Straight to the source

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Commonwealth Games Corporation highlight their multipronged approach to sustainability, waste management and recycling.

VACLIFT SUPPORTS ACQUISITIONS
Australia’s major waste management companies Toxfree and J.J. Richards & Sons explain how they are benefiting from Vaclift’s versatile BoB ITK multihook height machines.

BOOSTING VISIBILITY
Sprightly Transport Solutions’ Brett Werner explains how its mobile asset management solution is helping the waste industry keep track of its valuable assets.

Why We Care About Litter
Source Separation Systems explains the key to reducing litter and optimising waste diversion in Australia.

“EUROPE WAS MILES AHEAD AT THAT TIME (2007) WITH REGARDS TO RESOURCE RECOVERY, RECYCLING AND DIVERSION. IT SEEMED SO EASY OVER THERE AND IT WAS DONE ALMOST AUTOMATICALLY BY EVERYONE. WE AS A SOCIETY WERE MAKING IT DIFFICULT FOR OURSELVES, AS WE JUST DIDN’T THINK IT WAS AS IMPORTANT AS IT SHOULD BE.”

–Peter Cruwys, Source Separations Systems

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AUSTRALIA’S SPECIALIST CLEAN ENERGY FINANCIER, THE CLEAN ENERGY Finance Corporation (CEFC), has each year provided an update on the state of waste to energy (WtE).

While there appears to be no WtE market report published in 2017, the organisation’s annual report identified bioenergy investment opportunities of up to $3.3 billion to 2020, to be derived from the urban waste industry.

Forms of WtE, such as processed engineered fuel and anaerobic digestion, are increasingly gaining prominence in Australia, with other methods such as thermal treatment, highly popular in Europe, taking off at a slower pace.

In the wake of February’s Australian Waste to Energy Forum, we spoke to some of the major players in the market, including Martin Biopower Perth on page 26 and Hitachi Zosen Inova Australia on page 30. Both offer solutions to boost investment in thermal treatment domestically, as incineration and recovery is further ahead in Europe.

The European Environment agency’s Municipal waste management across European countries briefing shows all countries with landfill rates below the European Union’s 28 member states average of 28 per cent either banned landfill of biodegradable or mixed municipal waste, or put in place a ban combined with a landfill tax of at least 30 euros a tonne. Germany’s 2005 deadline to ban all waste with an organic content of more than three per cent from landfill helped pave the way for WtE in the country.

So what hope is there for the local market? We’re starting to see more interest with Dial A Dump Industries’ proposed WtE Eastern Creek project moving through approvals. Hitachi Zosen Inova Australia’s East Rockingham Resource Recovery Facility plans to divert 96 per cent of the Eastern Metropolitan Regional Council’s residual household waste to landfill each year. In 2017, the CEFC provided $30 million to Adelaide-based ResourceCo for its two processed engineered fuel plants and Yarra Valley Water’s anaerobic digestion plant is kicking goals in Melbourne, diverting 33,000 tonnes of commercial food waste from landfill each year. Find out about this development on page 22.

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Hanson Australia has acquired Alex Fraser Group, a leading provider of recycled construction materials and asphalt in Australia.

A subsidiary of the German multinational HeidelbergCement, Hanson Australia acquired the company after John Swire & Sons decided to sell Alex Fraser Group last year following a strategic review. The purchase price for the assets amounts to about 135 million euros (approximately $208 million AUD).

"The acquisition represents an important step for Hanson Australia and it further strengthens the market position in the urban centres of Melbourne and Brisbane," said Chairman of the Managing Board of HeidelbergCement, Bernd Scheifele. "In particular, it will provide Hanson Australia with expertise in asphalt and construction materials recycling that complements the existing business and can be leveraged for entry into other markets.

Established in 1879, Alex Fraser has become Australia’s leading provider of recycled construction materials and operates three facilities in Melbourne and two in Brisbane. It also produces asphalt out of two plants in Melbourne. Alex Fraser is expected to generate 20 million euros of earnings before interest, tax, depreciation and amortisation (EBITDA) in 2018, including synergies of about three million euros.
BoB Hooklifts have been designed to be easily serviced and maintained.
Evian pledges 100 per cent recycled plastic by 2025

Evian, a subsidiary of Danone, has vowed through its parent company to develop all its plastic bottles from 100 per cent recycled plastic by 2025.

The company joins other corporations in having recently set recycling targets, including Coca-Cola and McDonalds.

Evian currently develops its plastic bottles from 25 per cent recycled material.

The company will work with Loop Industries, which has produced a new system to transform all types of PET plastic into commercial-grade plastic.

Evian plans to invest an undisclosed sum of money to meet this target.

“We want to adopt a circular model where 100 per cent of our plastic bottles will become bottles again. This will enable plastic to evolve from potential waste to become a valuable resource,” Evian global brand director Patricia Oliva told Reuters.

Under the current system Evian is using, PET can’t be recycled more than three times. Loop’s technology will ensure the plastic remains the same quality, allowing for multiple re-use.
MARTIN plants and technologies
„Solutions for the recovery of energy and materials from waste“

Thermal waste treatment plants are complex structures, the design of which differs in each individual case. The implementation of these plants requires a high level of competence in engineering and plant construction covering the whole range of services from planning and supply to start-up and maintenance.

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The Thöni dry digestion system has proven itself and is well established on the market. Biogas, compost and liquid fertilizers are separated from organic wastes and then returned to the material cycle.
Dubai Municipality has selected Swiss clean tech company Hitachi Zosen Inova (HZI) as the successful tenderer to help build what HZI says is the world’s largest waste to energy facility.

The joint venture operation will be built by Belgium’s largest construction company BESIX Group and plans to treat 1,825,000 tons (approximately 1,655,612 metric tonnes) of municipal solid waste per year.

The plant is to be built in the Emirate of Dubai. Forming a strong joint venture partnership, the two international companies will collaborate on delivering the engineering, procurement and construction of the turnkey plant, and a minimum of 30 years’ operation and ownership of the resource recovery facility.

Located at the waste landfill site in Warsan, Dubai, the facility will treat 5000 tons (4535 tonnes) of non-recyclable municipal solid waste from the Dubai area per day. About 171 megawatts of electricity generated will be fed into the local grid as baseload energy and will power around 120,000 homes. In addition, there will be metals recovered and construction materials produced from the bottom ash.

“The award of this project, with its relevance to the industry, highlights HZI’s market leadership in the waste to energy business, in engineering, procurement and construction and operations and management. We are delighted and proud with the conclusion of this project, which marks our successful entry into the Middle East market,” said Andres Kronenberg, Vice President Business Development at HZI.

“We are very pleased that Dubai Municipality has entrusted us with this new major project, and honoured to add this reference to the list of sustainable solutions we have created, very much in line with our purpose,” said Rik Vandenberghe, CEO of BESIX Group.

The facility will be located in Warsan, Dubai.
Recycling solutions designed to show off

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Now a sunny day in 2007, Peter Cruwys sat in a taxi, on route with his mates to Sydney’s iconic Royal Randwick Racecourse.

It was a time of reflection for Peter, who had just returned from a five-year stint in Dublin, Ireland, working as a national sales manager for Europe’s largest coffee and vending machine manufacturer. Facing an uncertain future, he was overcome by a moment of beauty as his taxi passed the picturesque Sydney Harbour Bridge on the Cahill Expressway.

It was then that Peter knew he was privileged to live in such a special part of the world. But Peter’s excitement soon dwindled upon seeing the boorish behaviour of racecourse revellers. As he looked on, Peter observed plastic champagne flutes being dropped on the ground with no regard for their end destination.

“It felt like there was just this subconscious ability to litter and it was just done so easily. No one thought about what they were doing or even bothered to look for a garbage bin, they were just dropping their waste onto the ground,” Peter explains.

“Europe was miles ahead at that time with regards to resource recovery, recycling and diversion. It seemed so easy over there and it was done almost automatically by everyone. We as a society were making it difficult for ourselves, as we just didn’t think it was as important as it should be.”

He notes that in the UK, residents are able to source separate waste into 11 different waste streams depending on the municipality, while Australia tends to rely heavily on materials recovery facilities to sort this out. The success of source separation results in cleaner recycling streams he explains, which means recycling becomes a higher valued business.

Peter’s observations inspired him to offer a simpler solution to the waste industry. He sought about borrowing ideas from the US and UK to develop simple physical collection systems that would inspire consumers to do the right thing.
One of Peter’s first steps was to introduce a compostable bag and kitchen caddy to target food organics diversion in the domestic environment. His experiences overseas had taught him that colour coding and educational messages were key to targeting consumers.

In 2007, Source Separation Systems was launched at the Coffs Harbour Waste Conference, bringing an initial range of residential, commercial and public place source separation solutions to the local government market, including the Kitchen Caddy and Compost-A-Pak range of liners.

Ten years later, Source Separation Systems’ focus is still on innovation, as Peter works to introduce new systems to Australia and refresh their existing products, with the aim to ensure their best practice solutions meet their clients ever-changing needs.

