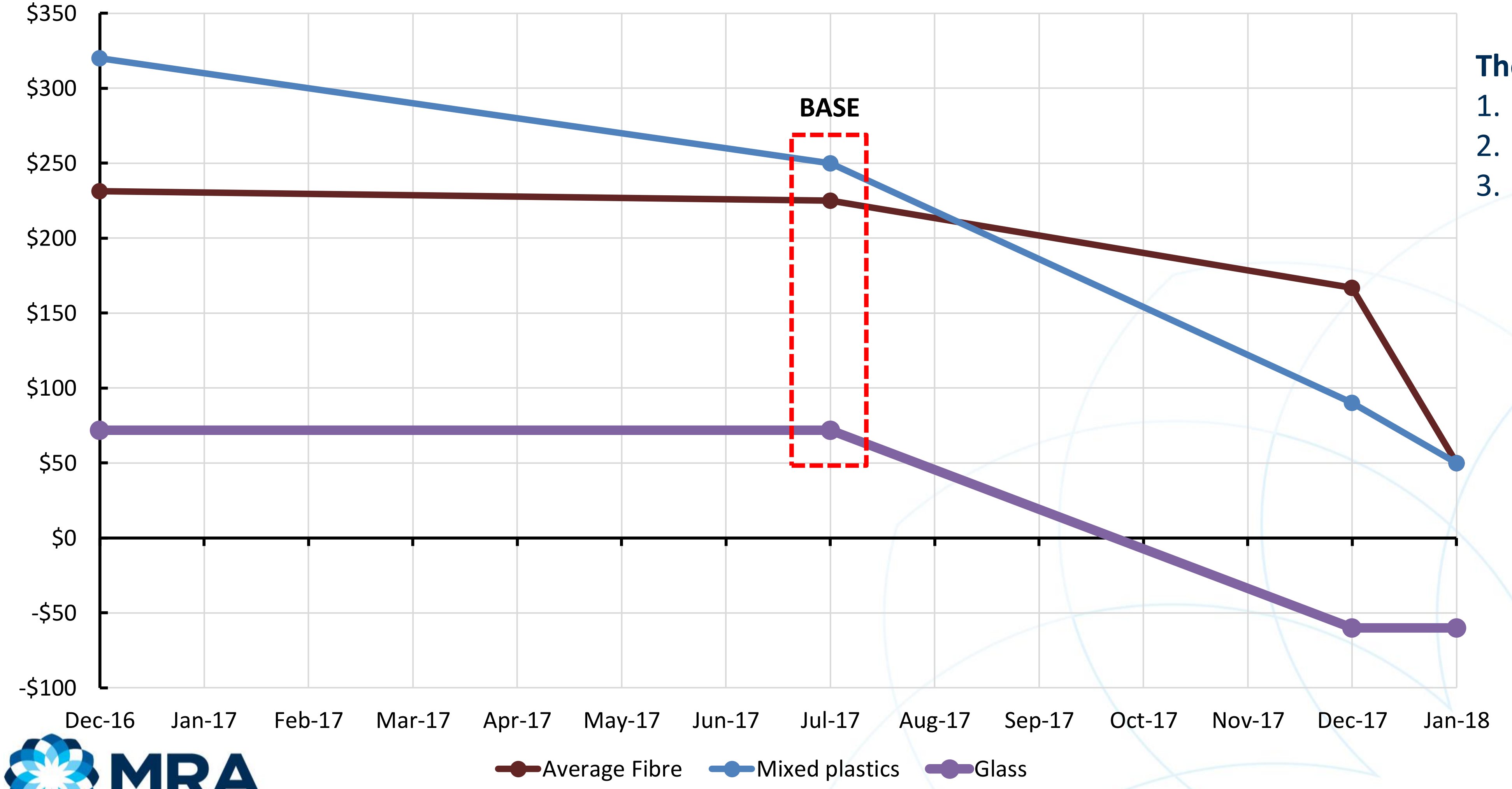
BUT – prices have crashed for MRFs. $60-100/t



The impacts:

1. Reduced import licenses
2. Oversupply
3. Crash in price globally

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Some key points

It is a traded commodity – not waste

- MRF contamination (nappies) is not the same as export contamination (cross)

It is efficient to capture the last 5% in secondary facility.

