

AUSTRALIAN SUSTAINABLE BUSINESS GROUP'S

Submission on

**Australian Senate's Inquiry:
The Waste And Recycling Industry in Australia**

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1 OVERVIEW AND PRIMARY ACTION

The Australian Sustainable Business Group (ASBG) is pleased to comment on the Australian Senate's Inquiry: [The waste and recycling industry in Australia](#) (Waste Inquiry).

The [Australian Sustainable Business Group](#) (ASBG) is a leading environment and energy business representative body that specializes in providing the latest information, including changes to environmental legislation, regulations and policy that may impact industry, business and other organisations. We operate in NSW and Queensland and have over 120 members comprising of Australia's largest businesses and manufacturing companies.

ASBG considers the outcomes of the Waste Inquiry are limited by the powers of the Commonwealth has under the Australian Constitution, which firmly provides the vast majority of waste management legislative powers to state and territory jurisdictions. As a consequence, the main outcomes will be one of influence rather than regulation. However, the Commonwealth does have considerable powers over international management of wastes, especially in terms of export and importation of wastes. Nevertheless, the influence by the Commonwealth under the National Waste Policy is consider valuable, well researched, but seems underfunded. Also through the National Environment Protection Council (NEPC) the Commonwealth has considerable influence and on certain waste issues can and should take more of a leading role.

Australia's jurisdictional control of waste management has resulted in highly different waste management regulation, environmental standards and infrastructure. Unfortunately the strong self regulation principles adopted by the second tier of Governments across Australia has resisted a more consistent national approach. Overseas there are some good examples of how this can be achieved, take the United States for example:

The United States has managed what Australia still cannot manage in having a nationally used waste definition, classification and data collection system under their [Resource Conservation and Recovery Act 1976](#) (RCRA). RCRA sets up a framework for a national system of solid and hazardous waste control, where states lead in implementing 'non-hazardous waste' programs under the Act. RCRA also establishes minimum national technical standards for how waste facilities should be designed and operated. States issue permits to ensure compliance with EPA and state regulations.

ASBG considers the best way forward is for the Commonwealth to play a more active role in developing and promoting a national waste framework via the NEPC. Funding of additional appropriate research via the National Waste Policy¹ section in the Department of Environment and Energy would help in promoting further consistent national action to feed into the NEPC. Perhaps in the future a National Environment Protection Measure (NEPM) on waste could be developed over time setting some national minimum standards.

R1 ASBG recommends the Commonwealth increase its funding and influence under the National Waste Policy to progress its current work and potentially work towards more nationally consistent minimum standards for waste facilities and their management to be run by state jurisdictions.

ASBG has listed the terms of reference and provided comment on each.

¹ National Waste Policy <http://www.environment.gov.au/protection/national-waste-policy>

2 COMMENTS BASED ON THE TERMS OF REFERENCE

This section provides comments based on the terms of reference of the Waste Inquiry. ASBG's main recommendation in section 1 is related to the issues identified below and is provided to assist the Senate in understanding the complex issues surrounding waste and its governance. The conclusion provides further details on the types of guidance the Commonwealth can provide.

2.1 The quantity of solid waste generated and the rate of diversion of solid waste for recycling

Such data is generally available from state and territorial jurisdictions, however it is poorly aligned due to significant differences in the definitions of waste, recycling types, and other variations. Data quality is also questionable, as some jurisdictions tend to measure recycling rates and diversions in *ad hoc* frequencies and manners of execution. The Productivity Commission's report² found that:

Different approaches to defining, classifying and regulating wastes are leading to ambiguity and confusion. The processes for exempting some recyclables from regulation are unclear and inefficient.

The Australian Government should work with State and Territory Governments to improve existing definitions, classifications and exemption processes for recyclables. They should also explore ways to achieve greater consistency in regulatory standards for waste.

The main point is that even collecting the information on waste generation and landfill diversion is not properly comparable across each jurisdiction. This is despite data management being a key policy position under the National Waste Policy. Consequently, the Commonwealth should continue on with the National Waste Policy's drive to further assist and influence jurisdictions to adopt nationally consistent waste data and quality control to ensure comparability with quality data. Aspirational national recycling diversion rates will first require standardised measurements before they can be considered and ultimately agreed to.

2.2 The accreditation and management of landfills

There is no doubt there are large variations between landfill management across jurisdictions and even within them. This can be seen in the gate fee margin, after removal of any waste levy will show. For example, NSW landfills face considerably more expensive compliance operating obligations and conditions than in the Northern Territory. Differences between rural and urban serving landfills is also evident via the gate fee margin based on operational costs.

