



The Circular Economy:
A resource recovery industry
perspective

Towards a sustainable future

Barrier 1: The waste hierarchy is linear...

Linear model Circular model **Most Preferable** Manufacturing Avoid We need to Reduce Utilisation > Waste move towards a Reuse Resources > Base Materials Recycle Reuse & Remarketing Recover 1 Junction 1 product-life extension v new goods **Treat** Cost advantage product-life extension **Dispose** Loop 1 reuse of goods, repair of goods, reconditioning of goods and technological/ Fashion upgrading of goods **Least Preferable** 2 Junction 2 virgin materials v recycling materials Cost advantage virgin materials





Barrier 2: LCA as a tool to make decisions...

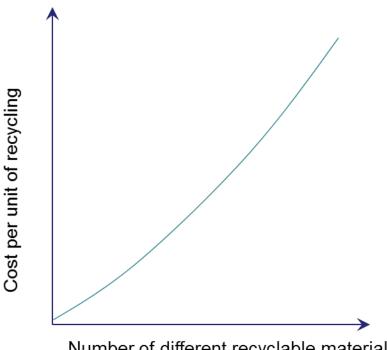


Hopeless boundary issues

Misusing LCA results= low cost analysis



Barrier 3: Material complexity & technical feasibility



SUSTAINABLE DESIGN PRINCIPLE



Low-impact materials
Energy efficiency
Emotionally durable design
Sustainable design standards
Design for reuse and recycling
Bio mimicry
Service substitution
Renewability

Number of different recyclable materials

We need a national consistent material manufacturing and design standards!



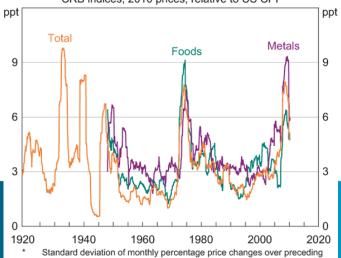
Barrier 4: Government policies

- Governments do not focus on sector profitability, sustainability and industry development.
- Subsidies to the mining industry
- Waste levy revenue from bad design= unavoidable residuals not being returned to the industry= a tax on CE and a Tax on recycling
- Fail to see circular economy strategies as central to insurance from material price volatility/depletion, resilient and stable economy



Real Commodity Price Volatility*

CRB indices, 2010 prices, relative to US CPI

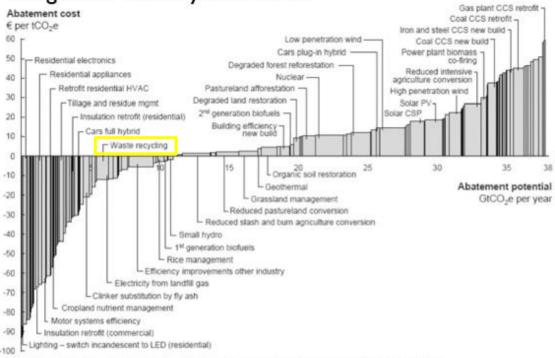


Sources: Global Financial Data: RBA



Barrier 5: Positive externalities in recycling **not** being recognised

The global McKinsey cost-curve



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below 650 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.













Barrier 6: Transaction and search costs

Reasons:

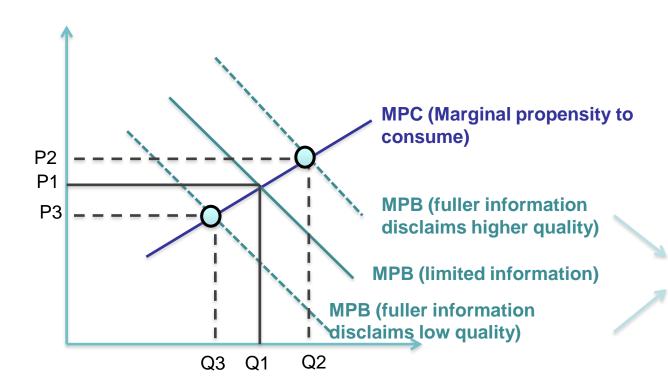
- 1. Diffuse and irregular nature of waste generation
- 2. Heterogeneous nature of secondary materials
- 3. Administrative costs due to permit requirements

4. Negotiation and bargaining given heterogeneity of secondary material

Hard to achieve economies of scale



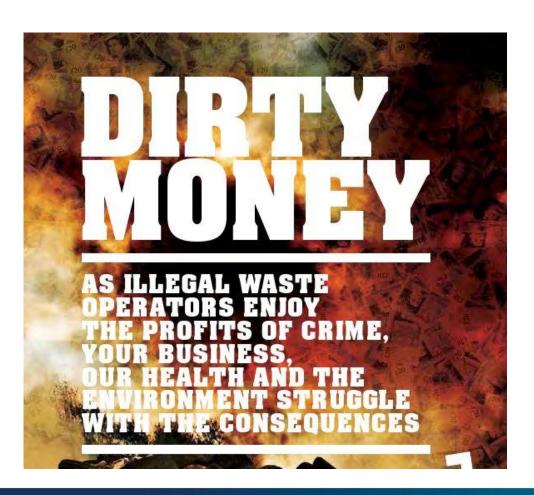
Barrier 7: Information failures related to waste quality



Marginal propensity to consumer can increase or decrease according to what fuller information reveals about a product



Barrier 8 Waste crime



- Levy avoidance
- Tax avoidance
- Market distortions
- Money laundering/organised crime
- Illegal exports
- Environmental degradation

Over 1 billion
AUD\$ is lost each
year!!



Untapped potential to boost the economy+ a sustainable resource based economy

At a National scale:

The **national economic contribution** of the waste sector is estimated to be \$14.2 billion per year.



A 30% improvement in Resource Productivity



Increase GDP by up to 3% and add 2 million jobs