1. Therefore it is exported with 5% contamination;

We need to onshore secondary reprocessing and massively increase domestic use

1. Glass in road base
2. Plastic in asphalt
3. Buy recycled paper

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China National Sword: Actions

- $47m NSW
- $13m VIC
- $20m Federal
- $2m SA

ACOR – only $150m needed to "de-risk" kerbside recycling

Action	Calculated Cost (total) ($m)
Investment in MRFs: Glass, plastics, fibre	$90m
Improvement contracts, auditing & monitoring, waste date	$30m
Contamination	$30m
Procurement	$30m
SUB TOTAL	$150m

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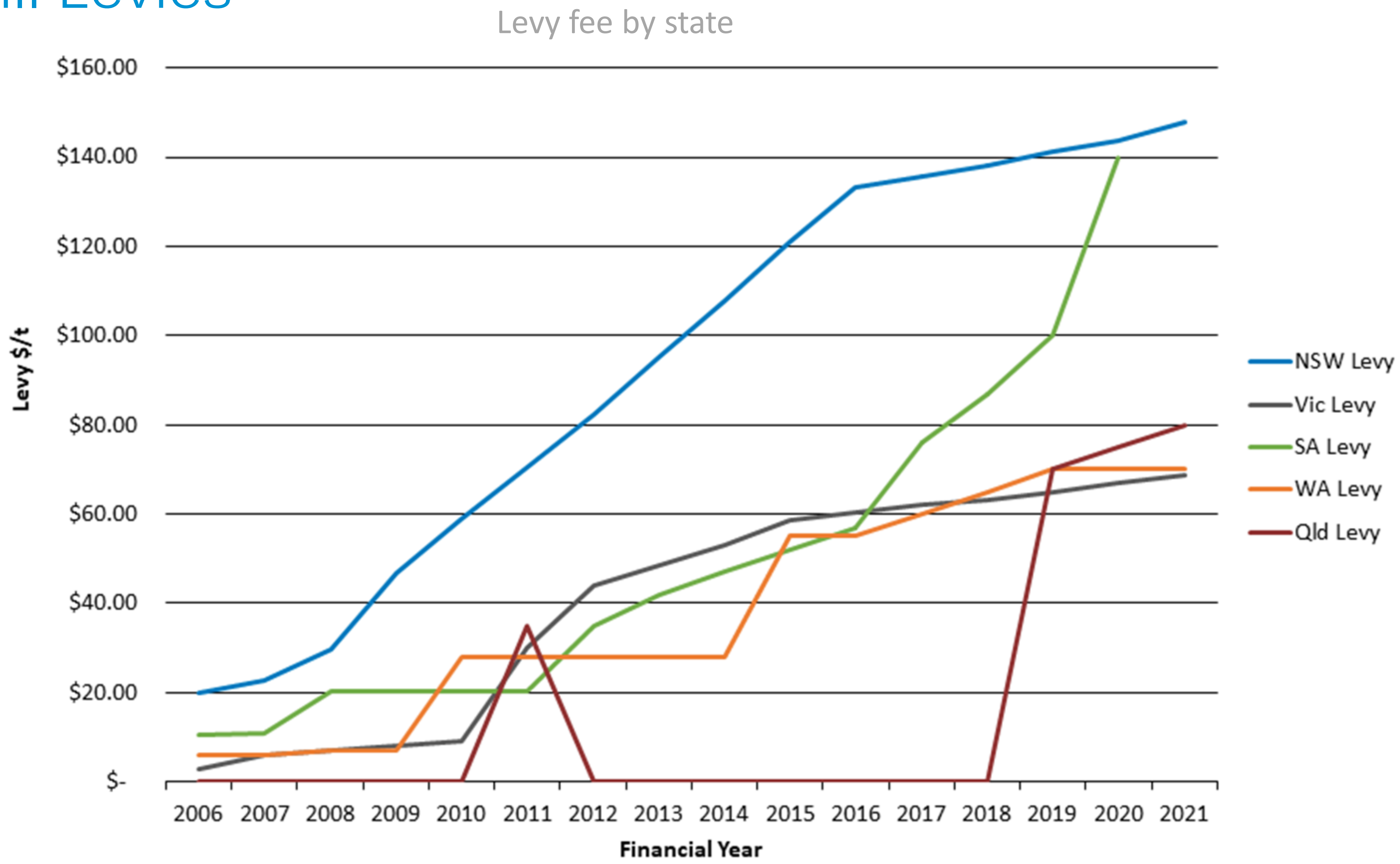
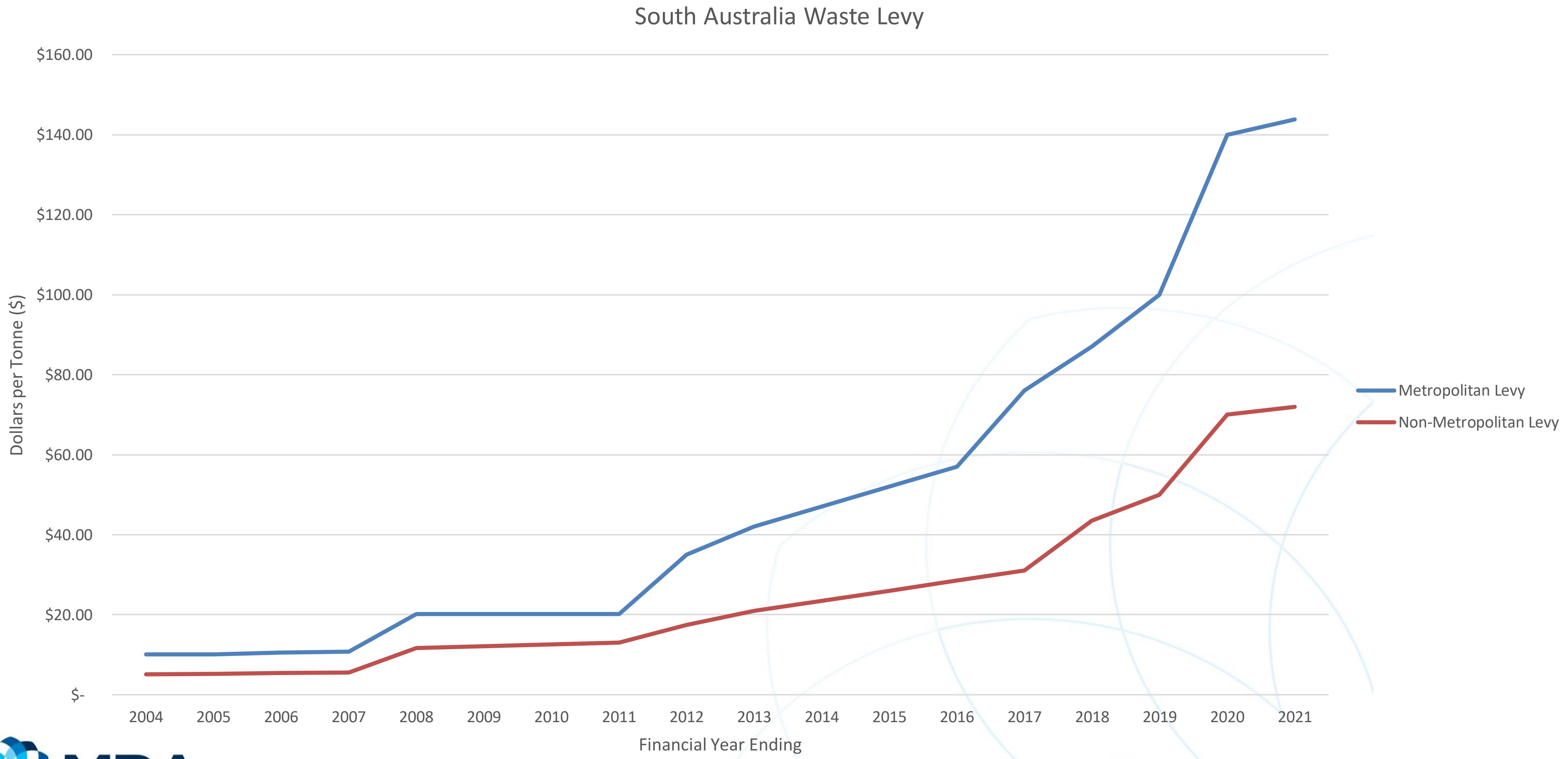
Landfill Levies