Three years ago, Peter turned back to the Kitchen Caddy, looking to refresh a now established product. After discussions with many local government customers and focus groups and internal planning, the second generation Australian-made Kitchen Caddy was launched. In what the company believes was an industry first, an in-mould label allows councils to customise the lids to suit the organics they are targeting. Source Separation Systems designed the in-mould label akin to a marketing flyer, featuring full colour detail, customised logos and photos.

The resulting product improves on education – a key priority for Peter. Detailed messages are presented to the user every time they divert waste, which are then reinforced with full colour graphics, a change proving very beneficial in multicultural communities. In addition, the company also incorporated a rear mounting tab so the unit can be attached to a wall or under-sink door and venting channels, making it easier to remove the liner and waste.

Research supports the claim that simplicity and convenience influence recycling habits. A 2008 report by the Organisation for Economic Co-operation and Development (OECD) investigated influences of consumer behaviour and recycling, analysing numerous studies over the past few decades to gauge the trends. As early as 1993, a study by Judge and Becker, looked at 1000 homes in Minnesota, US, taking a random 20 per cent sample of participants and found convenience factors increased recycling, which comprised more frequent collection and lower sorting requirements. This included sorting recyclables into separate containers for glass, plastics, newspaper and metal or commingled.

Source Separation Systems also sought to design its products to meet the Australian Standard AS4123.7-2006, developed in 2006. The standard provides colour specification, markings and designation requirements for mobile waste containers in order to boost recycling outcomes. The standardised system is aided by the fact that the colours support educational messages run by local government authorities and are widely used in public domains. It was developed by the Waste Management Association of Australia in collaboration with its New Zealand counterpart. From its MultiSort Lid systems to National Park Bins, the Australian colours of red (waste) and yellow (recycling) used in Source Separation Systems products provide a key message to consumers, which is then reinforced by other design aspects such as apertures and signs.

Over the past 10 years, Source Separation Systems expanded its range of products across the commercial, hospital, campus and outdoors spaces. While there’s been numerous products rolled out, Peter says the National Park Range released in 2013 were one of the highlights.

**CONSUMER INSIGHTS**

Litter is expensive to manage and PricewaterhouseCoopers Packaging Cost Benefit Analysis 2011 report shows governments are spending up to $3.50 million each year to curb the problem.

The National Park Range, which houses 140 or 240-litre mobile garbage bins, was designed for municipalities to fully customise to suit their individual communities. From educational messages to historical photo collages, the bins aim to instil a sense of community and thus ensure waste is disposed of responsibly.

Peter’s decisions are backed by the literature, as the NSW Government report, Lessons from the litter-ature, A review of New South Wales and overseas litter research shows. The research found the more community involvement and social engagement there is, the greater the anti-litter strategy becomes. Furthermore, the amount of litter already in a space can be a powerful determinant of behaviour. Convenient placement of bins also has an effect, it notes.

Another key point the review identifies is the concept of place attachment. Psychologists describe the concept as an emotional attachment to a location, with findings to suggest...
those who harbour higher levels of place dependence and identity are broadly connected to environmentally responsible behaviour. In other words, our association and desire for a place means we’re more likely to want to keep it clean.

NSW’s Newcastle City Council and Hornsby Shire Council took this approach in the design of their National Park Bins. In Newcastle, each recycling system displays local photos of the area and display messages such as “Why we love Newcastle”. Hornsby Shire Council conversely contains messages such as “Hey tosser, it’s a dirty look” which reinforces the impact of litter in the community.

“Because the National Park Bins are a relatively attractive looking bin, they’re also less likely to be vandalised,” Peter adds.

“We did a project with Great Lakes Council where they put the bins in a skate park and photographed the kids using it and put them on the side of the bins. The kids ended up cleaning up the skate park, picking up the litter and putting it back into the bins.”

**THE RISE OF SINGLE-STREAM RECYCLING**

The buzz about the lack of recyclability of coffee cups last year led to the development of the Coffee Cup Separation Station in August of last year. Our penchant for a morning coffee fix means that approximately three billion single-use coffee cups are sold in Australia each year, with most ending up in landfill, according to consumer group Choice. Source Separation Systems believes it’s largely due to the lack of recyclability behind the cup design of conventional systems, which is lined with a thin coating to make the paper waterproof. The small amount of plastic lined with paper on the outside means at this stage it is unable to pass through common recycling procedures. The Coffee Cup Separation Station forces consumers to separate their cup, liquid and lids, thus preventing contamination and ensuring the material travels to a recyclable destination.

“The Coffee Cup Separation Station has been designed for use in shopping centres and commercial offices so that when people are coming into those centres they’re actually thinking about what they’ve purchased,” Peter says.

“It looks like a massive coffee cup, and is designed to start the conversation about the lack of recyclability, as well as being a recycling bin for components where technology allows.”

While up to 60 bins have been deployed across centres across Australia, the next step is for industry to shore up the funds to invest in increasing dedicated coffee cup recycling infrastructure.

“ResourceCo is at the moment one company recycling the cups into briquettes in concrete cement kilns,” he says.

“We need to have a greater understanding of how to recycle these cups and more infrastructure. There are some states that have recycling abilities such as the ACT and Queensland.”

Peter hopes that there will be a further push towards industry-specific infrastructure in order to boost the commodity value of individual recycling streams, as a cleaner stream results in a higher valued product.

As Source Separation Systems waits for the market to expand, Peter attributes the success of the company in its ability to experiment and take bold risks.

When a business or government entity requests a commercial design, Source Separation Systems collaborates with its clients to offer an engaging solution in line with best practice waste diversion. Not every risk pays off, but when it does, the company is able to boost recycling outcomes.

“We’ve developed a number of projects solely because the customer requests it. If we think it’s a worthwhile project, we’ll take a gamble and bring it to market,” Peter says.

**HOW TO MAKE IT EASY**

With a range of competitor source separation products out there, Peter
sees the company’s unique selling point as its ability to offer a colourful, eye-capturing product with differing apertures. He says that when it comes to bin design you have to consider apathetic consumer sentiment, with special considerations made in this area. For these reasons, Source Separation Systems restricts its recycling apertures, which aims to reduce contamination.

**SIZE MATTERS**

In a study published in the journal, Environment and Behaviour, *It matters a hole lot*, two sets of three bins were positioned in an academic building. One set had specialised container lids to correspond with trash, aluminium, glass and plastic and paper. The other contained no specialised containers at all. The study found the use of these specialised containers increased recycling by 34 per cent and reduced contaminants by 95 per cent. One possibility identified is that recycling is regarded as a socially desirable practice and specialised lids implicitly remind individuals to comply with this norm.

“If you’ve got apertures that are all exactly the same colour and size, and you’ve just got landfill or recycling text, you’re not really making people think,” Peter says.

“If you’re going to put recycling infrastructure in a public place, you’ve got to put a landfill bin next to it. Because otherwise, the recycling bin will become a landfill bin because it’s just convenient to dispose of it. As long as you make it easy for consumers as to what goes in each stream, you’re going to get success every time.”

In a twist of redemption, seven years later Peter returned to the same location where the idea for his business all started, but this time with a nobler purpose.

“Funnily enough, six years later we did all the bins for the Australian Turf Club, when they spent about $150 million rebuilding Randwick Racecourse,” he says.

“It was really rewarding to be back at Randwick, and see both the powerful difference our systems can make, and also the underlying change in Australia as so many of us move to embrace a more sustainable way of living. Now with a young family, it’s something I’m only becoming more passionate about.”

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STAKEHOLDERS ARE CONTINUING TO PROGRESS BATTERY RECYCLING OUTCOMES IN AUSTRALIA, BUT JUST WHAT IS THE OPTIMAL LEGISLATIVE OUTCOME TO LIFT THE NATION’S LOW RECOVERY RATE?

Australia has a low recovery rate for handheld batteries, so much so that it lags behind 28 Organisation for Economic Cooperation and Development (OECD) countries. The alarming figure is highlighted in a 2017 working paper, Achieving battery stewardship in Australia – by the battery industry recycling advocacy group Australian Battery Recycling Initiative (ABRI). While 2018 are not published, a 2014 trend analysis and market assessment report, prepared on behalf of the National Environment Protection Council Service Corporation, found that less than three per cent of handheld batteries are recycled. Formed in 2008, the not-for-profit association is backed by battery manufacturers, consumer electronics suppliers, recyclers, government agencies and environmental organisations.

The sense of urgency for a national scheme is compounded by a 2015 Blue Environment report Hazardous waste infrastructure needs and capacity assessment, which shows lithium-ion batteries in the waste stream will grow by 300 per cent each year by 2036. The result will mean battery generation of between 100,000 and 187,000 tonnes per year, equivalent to the weight of the Sydney Opera House.

Further to this is the safety risk to the community through improper disposal to landfill and material flammability through the release of toxins into the atmosphere.

Batteries contain a variety of toxic chemicals, including nickel, cadmium, alkaline, mercury, nickel-metal hydride and lead-acid.

In landfill, these items have the capacity to cause soil and water pollution.

