

Improving waste management has increasingly entered global government agendas as related policy changes, environmental studies and anti-plastics movements have taken a centre-stage position in public debate. Up until the end of 2017, Australia largely dealt with its waste by sending non-recyclables to landfill and the majority of its recyclables overseas, predominantly so to China. While Australia did develop sorting infrastructure to accommodate the current 'comingled' kerbside system, the export of its recyclables has been revealed to be a transient solution upon which Australia became overly dependent.

China's National Sword Policy, which came into effect January 1, 2018, was a significant catalyst in bringing waste management in Australia to the forefront. Under this policy, China restricted the import of certain types of solid waste and set strict contamination limits to 0.5 percent on recyclable materials entering the country. Australia, which has average contamination rates between six and ten percent before sorting (and still well above 0.5 percent after), has been scrambling since to deal with the ramifications. Australian industry has turned to increasing amounts sent to landfill and stockpiling mass quantities of recyclables while commodity prices remain low.

Australia's export of recyclables also left councils, who are generally responsible for neighbourhood rubbish collection, largely reliant on sorting companies' restricted capacity and the Australian population complacent. Indeed, despite the increase of in-country consumption over the last three decades, Australia's disposal systems stopped advancing once China began purchasing its recyclables in 2011. For comparison, from 2010-2011, of the 1.4 million tonnes of plastics consumed in Australia, only 287,360 tonnes (20.1 percent) was recycled: 50.2 percent was reprocessed in Australia and the other 49.8 percent was exported. Of the 3.5 million tonnes of plastics Australia consumed between 2016-2017, however, only 415,200 (11.9 percent) was recycled: roughly 43.4 percent was reprocessed in Australia and the other 56.6 percent was sent overseas.

Strategies for Improvement

Amidst the fallout of the National Sword policy, Commonwealth, state and territory environment ministers came together to commit Australia to reducing the amount of waste generated and improving national recycling systems. They released a draft updated version of the 2009 National Waste Policy (NWP) in April 2018, which proposed six national targets for waste management in consideration of the waste hierarchy - 1) avoid and reduce waste; 2) reuse waste; 3) recycle waste; 4) recover energy; 5) treat waste; and, 6) dispose of waste.

Importantly, the NWP echoes recommendations by state and local players for common approaches on waste management, namely: energy from waste; landfill levies; container deposit schemes and material recovery facilities; standardised recycling labels; and minimisation of regulatory inconsistencies, all to be established by 2019 as priority policies. To avoid states taking advantage of others' policies (i.e., trucks dumping waste in Queensland to avoid levies in New South Wales), a country-wide, consistent approach is imperative in tackling the issue.

One particularly opportune strategy to diminish dependence on foreign infrastructure is increased public and private investments into national waste-to-energy (WtE) facilities. WtE offers low emission electricity while also repurposing non-recyclable waste that would have otherwise been sent to landfill, and facilities have been successfully operating in Europe for decades. Australia's first WtE plant (green-lighted for construction in October 2018) is expected to divert 400,000 tonnes of non-recyclable waste from landfill annually whilst

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concurrently producing 36 megawatts (the electricity needs of more than 50,000 households) of reliable, base-load, low-carbon energy for Perth during Australia's current energy crisis. Additional resource input into the energy sector is likely to receive government support, especially considering the updated NWP's target of diverting 80 percent of waste from landfill by 2030. Industries should therefore take advantage of the opportunity by entering the WtE market while it's still largely in its infancy and provide a solution to two national crises at once.

The Use of Repurposed Materials

It is hard to imagine however, that more recycling infrastructure and easy-access to standardised facilities alone will solve the problem when there is currently no substantial value or demand for recycled resources in Australia's end market. Keeping in mind the undervalued plastics already stockpiled ceiling-high around the country, repurposed materials are regularly passed over in favour of cheaper, virgin materials from abroad. This leaves Australian recyclers at a massive disadvantage (it is currently cheaper to import glass than it is to recycle it in-country). Currently, there are around 70 recycling facilities repurposing plastic waste in Australia, but their products are mainly niche and their margins slim. In the US however, nearly 20 such plants have opened in the last year alone, some with government support, in response to China's policy.