South Australia Waste Levy



Source: data.sa.gov.au

Tasmania Gov – Draft Waste Action Plan (DPPWE)

- Waste levy by 2021;
- CDS by 2022;
- Reduce organics to landfill 25% by 2025
- Reduce Generation by 5% pp by 2025;

- 40% recovery rate by 2025

- Lowest littering by 2023;
  - 100% packaging reusable, recyclable or compostable 2025;
  - Phase out unnecessary plastics by 2030;

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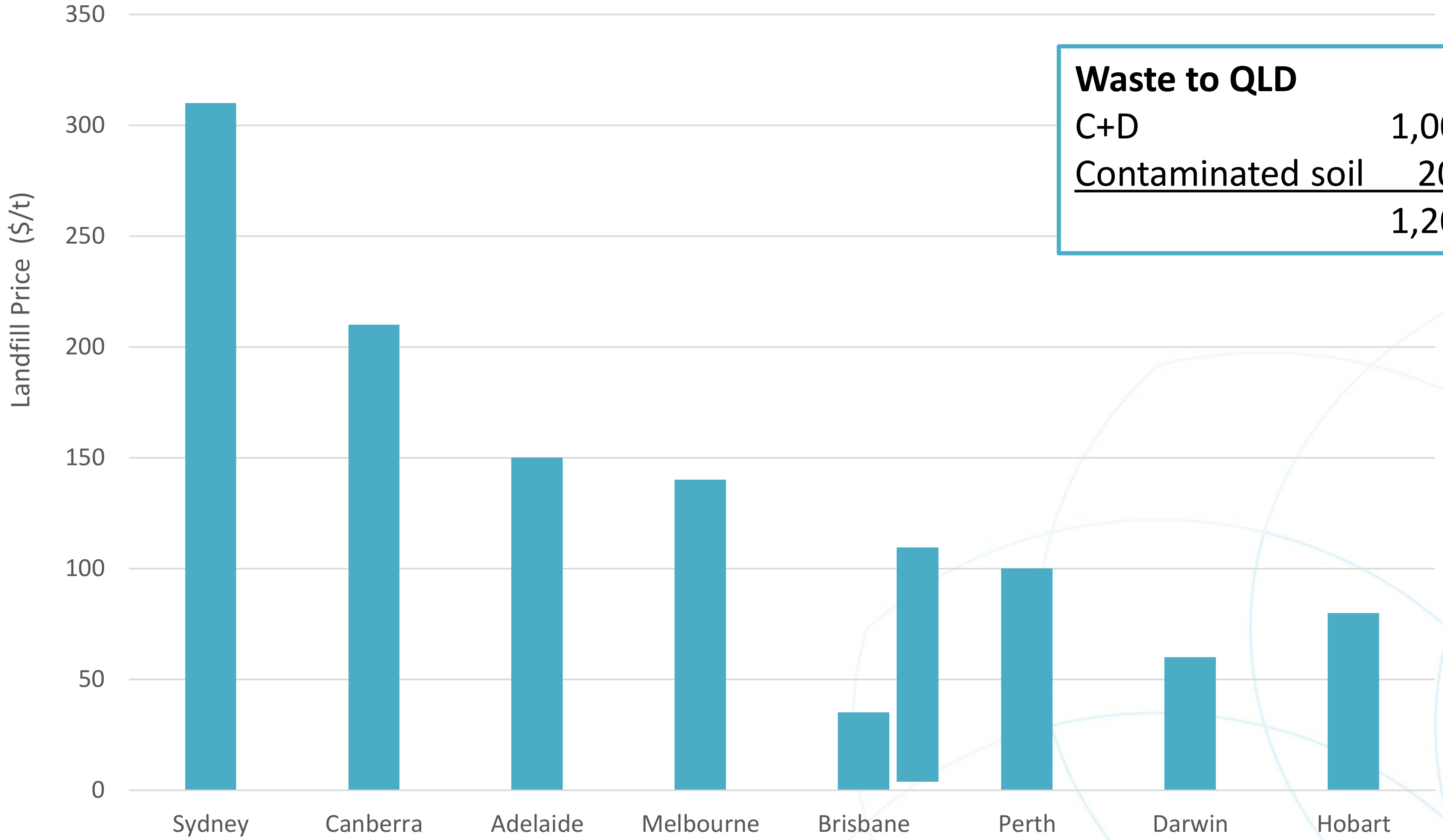
Landfill Pricing