While toxic materials such as cadmium and mercury are being phased out, it may take decades before they are completely out of the waste stream, according to the ABRI.

The health and environmental effects are put into perspective when considering our reliance on exports. The only batteries that are currently being recycled locally on a mass scale are lead-acid batteries used in cars. Most batteries are sent to landfills or offshore for processing.

Envirostream is one company recycling batteries locally, as momentum slowly
builds. Companies such as MRI e-cycle solutions and Sims Metal Management are also recycling batteries, while other organisations offer pick-up services.

Restrictions on the international transportation of lithium ion batteries by air were also introduced by the International Civil Aviation Organization in 2016, a clamp down which may work in favour of local recycling.

Fortunately, there are opportunities. The Battery Industry Working Group, which includes some of Australia’s leading battery manufacturers (such as Energizer and Robert Bosch), is exploring options for establishing a national product stewardship scheme. Battery recycling schemes have been in operation in Europe since 1991 and the ABRI sees potential in this space for batteries. Australia recycles more than 90 per cent of its lead acid batteries, ABRI’s report notes, creating the infrastructure and expertise that can be applied to other types of batteries.

Many councils, retailers and governments also provide drop off facilities for batteries, so residents would already be in the habit of recycling the heavy metal waste stream.

ABRI’s vision outlined in a report on stewardship drivers is for a national battery recycling scheme, along with promoting best practice collection and recycling and creating opportunities for information exchange, collaboration and policy development.

**BATTERY MOMENTUM**

Australia’s state and territory environment ministers have indicated a willingness to legislate on product stewardship approaches to battery recycling. At last year’s Meeting of Environment Ministers in July, ministers agreed to consider stewardship approaches at their next meeting, which could potentially involve a voluntary scheme and other regulatory options at the discretion of the states.

While the current scope of the Battery Industry Working Group, which is making recommendations to government, is on handheld rechargeable batteries under five kilograms, ABRI believes the scheme would best include all handheld batteries with room for expansion, particularly as battery technology evolves in the coming years.

It also argues including all handheld batteries in the scheme would reduce the fire risk and prevent consumers from getting confused through source separation.

A spokesperson for the Federal Government’s Department of the Environment and Energy tells Waste Management Review the Queensland Government is leading work on stewardship options for handheld battery recycling with the ABRI and industry representatives for presentation to environment ministers at their next meeting.

A spokesperson for the Queensland Government Department of Environment and Science says it has committed $150,000 for the next stage of developing a battery stewardship program. An industry forum is expected to take place on 19 February, which at the time of publication had not occurred.

“The purpose of this forum is to engage a larger number of battery brands in the process, to update the sector on activities to date and seek feedback on the next steps,” they said.

The spokesperson said one of the opportunities that a stewardship program presents is the development of on-shore and domestic recycling capacity. “The Queensland Government has had several discussions with the recycling sector and is keen to continue work in this area to develop a viable onshore industry.”

“The department will continue to work with the battery sector, including battery brand owners, original equipment manufacturers, retailers and the recycling industry to fully develop a voluntary stewardship program and to consider what, if any, impacts will result from other countries’ decisions on waste exports.”

The spokesperson said the process of developing a voluntary product stewardship program has been well supported by key brands, including Energizer, Duracell, Bosch, Panasonic and Canon, as well as retailers such as Officeworks, BatteryWorld and Super Retail Group.

Libby Chaplin, Chief Executive Officer, ABRI, says the organisation is preparing a preliminary feasibility assessment of regulatory options for the Battery Industry Working Group, which will be presented in February.

“The big issue is the need to create an effective mechanism for maximising industry participation,” she says.

“This could be done using a co-regulatory scheme under the Product Stewardship Act or a voluntary scheme authorised by the Australian Competition and Consumer Commission Act.”

While Australia continues to lag behind 28 OECD countries in battery recycling, these countries largely consist of European nations, which are operating under a legal directive established in the early 1990s.

The EU’s Batteries Directive, established in 2006, prohibits the marketing of batteries with hazardous substances, while also setting targets for battery recycling and processes to establish schemes.
Similar product stewardship schemes to that which Libby is hoping to achieve in Australia have been operating in Europe since 1991, she adds.

“I attended the International Battery Recycling Conference in Lisbon last year and I was encouraged by the high degree of recovery achieved,” she says.

“I also went to visit Belgium and they have a recovery rate of 50-60 per cent and their research indicates that 90 per cent of residents are familiar with the BEBAT brand – the Belgium equivalent of the Product Stewardship Act.”

Another key reason for slow progress in Australia, she says, is its sprawling geography and associated travel costs, which has repercussions for the overall price of battery recycling.

Governments and industry therefore need to take steps to absorb some of these costs, she says.

Libby says momentum is growing at both the national and state levels. The Victorian Government is working through its proposed ban on e-waste to landfill, with its implementation expected in mid-2018.

“This type of mechanism will provide a robust system but we can’t just rely on it alone.

“We need to invest in the necessary recycling infrastructure and a voluntary levy on batteries would be a good place.”

Libby says perhaps the biggest impediment to increased recovery rates is the high cost of collection, which is not offset by the value of commodities. She says without a product stewardship scheme to address this market problem, change is unlikely, with the burden falling solely on government and communities to address the long-term impacts of improper disposal and lost resources.

The Queensland Government has been at the forefront of investigating the feasibility of battery recycling, having funded a series of trials with the Battery Industry Working Group.

One of these included a two-month trial in Toowoomba, which looked at the feasibility of collecting handheld rechargeable batteries for recycling. The pilot indicated a strong willingness from consumers to recycle batteries if provided with options, with a total of 1358 units collected from 14 sites in Toowoomba, including retail stores and council sites.

Bins were positioned at these sites for eight weeks between July 2016 and September 2016. The average cost of collection and handling was considered high at $30 a site, while the cost of recycling for chemistries averaged at $2 per kilogram, expected to reduce over time as competition increases.

The other pilot ran for nine months from September 2015 in Brisbane and looked at the feasibility of collecting used power tool batteries for recycling.

The pilot saw 2300 batteries collected and was similarly promising. Although a limited sample size, more than 90 per cent of consumers said the ability to recycle batteries would make the retailer appear more favourable.

The majority also said they would be highly likely to drop off their used batteries, provided there was a free and easy to use collection system. The influential pilot is now being used to inform the direction of battery recycling in Australia.

In 2016-17 the department also provided $80,000 to Lighting Council Australia to pilot a collection and recycling program – ExitCycle – for exit sign and emergency lighting batteries. Queensland’s Department of Environment and Science spokesperson says the intent is for this program to roll out nationally.

While these trials were important, Libby believes now is the time action.

“We have all the elements for a successful national scheme,” she says.

“What is needed now is for industry to agree on the most efficient and effective model and to make it happen. Without that, we are likely to see government intervention and/or a continuation of a fragmented approach across different states and territories.”

A spokesperson for Officeworks tells Waste Management Review the business
supports a regulated, industry funded, product stewardship scheme for battery recycling in Australia.

“This approach is important in order for the program to be viable, equitable and sustainable into the future,” they said.

“Officeworks has previously participated in battery collection recycling programs as part of BatteryBack, and is an active member of the Battery Industry Working Group, established to implement a rechargeable battery recycling program in Australia.”

John Gertsakis, Director of Communications at Equilibrium, says the current process being driven by the Battery Industry Working Group is heading in the right direction.

“In the absence of producers and retailers coming forward to design and operate a voluntary battery stewardship scheme, there is a clear need for sensible regulation to maximise industry participation and environmental benefit,” John says.

“While voluntary schemes such as MobileMuster and Paintback are successful and enduring, many advocates of voluntary schemes are often driven by commercial interest or ideological views rather than environmental protection or consumer demand.”

Envirostream is one company that has taken the initiative to recycle batteries on shore.

The organisation accepts all batteries

Less than three per cent of batteries are recycled in Australia.
and recycles lithium, alkaline and nickel-metal hydride batteries. John Polhill, National Development Manager, says the company is proud to be Australia’s first and only multi-chemistry battery recycler.

“We’re the only ones currently recycling lithium, alkaline and nickel-metal hydride,” John says.

John describes the decision to launch Envirostream as a “necessary gamble”, as it charges a low gate fee of less than $1 as opposed to the industry average of $5.

“Our business model is affordable as it reduces costs at the front end by producing a product that generates revenue.

“By prioritising battery recycling outcomes over short term profits, we can increase recovery rates and prevent unnecessary export of waste batteries,” John explains.

Envirostream’s success follows two and a half years of research and development, including the design and manufacture of its equipment – the CDX Processor – with its sister company PF Metals.

It launched in January 2017, processing batteries at its facility in Victoria.

“We saw an opportunity in the market to recycle batteries locally by looking at international examples such as Asia, Europe and North America where battery recycling for nickel-metal hydride, lithium and alkaline are done within the respective countries.”

John says the company’s bold risk to enter the market at a low cost is linked to the increasing number of battery operated devices.

“We’re hedging our bets on this annual growth rate and staying ahead of the curve. We are a member of the ABRI and while we support regulated product stewardship, our business model leans towards a voluntary approach.