New measures that mandate and or incentivise sweeping increases in the use of recycled and repurposed materials by government and industry alike are desperately needed in Australia, as are penalties for those who continue to favour virgin materials. France, for instance, will implement in 2019 different tax levels based on whether products are made with recycled content or virgin materials. The draft NWP's third target – to increase the use of recycled material and build demand and markets for recycled products – is therefore perhaps one of its most important proposals as it signposts the opportunity to facilitate this needed market demand. By 2025, it proposes that goods and products purchased by governments, by total volume, should have on average 30 percent recycled content. It recommends the same for businesses by 2030.

Pending the release of the official updated NWP (expected for the end of the 2018) however, and despite ministerial pledges made in April to advocate for the use of waste in roads and construction, this appears to be the extent to which the federal government necessitates the use of recycled materials: proposals and targets for the future. While the Government does promote voluntary sustainability and environmental standards for new development through its 2017 National Carbon Offset Standard, it and the 2016 National Construction Code make no mention of using recycled materials (just the appropriate disposal or relocation of waste created during the process). Nor does the 2016 Code for the Tendering and Performance of Building Work. Instead, the nearly 50-year old Environment Protection Act from 1970 still acts as the main overarching regulatory framework on waste and resource recovery.

Some states are making their own headway in lieu of updated national policy. Victoria, for instance, has devised its 2018 Recycling Industry Strategic Plan, which outlines a comprehensive strategy to tackle waste management at a state level. Under its fourth goal - to develop markets for recycled materials - the Victorian Government has promised to drive demand for products containing recycled materials through government procurement. It is here that lies one of the greatest prospects for a systematic government change: the tender process, and, in particular, for construction and development.

Promoting a Circular Economy through the Tender Process

Government tenders (both federal and state) for building design and construction currently prioritise high quality at a cost-effective price - consequently eliminating bids offering recycled materials from the contenders' race due to the added expenses. Looking at the infrastructure

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projects planned and underway around the country, the massive scale of opportunity in this sector alone becomes evident. The Commonwealth has committed over A\$75 billion in transportation infrastructure across Australia for the next 10 years. If the federal government was to update planning legislation in favour of the usage of a reasonable percentage of recycled materials in construction projects - like sand made from the glass stockpiled around the country instead of the currently favoured newly mined sand - it would play a vital role in stimulating a circular economy and feeding revenue back into Australia's recycling market. Granted, of course, that the likelihood of federal legislation uniting Australia over one waste management system and on the tender process in particular is unlikely in the short term, it will instead come down to state and territory governments to implement their own regulations.

In the private sector, there are already a small number of companies offering recycled construction materials, albeit at a higher price. If state government-contracted companies were incentivised to use repurposed materials or if state governments began ramping up demand for recycled content in infrastructure projects as a requirement of tenders - as Victoria proposes to do - it would create significant value for both recycled products and recycling infrastructure. Assuming domestic industry steps up this time around to provide the needed capacity, Australia's recycling sector would be able to flourish to match demand, allowing for the entry of more players at the recycling, repurposing and procurement levels along the supply chain. Coupled with substantial public and private investments, technology would advance in accordance and gradually reduce costs, making recycled materials the more economic and favoured alternative. This not only offers a wealth of chances for industry to champion the market but would also make Australia a leader in waste management practice. Additionally, it could poise Australia as a frontrunner in the global circular economy.

There is already significant pressure on government bodies to properly address waste-related issues, with waste management firmly on the agenda; just as there is increasing pressure on businesses to be accountable for the full life-cycle of their products and reduce plastic content. Companies already involved and those interested in the waste industry, either in energy production or recovery and repurpose, can lead the charge to push for updated planning legislation. Pending regulation though, industries with the capacity and resources to take advantage of the low commodity prices should do so now as Australia gears up to tackle this mammoth issue. This is especially true for companies eyeing off Victoria, as their state Plan is especially conducive for market growth in the waste sector.



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