Waste to QLD

C+D	1,000,000m
Contaminated soil	200,000m
	1,200,000m

Content

NSW Govt grants for infrastructure

Waste Grants – Rest of Australia

Grant	Authority	Funding	Purpose	Dates
R+D Grants	VIC	**Up to $200k** **Matched**	Reduce waste to landfill	31 May 2019
Stream 1 Resource Recovery Grants	QLD	**Up to $5million** **Matched** up to 50%	Growth in biofutures and resource recovery. Recover wastes currently landfilled or going to low value outlets. New or improved infrastructure	Re-opening later 2019
Stream 2 Resource Recovery Project	QLD	Negotiated with Qld Gov		On-going EOI stage
Stream 3 Resource Recovery Investment Pipeline	QLD	**Up to $1million**		On-going EOI stage
Resource Efficiency and Productivity (REAP)	SA	Up to **$20,000**: • Up to $10,000 matched (1:1) funding for 3rd party assessment; and • Up to $10,000 to kick-start implementation of recommendations	Improve business Invest in activities and infrastructure	On- going EOI stage.
Solid Waste Opportunities Program (SWOP)	SA	Up to **$15,000**	Increase the amount of waste diverted from landfill	On- going EOI stage.

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Council of Australian Governments (COAG) Communique 9 Aug 2019

Waste and recycling

- *Establish timetable to ban the export of waste plastic, paper, glass and tyres;*
- *Building capacity to generate high value recycled commodities and associated demand;*
- *Reduce waste, especially plastics;*
- *Decrease the amount of waste going to landfill;*
- *Maximise the capability of our waste management and recycling sector;*
- *Strategy using including CSIRO & CRCs*

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Key instruments

Jurisdiction	Strategy	Targets	Levy	Landfill bans	Infrastructure grants	EfW policy	CDS	Plastic bag ban	Hazardous waste tracking	HH chemical collection
National	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
NSW	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓
Vic	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓
WA	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓
QLD	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓
SA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ACT	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
NT	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗
TAS	✓	✗	✓*	✗	✗	✗	✗	✓	✗	✓