“We think the industry, including battery manufacturers, are more inclined to consider a cost-effective, voluntary approach first, before moving to regulation.

“Once the business model is established, legislators can assess the willingness to participate, and from there develop regulatory tools to support onshore recovery.”

John says that Envirostream’s business objective is to see 25 per cent of batteries be recycled in Australia by 2022, adding that the company intends to take the lead in this area.

“We’ve already made considerable inroads to process volumes in the current market in year one.

“This is a lesson in playing the long game and create a low-cost model now to build awareness and volumes as a result.”

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YARRA VALLEY WATER’S PAT MCCAFFERTY EXPLAINS HOW THE COMPANY’S WASTE TO ENERGY FACILITY IN MELBOURNE IS HELPING DIVERT WASTE FROM LANDFILL, FIGHT CLIMATE CHANGE AND REDUCE COSTS FOR CONSUMERS.

The year was 1851 and gold-seekers from across the globe were arriving to Australia in droves – changing the course of the nation’s history.

As Australia began to expand its population and economy, Melbourne became one of the most richest cities on Earth.

By the 1880s, half a million people populated Melbourne, making it the nation’s largest city.

But managing exponential growth came with challenges and it wasn’t long before the city earned the title of Marvellous ‘Smellbourne’ in the absence of a sewerage system. According to Melbourne Water, in those days a majority of waste from homes, including kitchen bathroom and laundry wastes, were emptied into open drains that flowed onto street channels, local rivers and creeks.

With rising concerns about the spread of disease, authorities orchestrated a Royal Commission in 1888 to develop a solution. The solution was the construction of an underground system to carry sewage from homes and factories to a sewage treatment farm. After a treatment farm was built at Werribee, the first Melbourne homes were connected to the sewage system in 1897.

While not the same magnitude, Pat McCafferty, Managing Director of Yarra Valley Water, sees the direction of Australia’s sustainability as equally important.
“If we want to position our water systems to be sustainable in the future we need to invest in them and also do things differently,” Pat explains. “If you go back in time, our forebears did a great job for Melbourne setting aside protected water catchments, building dams and the Werribee Sewerage Farm. I think it’s our responsibility to do the same thing, not only for our current customers, but for future generations.”

IDENTIFYING THE BUSINESS CASE
Last year, Yarra Valley Water, Melbourne’s largest retail water utility, began operating its first waste to energy (WtE) facility in the city’s north. It uses anaerobic digestion, a form of biological processing, to break down and convert commercial food waste into energy. Waste producers, including markets and food manufacturers, deliver the equivalent of 33,000 tonnes of commercial food waste to the facility each year. The facility is located next to Yarra Valley Water’s Aurora sewage treatment plant, generating enough energy to power the facility and the adjacent plant. Currently, 25 per cent of its output goes to its two facilities, while the remaining 75 per cent is exported into the grid.

The need for the facility, according to Yarra Valley Water, was borne out of the need for water utilities to respond to climate change and Melbourne’s growing population.

Melbourne’s Water Plan highlights that Victoria’s population is projected to reach 10.1 million by 2051. Population growth increases demand for water, which in turn boosts energy use for treatment and pumping.

Australian temperatures are projected to rise with more extreme weather events. As oceans warm, they expand and sea levels rise, according to State of the Climate 2016. Greenhouse gases in the atmosphere make it harder for the Earth to radiate its heat mostly due to the burning of fossil fuels.

“The impact is right across Australia, but certainly in places like WA, SA and Victoria we’re seeing a long-term decline of stream flow into water catchments and that’s been happening for a while now,” Pat says.

“CSIRO and the Bureau of Meteorology are predicting that to continue. We used to rely on rainfall falling into dams now we can’t rely on that to the same extent.

“So, as a sector, water utilities such as Yarra Valley Water are impacted by a drying climate. We’ve got a responsibility to help address that.” Pat says that around about 2011-12, Yarra Valley Water began investigating a WtE facility after seeing its success overseas in Europe. In addition, Pat had a spent a period working for East Bay Municipal Utility District in Oakland, California and was aware of the challenges facing public water companies overseas. He says rising energy costs in Australia meant the conditions were finally right in Australia to investigate this option.

Pat says Yarra Valley Water sent one of its team members to Scotland and Germany to look at WtE plants over there. The biggest consideration for the company, as the technology was already proven effective, was will there be enough organic and food waste coming in to make the plant viable?

“In the Australian context, no one had done it successfully on the scale we were considering. We also looked at ourselves in a different light, because we are a sewerage company that is already processing a significant amount of the city’s liquid waste, so we were already into waste management from that perspective.

“We wanted to try and reduce the burden of our energy costs and the unpredictability of rising prices, and there was a solution staring us in the face in the form of our sewage treatment process and food waste, which would have otherwise gone to landfill.” From 2013-14 the tendering process occurred, which was followed by an 18-month process of obtaining planning and environmental regulatory approvals. Wastewater treatment
technology provider Aquatec Maxcon won the tender to build and construct the facility, and was subsequently awarded the operations and maintenance contract. Yarra Valley Water will decide, once the two-year operations contract elapses, whether it chooses to take operational management of the facility or renew it. The construction of the facility commenced in October 2015 and post commissioning, the facility launched in 2017.

FINDING ITS FEET
Yarra Valley Water’s demand has continued to grow since that time, increasing its scope of waste to new areas not identified in the original business case.

“We’re learning a lot as time goes on. Different waste streams that come to us have different calorific values to generate biogas. Some wastes, such as milk and yoghurt, have a different effect than manufacturing waste from food processing facilities, for example. “You might want more of one waste one day and less of it another day, so you have to manage that dynamically.”

As a result of these findings, Yarra Valley Water is now starting to find its feet and adjust its substrate inputs in accordance with market availability, site needs and opportunities presented by electricity market pricing.

LOWERING COSTS
Not only does the facility provide energy and reduce waste to landfill, but it has also resulted in lower energy costs for the company, which in the long term, helps keep water bills for consumers lower. Added to this is the company’s eligibility for large-scale generation certificates, a government subsidy provided for carbon abatement. These reduced costs also help safeguard Yarra Valley Water against a volatile energy market, Pat says, which has faced more than a decade of legislative uncertainty surrounding carbon pricing mechanisms. The Federal Government is currently implementing recommendations made by its chief scientist Alan Finkel in his independent review, which the Department of the Environment and Energy says will see retailers secure power from a variety of sources, including coal, gas, wind, solar, batteries and hydro.

The facility also aligns with the Victorian Government’s commitment to receive 25 per cent of its energy by renewable sources by 2020 and 40 per cent by 2025.

“For Yarra Valley Water it’s one of our key platforms for achieving our pledge to this commitment. Within the government’s policy objective, the water sector was seen as the highest government-related energy user. “In the Water for Victoria policy released last year, they recognised the responsibility and leadership by water utilities to reduce greenhouse gases and we all put in pledges to what we think we can achieve.”

The facility has been so successful that Yarra Valley Water is now looking
at a business case for a second facility, currently under review.

Once this facility is established, Pat says around 50 per cent of Yarra Valley Water’s energy will be produced through renewables, including some of its other small-scale solar projects by 2020.

Yarra Valley Water is also looking at investing in another generator at its existing Wollert facility, in order to scale up its current operation, which currently produces 8000 megawatts of energy per annum, enough to power about 2000 homes.

Ultimately the aim is to contribute towards helping tackle climate change and population growth – under threat from urban encroachment.

“At the end of the day, projects like this are important if we are to say we’ve supported the community, we’ve looked after our service now and we’ve positioned our water and sanitation to be sustainable for the future.”

Ted Gray, Lead Operator, checks the combined heat and power engines.

Fast fact
Yarra Valley Water is Melbourne’s largest retail water utility and provides water and sanitation services to more than $1.8 million people. The organisation manages more than $4.2 billion of infrastructure across 4000 square kilometres, covering Melbourne’s eastern and northern suburbs, from Warburton to Wallan. In 2012, Yarra Valley Water became a statutory corporation, governed by an independent board of directors appointed by the Victorian Government. In 2015, the organisation also became the first water utility in the world to commit to the United Nation’s Global Compact Sustainable Development Goals.
Leading by example

THE LOCAL WASTE TO ENERGY CLIMATE HAS BEEN SLOW TO PROGRESS, BUT MARTIN BIOPOWER IS ONE COMPANY HELPING SET THE PACE FOR CHANGE.

Waste to energy (WtE) has seen extensive progress since the first incinerator was built in Nottingham, UK in 1874. From thermal treatment processes which use forms of incineration to anaerobic digestion and fermentation, the range of WtE processes is growing rapidly.

By 2026, it’s expected there will be more than 2600 WtE plants with a capacity of about 435 million tonnes, according to consultancy firm ecoprog’s Waste to Energy 2017/2018 report.

As explained by ecoprog in 2016, much of the increase is predicted to come from Asia, with the European market resurging after more than a decade of prosperity.

However, the European Commission, which represents the European Union and proposes legislation, is tightening its restrictions to strengthen resource recovery.