Over regulation of landfill acceptance can also lead to perverse outcomes. Management of asbestos waste is a critical requirement to ensure it is removed from the anthropogenic environment and appropriately buried. However, penalising landfills for poorly managed asbestos waste loads has simply lead to the landfills banning the acceptance of asbestos wastes altogether. Dust control from tipping such loads can be only partly controlled by the landfill as it has no control on the wrapping, stowage and wetting (or lack of it) from the generator. As a consequence, there are only two landfills in the greater Sydney Metropolitan area that now

² Productivity Commission –Waste Management 2006
https://www.pc.gov.au/_data/assets/pdf_file/0014/21614/waste.pdf

accept commercial quantities of asbestos waste. Similar trends of lack of asbestos disposal has been evident across Australia³.

Over cautious consideration of contamination within waste streams, such as the recent issue concerning PFOS and PFOA contamination⁴, simply results in having no or extremely expensive waste management options.

What the Commonwealth can do is again to influence jurisdictions to set a nationally agreed set of minimum technical standards for landfills and their oversight.

2.3 The extent of illegal landfilling

Illegal landfilling and dumping is poorly measured across Australia. Measurement tends to focus on Local Government clean up costs of illegal dumping, ignoring illegal landfilling as discussed below. High landfill gate fees are one of the main driving forces behind illegal dumping and landfilling. Criminal groups are frequently cited as being behind deliberate illegal landfilling. Complicating this is an avoidance by jurisdictions to linking illegal dumping to high landfill gate fees and waste levies. This is a poor argument, which is transparent in its deliberate protection of waste levies. The rise of criminal activities in illegal landfills requires appropriate response in the form of increased enforcement and policing. ASBG has been critical of environmental agencies as they tend to focus enforcement on easy targets, those which are trying to comply but make mistakes. There is a belief the hardened criminals tend to be avoided by environmental regulators due to their aggressive defensive. Environmental regulators are generally and historically not used to hardened criminal response and need to, and some are increasing their skills to address this.

ASBG considers there are a number of different illegal landfilling and dumping types:

1. Illegal dumping on publically accessible land where waste is dumped onto public areas, roads and parks or where the public has access.
2. Illegal dumping on private —both government and privately held land — where waste is dumped on land that has restricted or private access including businesses, industrial land, residential land, land owned and managed by government and its agencies but with restricted non-public access.
3. Illegal landfilling at waste facilities or sites that accept waste to land for beneficial reuse e.g. using NSW EPA's [Resource Recovery Exemptions](#). Here waste is dumped, but fails to meet the acceptance criteria imposed under regulatory and site owner / operator's conditions.

A number of reports on illegal dumping such as the [NSW Illegal Dumping Strategy 2017–20: Consultation draft](#) (IDS) only considered Illegal dumping on public land and did not include the other 2 types listed which should also be considered illegal dumping.

In addition, the IDS only measure the cost of illegal dumping as cost on Local Government and ignores the cost impacts on private land. ASBG members have long reported dumping problems on their private land. Serial dumpers show evidence that they target private land. In [Bankstown City Council v Hanna NSWLEC 152](#), Mr Hanna serially dumped waste on private and public land.

As landfill gate fees increase the incentive to illegally dump or illegally landfill increases. As with any tariff or levy on goods (or waste) Governments have always needed to police and enforce it. Smuggling is a historic crime against the state where significant resources are required to minimise its occurrence. Waste levies need

³ Best practice governance of waste asbestos transport, storage and disposal – a discussion paper. Blue Environment for ASEA, http://www.vwma.com.au/wp-content/uploads/2017/04/2017_04-AsbestosTransportStorageDisposal_discussionPaper.pdf

⁴ Victoria has listed a variety of [management options for managing PFAS impacted wastes](#) indicates they should not go to landfill at any

to be considered in a similar manner as illegally smuggling liquor, tobacco and drugs. You cannot eliminate it, but it must be controlled and policed otherwise it will get out of hand.

The Asbestos Safety and Eradication Agency (ASEA) published a report⁵ listing major known illegal landfilling, but this was the tip of the ice berg.

2.4 The role of landfill levies in determining the end destination of material, including the hypothecation of collected levies for enforcement and waste diversion purposes.

2.5 Hypothecation

Hypothecation of all landfill levies towards waste management purposes; especially to assist recycling is generally non-existent⁶ with in general only small fractions of revenue allocated to waste. Most waste levies are for jurisdictional revenue collection with token amounts provided for waste management and diversion. In NSW landfill levies have long ceased to be a largely method to divert waste from landfill despite the rhetoric and are largely a state tax. Environmental agencies have across most jurisdictions with waste levies above \$30/t have lost control over the revenues from waste levies and are in general firmly under control of jurisdictional treasuries. There are some waste funding programs such as [NSW's Waste Less Recycle more](#) program, though this represents about 12% of the collected levy amount in NSW Budget of \$704m. Prior to this allocation of levy revenue to waste was often less than \$2m p.a. and some years saw zero amounts allocated.

Put simply the waste levies in most jurisdictions well above external costs of landfills environmental impacts, in some cases by more than \$100/t above such costs. Businesses and residents are being exposed to another state tax somewhat hidden in their waste bills and rate notices.