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PEF processing

Product Market development programs → but patchy and weak

Plastic bags

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CDS

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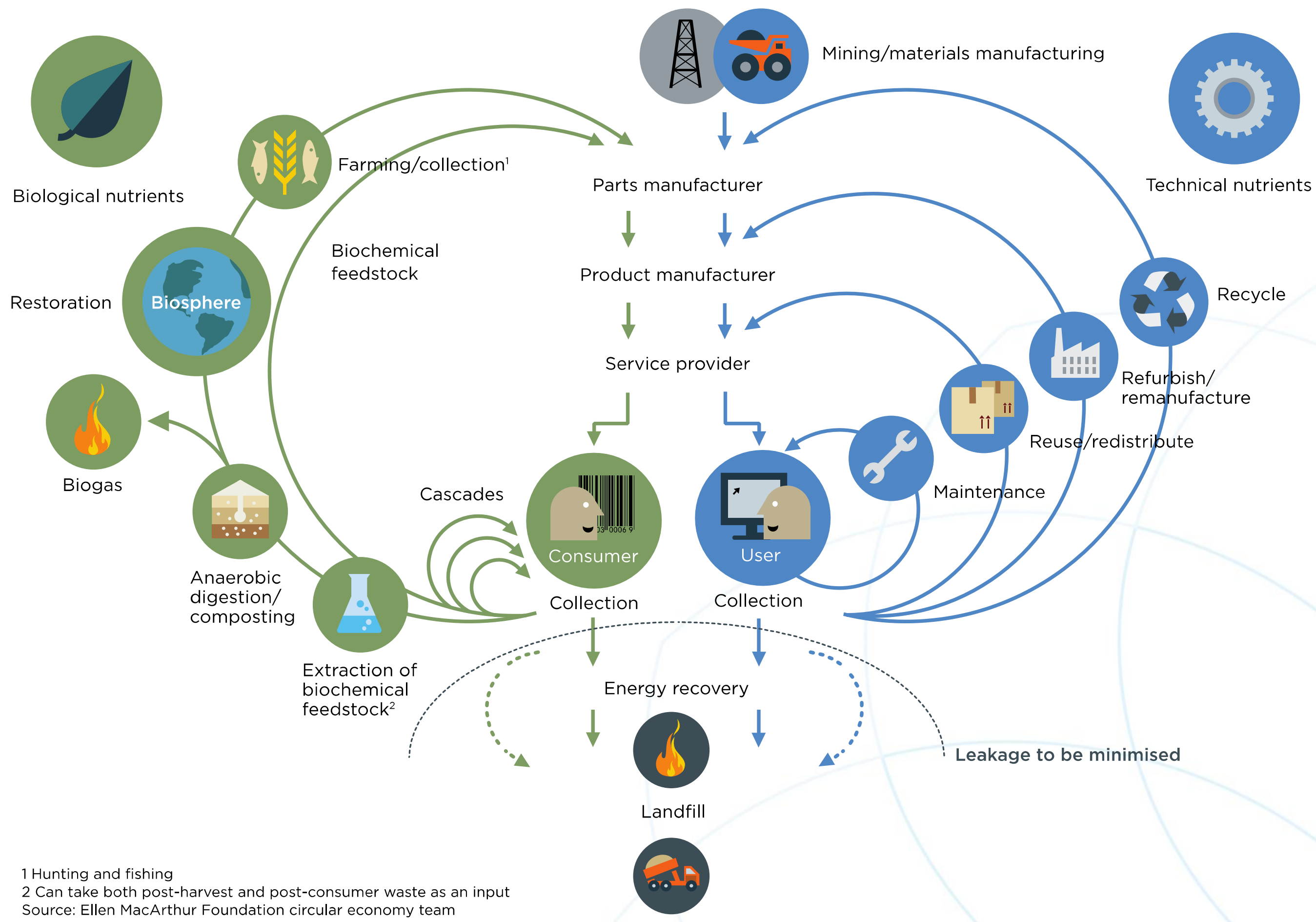
The circular economy diagrammatically

FIGURE 6 **The circular economy—an industrial system that is restorative by design**



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation circular economy team

Circular Economy – State and Territory Policy

Single biggest CE Action: ORGANICS

- 10 MT to LF
- 50% of all LF
- 3% Australia's GHG emissions
- Compost for Farmers
- Most degraded soils in the world
- Mandate 3 bin GOGO and Commercial FO

Methane

Climate change

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Plenty of compost markets

Example NSW

- 56 million ha pastures
- Need 51,000 ha
- 0.09% of agriculture land

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Climate Change - Action is urgent

UN warning – 12 years to keep climate change to less than 1.5 ^{0}C

Up to 60 MT of abatement from waste activities

10% Aust emissions and $ cheap

Half of our Paris commitment

- Recover embodied energy by recycling
- Divert organics from landfill
- Capture methane from landfills

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thank you

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Suite 409 Henry Lawson Building
19 Roseby Street Drummoyne NSW 2047

P 02 8541 6169
E info@mraconsulting.com.au

mraconsulting.com.au

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Overcoming C&I FO challenges
→ Plenty of processing capacity for FO and FOGO

- Earthpower Anaerobic Digestion
  $260/t v landfill $330

- Sydney Water Anaerobic Digestion
  x 11 possible facilities
  can marginally price – great value

Composting
  $80-150/t depending if open windrow or in-vessel
  plenty of sites

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