According to Zero Waste Europe, the European Parliament voted in January to align its Renewable Energy Directive with the circular economy, strengthening the criteria for using waste and residues for energy production. The directive establishes the overall policy for producing renewable energy in the European Union.

In 2015, the European Commission issued directive COM(2015) 595 final which stipulated that by 2025, re-use and recycling of municipal waste from its member states would be a minimum of 60 per cent by weight. However, the weight of this municipal waste is understood as that which has been recovered or collected by recognised re-use operators, having undergone checking, cleaning and repairing for re-use. In other words, 60 per cent of municipal waste will have to be recycled into new materials, without exporting it to another source or country for further processing.

FOLLOWING THE HIERARCHY

Dr Gerhard Janssen, Chief Executive Officer, Martin Biopower Perth, says the European Commission’s decision shows Europe is serious about increasing resource recovery. Even though the current focus is on material recovery, he says WtE will have to be part of the equation, as landfilling is not an option.

“Very often cities make a decision that recycling is not doable due to a lack of sorting options or business structure. We have a situation in Australia right now where most of the material we call recycling is exported, which makes zero sense under the waste hierarchy.”

The waste hierarchy is commonly used around the world to highlight the order of material disposal. In sequential order it includes prevention, reducing, recovering and re-using, recycling, energy from waste, followed at last by disposal to landfill.

“When you transport waste in ships around the world to bring it to countries like China, Vietnam – you have to question whether it really is recycling. You put a lot of energy into the transport. The conditions under which the waste is being treated in these countries doesn’t correspond to our standards and where this waste finally ends up is questionable,” Gerhard says.

The Australian Bureau of Statistics’ Waste Account 2013 shows Australia exported 4.4 million tonnes of waste valued at $2.4 million – or 0.8 per cent of the nation’s total exports. It makes little economic sense to Gerhard, who cites the success of WtE systems in...
European nations such as Switzerland, the Netherlands, Denmark and Germany.

“In Germany, the paper and paper recycling industry forms an important part of the market. But at the stage it cannot be re-used, there is an end to that market, and that’s when it’s added to combustion,” Gerhard says.

While recycling is on a growth trajectory in Australia, Gerhard notes there is much work to do in increasing resource recovery in the country through a waste hierarchy.

“You can see the ongoing structure is changing worldwide and the perspective is through more responsible management of materials,” he says.

“A ban on landfill is certainly the most radical and straight-forward solution. But I understand from working in the last five years in Australia that they’re not fond of radical solutions.”

**ESTABLISHING OPERATIONS**

Martin Biopower is a joint venture with Martin GmbH and was established locally in Perth, Western Australia, in 2013, after discussions between local government and state politicians resulted in the call for a WtE technology provider. Martin GmbH has provided the latest technology for WtE power plants for more than 60 years and has developed facilities in Europe, Asia, South and North America and Africa. While Martin Biopower has yet to establish a WtE plant in Australia, it is involved in a variety of tenders and maintains partnerships with companies such as SUEZ as an engineering, procurement and construction supplier for turnkey plants.

The company specialises in providing solutions for thermal treatment through its reverse-acting grate Vario. It considers flexibility one of its most important traits, as it maintains the foresight to adapt to the economic and environmental climate over the more than 30-year lifespan of a WtE plant.

**AUSTRALIAN DATA**

Gerhard sees great potential in Australia for WtE which has yet to be unlocked. According to Bloomberg New Energy Finance data, there were 114...
bioenergy and WtE plants operating in Australia in 2015, with a total of 812 megawatts of installed capacity. Most established plants have less than 10 megawatts capacity. The resulting data was published in a 2015 market report by the Clean Energy Finance Corporation (CEFC).

“While the amount of waste diverted from landfill has generally increased in recent years, there is relatively little WtE recovered from urban waste in Australia other than in cement kilns, where some waste such as process-engineered fuels, oil and tyres are used as supplementary fuels,” the report says.

It says increasing landfill levies and a growing awareness of WtE in resource recovery can make a meaningful contribution to the nation’s energy mix and reduce the environmental and social costs of landfill. Estimates published in the report indicate WtE contributes to 0.9 per cent of Australia’s electricity output, well below the OECD average of 2.4 per cent. The CEFC estimates new bioenergy and WtE projects could prevent nine million tonnes of carbon dioxide emissions each year by 2020, possibly contributing 12 per cent of Australia’s national carbon abatement task to 2020.

Gerhard says one solution to a lack of movement in the WtE field is to harmonise landfill levy legislation across the states and territories. Eurostat 2017 statistics, based on 2014 data, indicates WtE provides a complementary way to divert waste from landfill. Out of 28 European nations using WtE, 23 had higher rates of recycling and composting.

**THE SYSTEM**

Gerhard says a land area of around 50,000 square metres is needed for a WtE plant capable of processing 250,000 tonnes of municipal solid waste per year. This corresponds to a waste throughput of around 31 tonnes per hour, with calorific values ranging from around eight to 15 megajoules per kilogram.

Martin Biopower’s reverse-acting grate Vario is the culmination of ongoing development. Martin engineers have carefully looked at Australian waste qualities to come up with a local solution that is efficient and meets the emissions standards required under the current European Industrial Emissions Directive for WtE plants.

Treatment of waste on the reverse-acting grate Vario begins at a bunker, where waste is stored for about three to five days. The waste is then transported by crane into a feed hopper. It travels by gravity through a feed chute and is transported onto the grate by a feeder that is controlled by the combustion control system. Combustion air flow and speed of the grate can be independently controlled in separate sections, depending on the waste composition.

“Combustion on the grate is monitored by an infrared camera. This picture, other online measurements and our vast experience will provide the optimum settings for the combustion system in order to guarantee an excellent burnout of the waste on the grate and of the flue gases.”

The flue gases pass through a waste heat boiler, where the energy is recovered in the form of steam and can either be used to generate electricity in a steam turbine generator set or used as thermal energy for a variety of industrial processes. He says Martin Biopower’s technology can also use the steam directly and transfer it to electricity for other businesses to use.

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**European data shows how WtE works alongside other methods of resource recovery.**

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**Recycling and WtE complementary to divert waste from landfills**
THE STRUCTURE
There are a variety of ways Martin Biopower can partner in a project, including working with infrastructure funds such as the CEFC, which help to provide funds to WtE facility proponents. It can also partner as a shareholder and work together on an investment structure, while also working through the public-private sector partnership.

Gerhard says one of the most ideal models for Australia is a plant jointly owned by several councils in the city of Roskilde, Denmark. This plant replaces more than 150,000 tonnes of other fuels, typically fossil-based. He says the emissions are well below the European Industrial Emissions Directive. More than 95 per cent of the energy in the waste is being recovered for re-use.

“Martin Biopower will give a fixed price for designing and building a WtE plant.

“Contracts for owning/operating a plant will run typically for 20 to 25 years, with waste amounts to be committed long-term but also treatment cost (gate fee) fixed. I think that’s a fact that is not mentioned enough. Some argue that 25 years is too long, but if you were to tell anybody that they would have the same price fixed for their car or electricity, they would be more than happy.”

Reverse-acting grate system Vario

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EMBRACING WASTE TO ENERGY IN AUSTRALIA OFFERS A COMPLEMENTARY WAY OF DIVERTING WASTE FROM LANDFILL AND REDUCING THE NATION’S EMISSIONS, EXPLAINS HITACHI ZOSEN INOVA AUSTRALIA.

After two weeks of negotiations, 196 representatives from nations around the world reached an agreement to cut their carbon emissions and limit global warming to 1.5 degrees Celsius by 2020.

On 12 December 2015, the nations adopted the consensus at the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change in Paris.

Historically known as the “Paris Agreement”, it would not become binding until 55 nations ratified the agreement. Some elements of the agreement were legally binding, including submitting an emissions reduction target and a regular review of it. The specific target set by each nation was voluntary and the entire agreement was conditional on 55 countries out of the 174 that signed it to ratify it, as the countries needed to cover more than 55 per cent of global emissions.

Hitachi Zosen Inova Australia (HZIA), a leader in waste to energy (WtE) solutions, sees renewable energy as a necessity in order to meet Australia’s global targets. The company estimates that to meet these targets, emissions of greenhouse gas will have to be completely halved between 2045 and 2060 and the production of carbon dioxide emissions re-introduced to levels that can be absorbed by photosynthesis. It asserts that a faster implementation should be considered...
due to the quicker than estimated rising of the average global temperatures – also experienced in Australia.

HZIA believes the process of meeting Australia’s targets will entail stopping the burning of fossil fuels entirely from 2040 and switching completely to renewable energy. According to an Australian Government fact sheet *Emissions from landfill facilities*, the waste sector produces around 15 million tonnes of carbon pollution every year, equivalent to three per cent of Australia’s emissions. It says without action to reduce emissions, a tonne of continue to release about 1.2 tonnes of carbon pollution in landfill.

Marc Stammbach, HZIA Managing Director, sees WtE as one solution to helping Australia meet its 2030 targets. Waste management in Europe sees biomass and recyclables collected separately, with residual waste processed in WtE plants. Marc believes this reduces or eradicates the need for landfill, cuts greenhouse gases and protects the human habitat from contamination and pollution.