Waste levies have proven a moderately effective, but blunt instrument to drive resource recovery, which comes at a very high cost to the people. World Bank⁷ indicates landfill costs in High Income Countries are on average \$US40-100/t. Sydney landfill gate fees, are around \$375⁸ for putrescible waste. ASBG members consider the price of waste management in Australia is very high compare to our trading competitors. ASBG considers waste levies should reflect the true external costs of landfills, which should not exceed \$30/t⁹. Note the \$30/t also includes greenhouse externalities, which are governed under the Clean Energy Scheme. As ASBG represents waste generators, who are in the vast majority, lower waste management costs are desirable.

⁵ Illegal asbestos dumping, Review of issues and initiatives, ACIL Allen Consulting table 2.2

https://www.asbestossafety.gov.au/sites/asbestos/files/2016/05/ASEA_Report_Illegal_Asbestos_Dumping_Issues_and_Initiatives_final_ACC.pdf

⁶ One known exception is the Victorian Hazardous Waste Fund and Category B and C waste levies.

<http://www.epa.vic.gov.au/our-work/programs/hazwaste-fund> - Note full hypothecation confirmation is not confirmed.

⁷ World Bank Estimated Solid Waste Management Costs by Disposal Method 2010

<http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/AnnexE.pdf>

⁸ SUEZ Waste Charges and Services from 1 July 2017

http://www.sita.com.au/media/publications/02831_Waste_Charges_and_Services_JULY_2017_WEB_FIN.pdf

⁹ ASBG submission NSW Waste Avoidance and Resource Recovery Strategy, Discussion Draft: Strategic Directions and Implementation Plan 2011–2015 – see section 5.2

http://www.asbg.net.au/attachments/193_ASBG_Sub_DECCW_Waste_Plan_2011.pdf

2.5.1 Levy Impact on Recycling

Recycling facilities are in general offered little to no assistance or special treatment from most Governments other than the impact of the levy on disposal. There are a number of grant programs, but these are generally *ad hoc* and limited as one off assistances Based on improved resource recovery performances waste levy appears to be assisting recycling. But this is not the case for many recycling facilities who must sell their products on national and international markets with recycling processors also pay higher waste disposal fees as a result of the levy.

The purpose of the levy is to encourage resource recovery, driving wastes to recycling and beneficial reuse options. However, this approach in practice brings about its own problems. Recycling economics are driven by economies of scale. The larger the quantities the smaller the unit profit needs to be for viable facilities. So in which ways does the levy assist recycling? A high levy should increase the volumes of materials seeking a more cost effective means other than landfilling. Cost pressure to send increased volumes to alternative markets certainly has occurred. While new markets have been established and or expanded, especially for C&D wastes, the levy is having a detrimental impact on much of the traditional recycling processes, such as metals, paper, glass and cardboard.

Case Study

The Victorian EPA commissioned the report Impact of Landfill Levy on the Steel Recycling Sector in Victoria¹⁰. It concludes that for every \$15/t increase in the levy rate places an addition \$783,000 p.a. on the steel recycling industry in Victoria. Options supported to counter the impact of the landfill levy included, provision of a partial levy exemption, better funding and grants to support the steel recycling industry and use of Product Stewardship programs.

The waste levy has the following impacts on recycling:

- Recycling facilities operating with a levy on their wastes do so at a higher cost margins.
- Recycling facilities cannot generally pass on these increased disposal costs to the product markets.
- Increases of a recycling facilities gate fees is very limited subject to competition from interstate and international markets for the recyclate, driven by transport costs.
- Uniform increasing of gate fees across the NSW facilities by the industry (or lowering acceptance price) is illegal as it would require cooperation of other competitors—a violation of the Trade Practices Act.
- As quantities of recyclate¹¹ materials increase in volume they of generally lower quality requiring more processing and generating a proportionally higher level of waste from the recycling process, further increasing marginal costs. (see section 2.6)
- Many recycling facilities are running at capacity, with excess recyclate input being exported. For example, there is far more glass containers sold in Australia than can be manufactured here.

Higher levies are not good news across all recyclable materials. While it drives economic pressures to divert from landfill, the recycling facilities themselves are subjected to levy costs on its waste streams. Additionally, the levy costs compete with transport costs to areas where lower or no levy applies. This in

¹⁰ Impact of Landfill Levy on the Steel Recycling Sector in Victoria 2007, Prepared by Marsden Jacob and Warnken ISE for Vic EPA.

¹¹ Recyclate meaning the waste materials to be recycled.

itself establishes perverse environmental outcomes. Further, the levy is also pushing poorer quality recyclates onto the markets, driving up costs for treatment.

Unfortunately, the levy alone is not designed to consider the impact of national and international markets for recyclates. International recycling facilities enjoy no similar levy costs. Lower operating costs and are generally much larger in scale. This enables them to undercut local recycling facilities by lower cost waste disposal generated from the recycling process. Having a much larger market closer at hand for the recycled products also benefits these recyclers. In addition, other services such as Energy From Waste (EfW) are available in other markets. EfW facilities are very difficult to establish in NSW and other states. As a consequence, NSW recyclates are increasingly being attracted to interstate and overseas markets as these facilities can offer higher acceptance prices forcing increasing long haul transport.

International prices and shipping for certain recyclate materials may be the more profitable outcome, driving the export of the collected materials overseas. As a consequence, some recycling facilities are under tough economic conditions with an increasing levy. If closures occur they will be very difficult to re-establish given the large economies of scale and similar levels of investment required. Exacerbating this would be an investment market noting the Government's failure to support recycling sectors.

Some Australian industries rely on recycled material feedstock, e.g. scrap metal, paper etc. If product of this recyclate are not generated in locally, — i.e. the recyclate is shipped interstate or overseas— then more local natural resources will be sourced, with perverse environmental (greenhouse) outcomes.

The levy contrasts to many jurisdictions other resource minimisation programs such as energy and greenhouse programs and water savings programs. Under these schemes business has a suite of grant programs and assistance packages and credit schemes to help reduce energy and water use. Levies from electricity retailers such as NSW's [Energy Saving Scheme](#) are hypothecated back minimising these utility uses. Waste for some reason is treated differently, only using the blunt levy. ASBG considers that additional systems and programs are required to be implemented to supplement the levy alone approach.

Overall an economic assessment of all levies, markets and impacts of transport costs and other marginal costs affecting the recycling industry in NSW is required.

2.5.2 More Support is Required for Recycling

Impact of the levies is having an increasingly negative economic outcome on the recycling industry. All recycling facilities must remove and dispose or manage the contaminate stream generated from their process. Dealing with this contaminant stream generally results in disposal to landfill and exposure to waste levies.

Recycling is also a diverse sector covering a range of different materials and generating separate products. Some are and have been generally profitable and viable such as paper, aluminum, steel and construction and demolition. Others are more marginal, such as non-lead acid batteries, wood, plastics, glass e-waste and green waste. Each needs to be considered based on their waste streams and products produced.

There are major threats to recycling including:

- Local waste levies which impact on the sites costs on its reject streams, for example:

Metal shredders in NSW have been given a 50% reduction in their waste levy as they would simply close otherwise. Their main competition was exporting their incoming scrap overseas. The KPMG

report¹² recommended this action, which if not taken would result in a loss of levy revenue and damage to NSW's steel sector. NSW EPA offered \$5m to assist the 3 metal shredders to find alternative methods to deal with their floc, the non-metal components from old cars, white goods and other input waste streams. The only economically viable solution was Energy from Waste. However, the very high environmental standards¹³ and the uncertainty of gaining approval under the planning process rendered this option unusable in NSW.

- Contamination issues within products

Western Australia's construction and demolition recycling sector has suffered from the rejection of their product by WA Government agencies—they refuse to buy it—due to asbestos contamination concerns. This is despite some sites doing hundreds of tests on their product demonstrating there it is asbestos free¹⁴. WA has an asbestos concentration limit of 0.001%, which is against zero calls from the asbestos lobby. This emotional response led to enough pressure for WA agencies to ban its use¹⁵. This perceived threat is resulting in major stockpiling issues for the C&D recycling sector. It also has led to a collapse in the WA recycling, major stockpiling and increased illegal dumping¹⁶. Perversely the fear about asbestos contamination by association and a hike in the waste levy from \$12/t to \$90 over 3 years has increased illegal asbestos waste dumping and illegal activity creating more health issues than the purchase ban was to solve.

Recycled products are facing increasing fear based rejections based on trace amounts or perceived amounts in the recycled product. This is not limited to asbestos contamination, but can easily spread based on the flavor of the month media toxic chemical focus. Currently this includes PFAS, with lead and mercury not far behind. Such fears need to be nipped in the bud and environmental agencies need to provide appropriate advice focusing on the low level of risk that trace concentrations pose. They should also include comparative and context risks. Agencies should avoid the term *Not safe* or *toxic* as these are emotional value labels and not scientific. Stating there is no safe level also signals that any level of a pollutant is dangerous. It would be more responsible to place such substances in a risk based perspective with appropriate contextual information. Such an approach is adopted for more socially acceptable carcinogens. For example, alcohol is a known human carcinogen¹⁷, but is commonly and wilfully consumed. To place this issue into a risk based perspective the UK's Chief Medical officer Prof Dame Sally Davis said¹⁸:

Drinking any level of alcohol regularly carries a health risk for anyone, but if men and women limit their intake to no more than 14 units a week it keeps the risk of illness like cancer and liver disease low."