Marc explains the French describe landfills as “stockage des déchets” which translates to “storages of waste”. This recognises that landfills for untreated waste aren’t a treatment method and hence not sustainable. He says due to the ongoing increase of landfill gas and leachate emissions over decades and centuries, the only question for future generations will be how to pay for the costly clean-up of landfills.

Grate combustion, flue gas treatment and material recovery technologies are just a few ways waste can be converted to energy and fed back into the grid to be used as base load power. Marc estimates a modern WtE plant can deliver enough district heating from a tonne of waste to replace about 240 kilograms of oil, generating 800 kilowatt hours of electricity – enough to help power an average household with a total annual consumption of about 3500 kilowatt hours for the year.

**THE WASTE TO ENERGY MOVEMENT**

Unfortunately, Australia is still some ways off from achieving a critical mass in WtE, Marc believes, with only a few proposals that use thermal treatment moving through approvals. While other forms of anaerobic digestion and refuse-derived-fuel are gaining increasing prominence in Australia, Marc sees thermal treatment as one required way to reduce waste to landfill by converting residual waste into energy. However, the regulatory environment needs to improve in order to do so.

“We need to move away from arbitrary recycling targets for WtE, as is the case in NSW, to get waste out of landfill and that means nothing going untreated,” Marc says.

“Regardless of how prominent WtE becomes, the economics alone will drive composting of biowaste and recycling as a priority and what cannot be brought back into the economy will go to WtE.”

Marc says that issues of interstate waste transport should serve as a wake up call for regulators. A need exists to harmonise landfill levy regulation across the nation and to ban the landfilling of any untreated waste, he says, in order to encourage investment certainty in local waste management infrastructure. This would provide more avenues for composting, recycling and WtE as seen in countries such as Austria, Belgium, Denmark and Switzerland, which dispose less than two per cent by weight of municipal solid waste to landfill, according to Eurostat data published in 2016. Countries such as Germany, Austria, Belgium and Switzerland also recycled at least half of their municipal waste.

“Although WtE is regarded as a necessary compliment to compost and recycling and preferred to landfilling in most other countries, we only hear about composting and recycling in Australia,” Marc says.

“Many local stakeholders talk about WtE as if it’s a threat to compost and recycling. However, if you look overseas, it is complementary. Countries with the highest WtE rates have higher rates of composting and recycling.”

**AUSTRALIAN PROGRESS**

Thankfully, there are some projects getting off the ground, as last year HZIA was selected as the preferred tenderer for a 20-year waste service agreement by Eastern Metropolitan Regional Council (EMRC), which represents six member councils in Perth’s eastern region.

The contract with EMRC forms the cornerstone waste supply for the East Rockingham Resource Recovery Facility, which will convert about 300,000 tonnes of residual waste per

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**Fast Fact**

According to Eurostat, countries such as Austria incinerated 85,857 tonnes of waste in 2014, while in comparison, incinerated and then recovered 3,523,528 tonnes of waste. Austria also recycled the highest level of municipal solid waste in Europe at 63 per cent of municipal solid waste generated, according to a 2013 report by the European Environment Agency. Belgium incinerated and recovered more than three million tonnes of waste in 2014, while only incinerating less than two million. Composting accounts for more than half of treatment in Austria and Belgium, Eurostat 2017 figures show.
FEATURED TOPIC – WASTE TO ENERGY

year into baseload renewable energy, producing 28 megawatts of electricity at full capacity — enough to power 36,000 homes. The plant will divert 96 per cent of the EMRC’s residual household waste. HZIA’s facility is part of a consortium with Perth-based WtE business New Energy Corporation and investment firm Tribe Infrastructure Group.

HZIA’s moving grate combustion technology, which will be used in Perth, is currently used in more than 500 projects worldwide, with the project scheduled to commence construction in the third quarter of 2018.

HOW IT WORKS
The process begins with a fully automatic crane that will transport the thoroughly mixed waste from a bunker on site into the feed hopper. After the waste is pushed onto the HZI grate via a ram feeder, it passes through a variety of combustion phases, including drying, ignition, combustion and burnout. Five individually controllable grate zones ensure all the waste is combusted, irrespective of its constantly varying composition.

The process steps can be controlled separately. Swift adjustment of airflows and grate motion in every zone at all times responds to process fluctuations. The inclination of the grate, the drop-off after the main combustion zone and the horizontal burnout zone aim to ensure excellent burnout of all waste fractions.

Combustion is further controlled by injecting air from underneath the grate taken from the bunker area, while secondary air and recirculated flue gas are injected at high velocity into the secondary combustion chamber. This ensures flue gases are burnt out, as the energy released during combustion is transferred to the water stream cycle in a downstream five-pass boiler. It also assures the lowest carbon monoxide and nitrogen oxide emissions and volatile organic compounds are produced. The energy released produces superheated steam, expanded in a turbine generator to produce electricity. Flue gases are cleaned to European standards and continuously monitored prior to being released.

BARRIERS TO ENTRY
While the EMRC project is promising for the state of WtE in Australia, there are still some projects slow to progress. HZIA has declared its interest as the chosen technology supplier to Dial A Dump Industries’ proposed TNG Eastern Creek WtE project. The $700 million facility is still undergoing planning approvals and the proponent has applied for a processing capacity of around half a million tonnes of residuals per annum from sorted commercial and industrial and construction and demolition waste. The capacity was halved in late 2017 by the proponent in its latest clarifications submissions.

Marc says he will be concerned about the state of WtE in Australia if the facility doesn’t get through. If approved, he believes it will be a catalyst for further plants. He encourages regulators to look to plants overseas if they want to progress thermal treatment and WtE in Australia.

“The clear difference in Western Australia is the politicians there went overseas to look at other plants as a reference,” Marc says.

“I think the lead project for WtE will come from EMRC in WA. NSW is regarded as the premier state and everyone wonders what is going on if it’s got highest waste levy and nothing is happening.”

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Fast Fact

Hitachi Zosen Inova (HZI) in 2017 was selected to build Istanbul’s first waste to energy (WtE) plant. Slated to be Europe’s largest WtE plant for municipal solid waste, the plant will process about one million tonnes of waste per annum and generate around 70 megawatts of electricity.

Based in Zurich, HZI is an engineering, procurement and construction contractor delivering turnkey solutions for thermal and biological WtE recovery. HZI’s waste and flue gas treatment solutions have formed a part of more than 600 reference projects since 1933.
WEIGHING SYSTEMS AND SOFTWARE

Weighing systems and software aims to bring a higher level of accuracy to the waste transportation industry. *Waste Management Review*’s May edition explains how these technological innovations allow transporters, transfer station operators and others to monitor waste volumes and other key performance indicators.

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CONVERTING ORGANICS INTO ENERGY CARRIES WITH IT NUMEROUS BENEFITS, FROM REDUCING WASTE TO LANDFILL TO LOWERING A BUSINESS’ OVERHEADS.

IT’S A PROCESS BEING INVESTIGATED AND IMPLEMENTED BY NUMEROUS LOCAL GOVERNMENTS ACROSS AUSTRALIA. AS ONE EXAMPLE, BYRON SHIRE COUNCIL, BASED IN THE NORTHERN RIVERS REGION OF NSW, HAS BEEN INVESTIGATING BIOENERGY PROCESSES SINCE 2016, WHICH HAS POTENTIAL TO OFFSET RETAIL ENERGY PRICES.

SIMON TOAL, DIRECTOR OF EQUIPMENT AND SYSTEMS SUPPLIER SKALA, SAYS WASTE TO ENERGY (WtE) IS FAST BECOMING MORE ECONOMICALLY FEASIBLE IN AUSTRALIA. “MANY COUNCILS WILL HAVE SOME FORM OF GREEN WASTE PROCESSING, SO THIS REPLACES SOME OF THEIR EXISTING OPERATING COSTS,” SIMON SAYS.

WITH STRONG POTENTIAL FOR WtE SYSTEMS IN AUSTRALIA, SKALA IS NOW WORKING TO LAUNCH A TURNKEY SOLUTION TO THE AUSTRALIAN MARKET. SKALA OFFERS THIS THROUGH THE BEKON SYSTEM – AN INTERNATIONAL WtE TECHNOLOGY PROVIDER BASED IN GERMANY. SIMON SAYS THE BEKON MINI PROVIDES AN OPTIMAL SOLUTION FOR THE LOCAL MARKET, DUE TO ITS LOW CAPITAL AND OPERATIONAL EXPENDITURE AND INPUT QUANTITIES. HE ANTICIPATES THIS WOULD BE APPEALING TO MUNICIPAL COUNCILS RUNNING SMALL-SCALE OPERATIONS.

HE SAYS HE’S RECEIVED EXTENSIVE INTEREST FROM THE LOCAL GOVERNMENT AND WASTE MANAGEMENT SECTOR OVER THE PAST SIX TO EIGHT MONTHS.