¹² Review of the NSW Waste and Environment Levy KPMG 2015

<http://www.epa.nsw.gov.au/resources/wasteregulation/waste-levy-review-report.pdf>

¹³ NSW EPA's Energy from Waste Policy: <http://www.epa.nsw.gov.au/resources/epa/150011enfromwasteps.pdf>

¹⁴ Perth Now The problems Perth Business face recycling asbestos construction waste.

<http://www.perthnow.com.au/news/western-australia/the-problems-perth-businesses-face-recycling-asbestos-construction-waste/news-story/dc50a4f707771eeb7f736b4117858b3a>

¹⁵ Perth Now: Asbestos Fears create stockpiles of rubble. <http://www.perthnow.com.au/news/western-australia/asbestos-fears-create-stockpiles-of-rubble/news-story/5fbcc0a892edb5971fa13036e3449b8c>

¹⁶ Perth News WA's broken waste policy triggers dumping and stockpiling <http://www.perthnow.com.au/news/western-australia/asbestos-fears-create-stockpiles-of-rubble/news-story/5fbcc0a892edb5971fa13036e3449b8c>

¹⁷ IARC, Consumption of Alcoholic Beverages <http://monographs.iarc.fr/ENG/Monographs/vol100E/mono100E-11.pdf>

¹⁸ UK Department of Health: Updated alcohol consumption guidelines give new advice on limits for men and pregnant women, <https://www.gov.uk/government/news/new-alcohol-guidelines-show-increased-risk-of-cancer>

Similar risk based messages from Government is required to provide a balanced and less emotive messages.

If large scale rejection of recycled products occurs due to misguided fears the knock-on effects will be server. Recycling rates will plummet, landfills will fill far more quickly requiring new ones to be sited, and illegal dumping and stockpiling will increase. Such a scenario leads to worse environmental and health outcomes.

- International pricing

Collected used materials for recycling (recyclate) are internationally traded. Consequently, prices for recyclate are set internationally according to demand and supply. Government actions in the largest markets can result in high volatility in these prices. China recently announced ban¹⁹ on 24 recycled materials at the end of 2017 will have considerable downward impacts on the price of recyclates in Australia. While some recyclers will welcome a drop in their inputs, those collecting recyclate for export will find major problems with their business model. These bans will likely lead to stockpiling increased flows to landfills and potentially illegal dumping activities. Governments need to permit flexible arrangements in sight of this, such as permit increases in stockpile limits temporarily.

- Government bans or forced recycling

There is a drive to cut waste to landfill using government lead ban, such as for e-wastes and organics. A ban in principle is a means to extend the life of landfills and force recycling of the banned material. Discussed in section 6 there is a problem with contamination in recyclate which would be exacerbated using a complete ban, some leakage of highly contaminated material should be permitted.

A ban must be carefully thought through as it will generate large volumes of recyclate that recyclers must take, even at high contamination levels, levels which would otherwise be rightly rejected. So expect high levels of waste to be generated from such recycling processes. Even if the recyclate is destined for overseas it must be cleaned up to meet the international standard or it will be simply rejected and sent back. Gate fees can be added to the recycling sites, but this becomes simply a waste processing facility. Alternative Waste Facilities (AWF)

A ban or push for increased recycling will also generate far more recycled product. If there is a limited market for this material the price will drop and can even go negative. That is paying users to accept the recycled product. This has occurred numerous times with green waste. However, even this will not be enough and there can be too much product made with no one willing to accept the excess material causing another stockpiling issue. Hence, design of bans to landfills requires careful planning from considering the increased supply to assistance with demand management for the recycled product generated. Funding for collection systems, education to reduce contamination and market development for products made should form part of the package.

2.5.3 Summary

Governments are good at forcing the supply side of recycling, such as via waste levies, bans and other controls. Government actions lack support on the demand side for recycle products, which should be part of the mix of assistance to increase diversion rates. From a levy perspective relief or rebates from levy expose at recycling facilities is one method to assist local recyclers compete with demand for recyclate outside their

¹⁹ World Trade Organization: China's import ban on solid waste queried at import licensing meeting.
https://www.wto.org/english/news_e/news17_e/impl_03oct17_e.htm

levy exposed areas. Levy rebates can be provided in a number of ways, directly, such as a % reduction or indirectly, via a rebate based on product sold.

Overall waste levies are a blunt instrument and can generate perverse outcomes for recycling. Their use is limited and should be balanced with further support especially in assistance in demand side management for recycled products. The main points to this section are:

- Recycling is in general poorly supported by Government policies and programs (other than levies), especially in the demand for recycled products.
- The waste levy is a blunt tool and can result in perverse environmental outcomes (economic transporting) which is exacerbating as the levies increase.
- The levy's outcome of diverting more waste away from landfill can impact on recycling facilities who must compete on price for input output and quality of product.
- Given the levy distorts recycling markets, local and international, an economic study on recycling is required to assess appropriate support provisions to counter the effects of the levy.
- Recycling facility support schemes need to be planned and implemented to counter the negative economic impacts of the increasing waste levy.

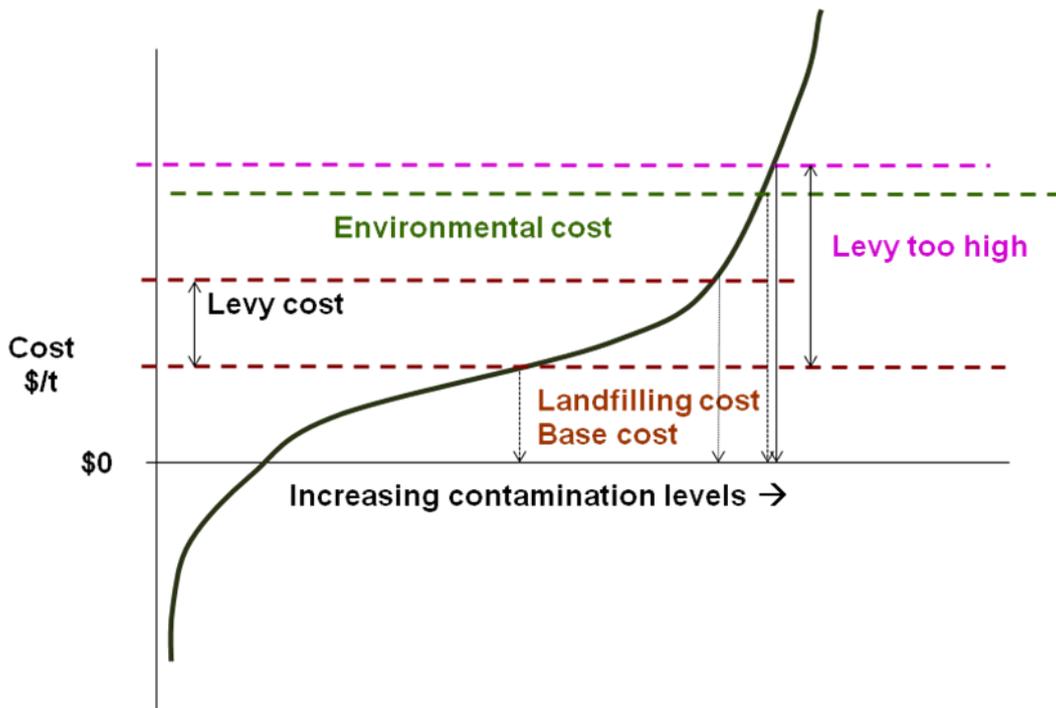
2.6 The role of different incentives and collection methods in determining the quality and quantity of material collected for recycling;

Quality of recyclate — the materials collected for recycling— has a major impact on the cost of recycling. Cleaner materials are far more easily recycled as there is less contamination, therefore less waste materials to be removed and disposed of. Recycling can be conducted at a number of levels. Environmental agencies consider the most desirable is to purify the materials back to their original form or close to it. The next step is to blend recyclate materials to make what can be called a down-cycling. The next step is energy from waste.

2.6.1 Recycling For Purification

Purification recycling processes means the product from the recyclate is close to its original form. For example, metal and plastic recycling. Here the process, put simply is one of separation. Recyclate goes in with a purified product resulting plus a reject waste stream. Energy and resources are required as these processes must follow the second law of thermodynamics and must decrease the [entropy](#) of the final product. In turn the process must increase by a greater amount, the entropy of other resources used, largely showing up in energy consumption, but also in contamination of water or other 'washing' substances.

Diagram 1 Cost vs Contamination Levels for Purification Recycling



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Diagram 1 shows a typical recycling cost curve for a material vs its level of contamination. At the left hand side of the diagram, the material has low contamination levels and has negative costs (positive value). Conversely, at the right side of the diagram the material for extraction has a high level of contamination and has a high cost (negative value). At a certain point of contamination level, determined by many issues, its value becomes negative. As a consequence, the owner has to pay to have it managed. Recycling, for purification purposes generally will follow an exponential cost growth curve.

Recycling to recovery this material will be a more attractive option if its price is under the landfill gate fees. Use of a waste levy can artificially raise the price of landfilling. As the purification process deals with higher contamination levels the volume of waste per unit input also increases. This shows up as waste disposal costs which rapidly increases the unit costs of the recycling process. This cost escalation is accelerated as the levy rate increases. However, diminishing economic returns steeply rise as contamination levels and cost exponentially rise despite levy rises. Raising the levy too high, results in driving recycling facilities to accept only marginally higher contamination input levels. Noting that the exponentially increasing costs are also driven by the recycling facilities levy payments on its disposal costs.