SIMON SAYS BEKON MINI USES DRY FERMENTATION, WHICH INVOLVES THE BREAKDOWN OF MATERIALS VIA ANAEROBIC DIGESTION, TO CONVERT ORGANICS INTO BIOGAS. HE SAYS IT IS SUPERIOR TO OTHER METHODS DUE TO ITS SIMPLE AND ROBUST OPERATION. ORGANIC WASTE DOES NOT NEED ANY PRE-TREATMENT BEFORE THE ANAEROBIC DIGESTION PROCESS, SO THIS SAVES BUSINESSES OPERATIONAL COSTS. BIOMASS ALSO DOES NOT NEED TO BE PUMPED THROUGH PIPES AS LIQUID FERMENTATION DOES, THEREFORE REDUCING RISK OF BLOCKAGES.

THOMAS GANZHORN, SALES MANAGER, BEKON, SAYS DRY FERMENTATION OFFERS AN ECONOMICAL AND EFFICIENT WAY OF CONVERTING WtE. HE SAYS A PLANT BASED IN ENGER, ROUGHLY AN HOUR SOUTH OF HANOVER IN GERMANY, OFFERS A SUITABLE CASE STUDY FOR AUSTRALIANS. HE SAYS IT COULD BE AN EXCELLENT STARTING POINT FOR ANY MUNICIPALITY THAT HAS A MINIMUM OF 4000 TONES OF SOLID ORGANIC WASTE PER YEAR. WITH THE PLANTS BEING MODULAR, FURTHER EXPANSION IS ALWAYS POSSIBLE.

THOMAS SAYS BEKON’S SYSTEMS ARE USED IN MORE THAN 50 PLANTS WORLDWIDE, INCLUDING THE US, ITALY, SWITZERLAND AND MEXICO. “THERE ARE TWO MAIN FACTORS WHICH DETERMINE WHETHER A PLAN CAN BE RUN ECONOMICALLY AND THAT’S THE GATE FEE AND THE VALUE OF THE BIOGAS. YOU WILL GET A CERTAIN AMOUNT OF MONEY PER KILOWATT
for electricity ejected into the grid,” Thomas says.

Thomas says the BEKON Mini was designed to minimise costs. BEKON Mini is the standardised solution for a capacity from 4000–10,000 tonnes per year and is suitable for processing garden waste/grass cuttings, organic agricultural waste, renewable raw materials, animal faeces, organic fraction municipal waste and biowaste. The result means the material can be converted into products ranging from nutrient-rich fertiliser to biogas-fired heat and energy.

The system has the capacity to generate up to 300 kilowatts of electricity and thermal while also treating fermentation residue, such as biological drying into high-nutrient fertiliser. BEKON systems deal with all types of solid organic waste, Thomas says, with the only conditions being that the waste should be a minimum of 30 per cent dry matter and less than 70 per cent moisture.

The process begins with the fresh waste material being placed into a fermenter with a wheel loader together with digestate that has already run through the process. The materials are then placed into a dry fermenter, which helps inoculate the fresh material and blend the necessary bacteria into the mixture. Once this is done, the fermenter door is closed and a gas purging process removes all the oxygen within the fermenter to allow for anaerobic digestion. The liquid draining from the waste material is brought to the percolate fermenter which is at the back of the fermenter. During the anaerobic digestion process, the percolate is regularly sprayed back on the material to keep a stable biology.

“We also heat the walls and the floor of the fermenter to get the optimal process temperature as soon as possible,” Thomas says.

The material then stays inside the fermenter for four weeks allowing for biogas production. The biogas is then brought into a gas holder, which is transferred to the combined heat and power system. Before it enters the engine the biogas is cooled and compressed and runs through an active carbon filter to remove hydrogen sulphide. Electricity produced can be injected into the grid.

Overall, Thomas is buoyed by the potential of the technology to advance in Australia.

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Ongoing global recognition of the impact from waste on the environment requires those with responsibility to continually assess their strategy and approach to the delivery of treatment infrastructure. This should be fully cognisant of circular economy principles. Where appropriate, treatment technology should complement these principles along with the generated feedstock, potential offtake arrangements, local conditions and commensurate legislation and regulation.

The journey to deliver waste treatment infrastructure can be long and hazardous, but also exciting and rewarding. By setting out the conditions for monitoring and measuring progress, success can be celebrated.

There are many treatment technologies available to provide the necessary arrangements to complement the suite of infrastructure required to deal with the entirety of the waste that is generated. One such technology is waste to energy (WtE), which will have those that support its delivery and those that vehemently oppose.

As with all projects, risks and opportunities exist and the opinions of all stakeholders should be addressed in equal measures as early as possible, as their interest level and influence may need cultivating. Internal and external communication is required to ensure those with interest are also kept informed.

THE SIX PHASES
There are six main phases required to deliver an WtE plant. These include concept, feasibility implementation (design, engineering, procurement and construction), handover and closeout (commissioning and take over), operations (such as reliability testing) and termination.

During these main phases, there will be many stakeholders involved, all with different needs and requirements, and the coordination required will be akin to conducting an orchestra, as different voices fade in as befits the different stages of the project. This, combined with the fact that these projects exist in an almost constant world of change, makes the pathway to success somewhat daunting.

Within each phase, there are many different facets that will need drawing together to ensure the ‘big idea’ can be delivered. A cohesive and collaborative approach will reduce the chaos and confusion and ensure that each facet can progress in tandem with other project elements. A direct linear approach to delivery can be considered, and while this does give a sense of order and structure, it does also open a project to easy disrupters that can halt entire workfaces and cause unnecessary delay, even if they do not directly interface.

MEASURING PROGRESS
Setting milestones that are specific to the project phase, achievable, measurable, relevant and time bound can help track progress. While mission statements provide a sense of overall travel, strategies can be formed that are very deliverable.

In many senses, interpreting the
strategy at the point of delivery can be challenging. However, timely and relevant milestones that can be embedded with each of the project phases can help bring the horizon closer, which brings smaller change if required, along with greater order and focus to what needs to be done to achieve success. Any type of success on WtE projects can sometimes be hard won by the team, and when they present themselves they should be rightly celebrated.

Reaching financial close on any project is extremely difficult. Moving beyond the complexities of having a contracted and known feedstock, contracted offtake arrangements and an effective technology that sits between both can present a fog of confusion that can make the identification of risk difficult. Carrying these risks beyond financial close and into the supply chain can make monitoring and managing the project more difficult to measure at a time when the supply chain requires a degree of certainty to take into detailed design and beyond.

Big ideas can present small changes to the entire sphere of regional waste production and careful strategic consideration should be given to each waste infrastructure project to ensure it fits both immediate and long-term needs that complement overall objectives.

WtE can sometimes be seen as a small idea that can present big change. The reality is that this small idea can be extremely complex and challenging to deliver and the use of close bound and specific milestones will prove beneficial. Taking an idea from the concept phase and into the operations phase requires, among other things, measurable milestones that are placed correctly within the project schedule. Honest measurement and appreciation of each milestone should be undertaken to ensure progress and make certain that the overall strategic aims and business plan continue to be met. If, at any stage, this is not the case then any idea, however big or small, must be carefully reassessed to ensure that what was originally concepted remains deliverable. Placing milestones at the right project point can help not only provide an early warning, but also provide the sign itself, which gives the project a chance to act fast to review and rectify any plans or processes that may not be delivering.

Check your dependencies, communicate with those involved, review the original plan and look for the right solution to keep a project on the right track to success.
GRAHAM O’BYRNE, GENERAL MANAGER WATER AND WASTE, DISCUSSES HOW CAIRNS REGIONAL COUNCIL ACHIEVED RESOURCE RECOVERY FIGURES WELL ABOVE THOSE SET BY THE QUEENSLAND GOVERNMENT.

Q. What are some of the challenges for Cairns surrounding collection and recycling and how is council tackling those challenges?
A. Cairns Regional Council signed a new nine-year service contract with J.J. Richards & Sons in 2017 to cater to the municipality’s 112,000 domestic waste and recycling bins across 71,000 properties in the Cairns region.

A change in service contractor presents challenges in the transition phase, including new routes and collection times, driver familiarity of the region and dealing with the inevitable customer service issues. To assist with the anticipated difficulties, an awareness campaign was delivered to ensure the community could help reduce missed collection by putting their bins out at the required time.

Q. What do you look for in a successful tender and how do you go about it?
A. Value for money, both to council and the community, is always a priority across its waste business in all its services, including kerbside collection, resource recovery, recycling, re-use and landfill. All contracts follow a rigorous process to maintain fairness and transparency in the tendering process. Of critical importance is the appropriate due diligence to ensure that the tenderer is able to deliver on the promised service.

Q. Which bin system do you use and why?
A. Our kerbside waste and recycling comprises weekly 240-litre mobile garbage bin general waste collection and fortnightly 240-litre mobile garbage bin commingled recycling collection. This service level will be reviewed during the existing collection contract where alternatives such as a food and organics collection service will be considered. We are also transitioning to red lids for general waste to be consistent with national standards with all new or damaged bins receiving replacement red lids.