Recycling for purification requires its own natural resources, in terms of water, electricity, plant and equipment and will generate other environmental emissions, especially a waste stream. There will be a point where the environmental costs of these resources will exceed the environmental benefits of treating above a level of contamination in the recyclate. As a consequence, recyclate at this level of contamination are better off being landfilled rather than being treated.

This sets a maximum level to the waste levy for such recycling processes.

ASBG is concerned that mandating recycling by purification above the point of exceeding their environmental benefits they provide will have an overall negative perverse environmental outcome.

2.6.2 Recycling using Blending or Energy Extraction

This section covers recycling using blending which generates a new product, which is not the original material/s or energy recovery. While some separation is commonly used, the level of contamination in the extracted product is higher than for a purification process. The resulting product material can then be used as another product or blended to make a new product.

For example, plastic PET bottles can be recycled for purification or for blending. Purification recycling example is the triplicate PET bottles are made from three layers, with the internal layer made from recycled PET and the outside layers from virgin PET, required by food laws.

Recycling for blending PET does not require the substantial washing and separation processes of the purification process. An example is where the PET and other mixed plastics are blended with bitumen²⁰ prior to its use in the manufacture of asphalt. Dirt, micro-organism growths on old beverages, glass from comingled collections and other contaminations are generally not a problem, unless at high levels for recycling the PET into asphalt. It is normal practice to blend plastic with bitumen to improve its wearing, strength and adherence properties. Blending simply treated plastics with asphalt is commonly practiced in many other countries.

Blending lightly treated recyclates with other products like, asphalt, portland cement concrete, compost even paper to cardboard, requires much less energy for separation/ purification and goes with the flow of entropy. As purification is not the main purpose of the process there is less need to decrease the entropy for natural resources required for such blending processes.

Waste to energy is even further down the path of entropy as the wastes are combusted or oxidized substantially increasing their entropy. Converting wastes to flue gases increases the entropy of the end products of the process, meaning it flows with the second law of thermodynamics and does not require increasing other natural materials entropy to decrease entropy in the final product, energy.

²⁰ See [Roads from Plastic Waste](#)

Diagram 2 Cost vs Contamination Levels for Blending and Waste to Energy

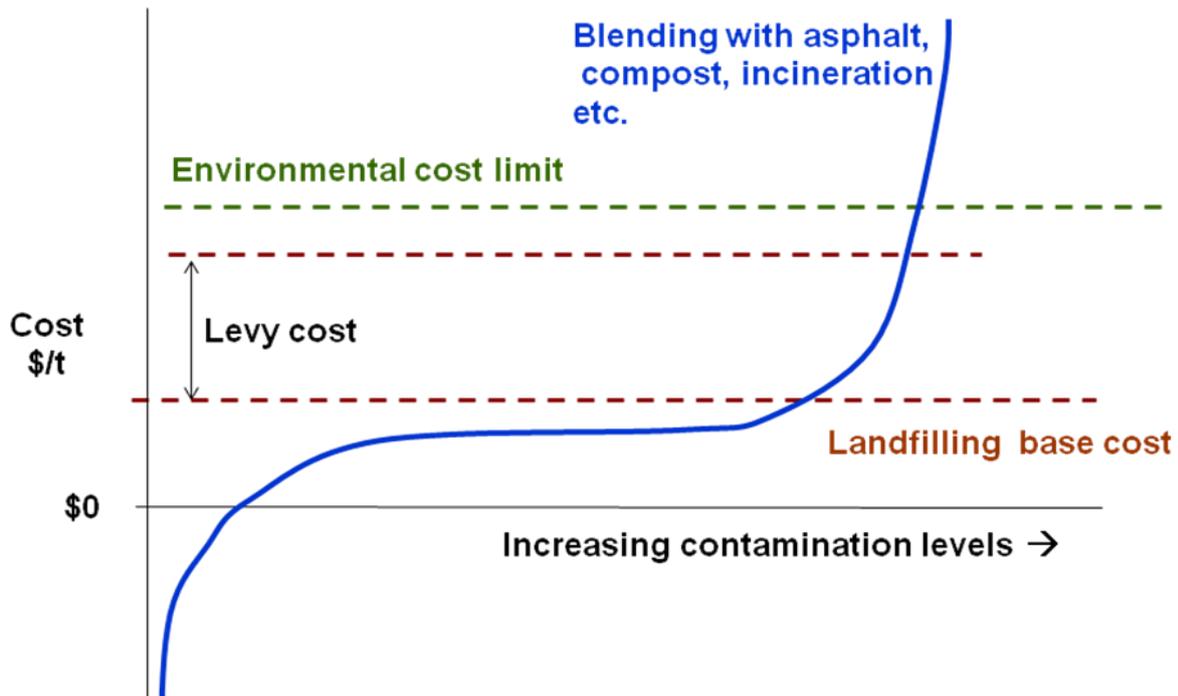


Diagram 2 is similar to diagram 1, but with the flatter exponential curve for resource recovery costs vs contamination. The point of this graph is the level of contamination which can be economically and environmentally is higher than for purification recycling processes.

Nevertheless, there still exists an upper level, where environmental costs outweigh the benefits, due to the increasing need to remove more contaminants prior to blending or the increasing waste levels generated from the processes. For combustion or oxidation processes contaminants also comprise of non-combustible or energy consuming substances, e.g. water.

2.6.3 Summary

If the recycling process demands more natural resources than it replaces then it will be doing more environmental harm than it solves. Wastes that are too contaminated therefore should go to landfill rather than attempt to be recycled; landfill offers the better environmental outcome. This is why landfills are necessary. Certainly they are currently overused from this perspective, but there will be wastes where landfilling offers the best environmental outcome. Waste stream bans or high level diversions have limits, which must be recognized when planning regulatory instruments and support processes to increase diversion rates away from landfilling to recycling or waste processing.

2.7 The destination of material collected for recycling, including the extent of material reprocessing and the stockpiling of collected material

This is discussed in Sections 5 and 6.

2.8 The current economic conditions in the industry, including the market for material collected for recycling

This is discussed in Section 5.3.

2.9 The transportation of solid waste across state boundaries;

ASBG considers this term does not address the real issue; long haulage of waste. It should not about state boundaries or trade between states and territories. Section 92 of the Australian Constitution²¹ clearly states that trade between Australian States and Territories shall be free. So there cannot be any consideration of imposing any kind of boarder controls on waste or any other commodity or service within Australia as it will trigger constitution issues and challenges. The NSW EPA announced it will repeal its Proximity Principle²² based on legal advice it may breach s92 of the Constitution. Ironically prior legal advice considered it was safe, but this has been overturned.

There should be no issue of transporting waste moderate distances across state boundaries. There is an issue when waste levies drive long haulage of waste regardless of crossing state boundaries. The only exception to this provision is when there are limited waste facilities available to recycle or treat and dispose of wastes. For example, recycling is a marginal business relying on large volumes to ensure economic viability. Consequently, a facility servicing a large area makes practical sense. Newsprint recycling facility at Albury is placed between the main source centres of Sydney and Melbourne areas, so cross boarder issues should not intervene. However, where landfills closer to the source of generation are available but levy and other cost issues such as higher compliance costs drive long haulage can become an issue.

The simple answer is to adjust waste levies so they don't exceed the economic cost of long haul transport. For the Sydney to South East Queensland example, the transport cost is about \$90/t. So if the NSW Levy was cut to less than \$90/t the economic incentive to send wastes to Queensland would be significantly reduced. ASBG predicts the volume of waste going from Sydney area to Queensland will reach beyond 1 million tonnes and go as high as 1.3 million tonnes. With such large amounts of levy revenue being avoided a \$50/t drop in levy could see—subject to economic modelling— NSW's waste levy revenue could rise as more levy at the lower price will be collected.

2.10 The role of the Australian Government in providing a coherent, efficient and environmentally responsible approach to solid waste management, including by facilitating a federal approach;

This is covered in section 1 Overview and Primary Actions.

²¹ Commonwealth of Australia Constitution s92 http://www.austlii.edu.au/cgi-bin/viewdoc/au/legis/cth/consol_act/coaca430/s92.html

²² NSW EPA Paper New minimum standards for managing construction and demolition waste in NSW Chapter 9. <http://www.epa.nsw.gov.au/resources/wasteregulation/nsw-managing-construction-demolition-waste-minimum-standards-160545.pdf>

3 CONCLUSION

Waste management is firmly under the control of state and territorial jurisdictions. However, as state actions typically by the use of waste levies, is causing interstate issues. Consequently, there is an increasing role for the Commonwealth Government to provide a leading guiding hand in assisting expanding the National Waste Policy under the NEPC in the future. This can be done by increasing the funding to develop nationally consistent standards, policy and guidelines which must be of a form to be adopted by the National Environment Protection Council. Nevertheless the role of the Commonwealth will be one of influence and not direct regulation except in the international arena. Key areas of influence can include guidance on:

- The use of waste levies, which may set maximum rate to minimise long haul transport of waste.
- Other mechanisms to promote local waste management actions.
- Measurement of waste streams, landfill acceptance and diversion amounts and a national data base on this with public access.
- Assistance to increasing recycling and diversion rates and the need for careful planning on both supply and demand in recycling.
- Economic assessment of waste management systems and waste strategies and their interlink ages including levy impacts and supply of adequate infrastructure with appropriate lead times.
- Scientific bases advice on the risks associated with trace levels of permitted contaminants in recycled products, to promote the use of recycled materials and prevent fear of their use.
- Greater transparency of waste levies as they appear in bills to residences and business and information on the application of the revenue to various government expenditures.

The above is a limited list of actions that build on the current work undertaken under the National Waste Policy. Expansion of the Policy work should be encouraged to generate more efficient waste management practices across Australia.