Q. What has been working particularly well over recent years for the council in terms of waste management/recycling services?
A. Over 2016/2017, the recovery rate for domestic waste sat at 59 per cent. This figure is higher than the Queensland Government target recovery rate of 45 per cent by 2024. Our recovery rate can largely be attributed to general waste being processed at the Cairns Advanced Resource Recovery Facility. The recovery rate through our four transfer stations is 72 per cent, with around 40 per cent of this being green waste.

Council operates a buy-back shop where re-usable items sourced from transfer stations are sold to the general public. The buy-back shop is proving successful, providing a valuable community service, with customer numbers and sales increasing weekly.

The contamination rate in kerbside collected recycling bins is relatively low at nine per cent. Council has successfully engaged in comprehensive education and awareness campaigns and community engagement targeting...
recycling and contamination. In consecutive waste characterisation audits over the last five years, the data have shown that the community’s understanding of waste and recycling continues to improve.

**Q. How do you ensure what is recyclable is clear to residents?**

**A.** Council’s message regarding recycling is clear through its marketing and communication campaigns connected with our overall waste strategy. The implementation of our campaigns encompass multiple touch points to capture all aspects of the community and includes social, digital, print, radio and TV advertising. This is supported by education through school and community engagement, underpinning the message that everyone has a role to play in improving recycling in our region.

**Q. Is there any modern technology the council is using and/or would like to use that would make collection more efficient?**

**A.** As part of council’s new waste and recycling collection contract, the strong Volvo fleet has been fitted with state-of-the-art j-Track and Black Moth technology, designed to monitor and optimise vehicle performance and record factual information regarding each daily collection run. The meaningful data collected has already led to considerable process improvements.

**Q. Can you explain some of the waste management roles that exist at the council and how they work with each other?**

**A.** Due to the changing landscape within the industry, all components of the business are needed to contribute to the success of the whole. Waste management roles that exist within Cairns Regional Council include a contracts manager, operations and resource recovery coordinator and strategy and business development. The strategy aspect of our business overlaps into contracts, operations and business. We have progressed from a focus on the most cost-effective method for disposal to reducing, re-using, recovering and recycling.

**Q. What are the main opportunities for Cairns Regional Council for increasing diversion of materials from landfill and increased resource recovery?**

**A.** We are achieving high levels of recovery based on current operations and infrastructure. How we design, manage and operate our waste management infrastructure is important to maximising efficiencies and minimising costs.

We are continuing to review our operations and infrastructure to achieve even greater resource recovery and efficiencies.

The rationalisation of key infrastructure into resource recovery hubs provides easy access to markets. In our attempt to move toward a circular economy, the role of our waste management team is to collect, treat and return secondary resources and recovered energy back into the cycle of production and consumption.

**Q. How does the council manage to keep costs down while meeting waste management targets?**

**A.** Council is continuously reviewing the way we conduct business and what the market and industry can provide. Some recent efficiency gains have been obtained with less compaction in the recycled bins since our new collection contract has been in place, resulting in better sorting and recovery of recyclables.

**Q. How has the role of local government as a waste manager changed over time and where do you see this role heading in the future?**

**A.** While council is happy to lead the waste management discussion, for waste to be a success, there needs to be a significant component of investment from the community.

We believe the future of waste management should rely heavily on education and developing a customer-focused culture. By building on the foundation of previous strategies and taking it to the next level, we will have a stronger focus on waste reduction and resource recovery. We also believe that council’s ongoing involvement with the private sector in developing value add opportunities for recycling and re-use is a key element to improving diversion from landfill rates.
POSITION PARTNERS EXPLAINS HOW LANDFILL OPERATORS ARE REALISING THE PRODUCTIVITY AND OPERATIONAL GAINS THAT MACHINE GUIDANCE AND REPORTING SOLUTIONS CAN DELIVER.

Machine guidance and real time data aim to provide a host of benefits to landfill operations, including optimised density, increased safety, reduced leachate and the ability to eliminate overfill. According to Position Partners, machine operators typically embrace these systems. However, the organisation notes some sites struggle to dedicate resources to using these data platforms in the office.

“Getting up to speed with new technology can be daunting, especially when everyone is strapped for time,” says Andrew Granger, Product Manager for Mining and Landfill at Position Partners.

“Some customers just want us to manage the data in the early months while they’re getting used to the system and then they’re off and running, while others prefer to have our team run reports for them on an ongoing basis,” he added.

“Others want to take it all on from the get-go.”

HOW MANAGED SERVICES CAN HELP
To help operators close the skills gap, Position Partners has developed a custom-designed managed service for the industry that combines reporting solutions, remote support and diagnostics tools. These systems work alongside machine guidance to provide what the company says is a holistic solution, eliminating the need to up-skill or hire extra staff.

Position Partners managed service is designed to save time and eliminate the skills gap headaches many site managers are experiencing by maintaining data integrity, generating and distributing reports and hosting the data on a client’s behalf.

Managed service incorporates the office reporting suite of the Carlson LandfillGrade solution, Carlson Command, along with Position Partners’ custom-developed Tokara Link remote support tool. It includes real-time kinematic network base station access and an array of reports, including density, utilisation, volume and efficiency reports, daily work area, real-
time cut/fill colour map and customised reports on request.

“All reports can be tailored by the Position Partners team so that you get only the most relevant information at time frames to suit your workflow,” Andrew says.

“They can also include comprehensive information on uptime, idle time, delay and downtime tracking, operator time sheets and project tracking.”

Andrew says managed service is a fully modular and customisable solution which takes into account the fact that each project, site and customer has unique requirements.

OPTIMISATION FROM THE OFFICE
Managed service aims to give landfill managers as much or as little direct involvement with the data as they wish.

Data from the machine guidance systems are sent directly to the Position Partners team via the cloud, enabling technicians to support and send updated design files to the machines directly, as well as send a wide variety of reports on a daily, weekly or monthly schedule as required.

Using Carlson Command, managers have the option to keep track of operations from the office (or anywhere with an internet connection) via a web portal.

Managers can see and monitor multiple machines in real time, including plan view, from any remote location. Cut and fill and elevation can also be monitored.

Managers can also instant message each machine.

The system transmits through cellular, standard wireless and mesh networks. For sites without remote connectivity, data can be stored in the machine and copied to a USB drive for analysis later.

TECHNICAL SUPPORT
Andrew notes that troubleshooting technology can be time consuming and frustrating when you have deadlines to meet and are juggling multiple tasks.

“Feedback from our customers has always highlighted the importance of timely and efficient support,” he says.

“We’ve prioritised this with the development of Tokara, which enables our technicians to solve most problems without even visiting the site – the time and cost savings are huge.”

Tokara is designed to help operators get the most from their landfill machine guidance with fast, comprehensive support when they require it.

The service enables Position Partners’ technicians to connect directly to an operator’s machine via a small telemetry link to offer remote support.

“Tokara has been developed in Australia, using Australian skills and programmers, based around customer requirements, and has been extensively tested with contractors and end-users throughout the country so that we know it works in our harsh environment and with our often challenging telecommunications networks,” Andrew says.
Adapting to the conditions

RAY COX OF LANDAIR SURVEYS SHARES A CASE STUDY OF A RECENT LANDFILL PROJECT WHERE CLAY SIDELINER DESIGN NEEDED TO TAKE INTO ACCOUNT LEGACY OVERHANGING ROCK WALLS.

It’s standard industry practice to convert disused quarries into landfills. One of the key challenges in such a practice is making sure the clay liner design takes into account existing conditions to guarantee leachate/water table separation.

A recent, challenging project saw Landair Surveys use modern 3D laser scanning technology to offer a solution for sideliner design involving overhanging rock formations.

The subject site was an urban landfill within an old quarry site. The existing rock walls contained many significant overhangs that, if not taken into account in sideliner design, could compromise liner integrity. Reshaping the old quarry face was not an option in this situation, so the landfill operator engaged Landair Surveys to come up with a proposed foundational sideliner design that took into account rock overhangs and desired clay thickness.

The first step was to get an accurate portrayal of the legacy quarry face. Landair uses 3D laser scanning technology in other industry applications to create virtual buildings/structures that assist architects and engineers in their work. It was decided that this would also be the best technology to map the quarry face, thus creating a 400-metre virtual rock wall to interrogate. The virtual rock face highlights areas that contain major overhangs which can be turned into additional cross-section lines using the data and incorporated into the design. More than 200 million points were measured along twenty scanning locations creating a base point cloud to work from.

The second step involved cleaning and filtering the initial point cloud (the set of data points) to get to bare rock conditions. Vegetation and a pre-installed protective wire mesh were removed from the point cloud. The point cloud was then filtered to achieve a more workable point spacing of 50 millimetres. From this filtered point cloud, a 3D triangle mesh was created consisting of approximately eight million triangles.

With the virtual rock face created, the next step in the process saw Landair create major cross-section lines at 10-metre running chainages along the 400-metre face. These 10-metre cross-sections formed the general shape of the design sideliner. Overhangs and rock ‘bulges’ were isolated in the triangle mesh and separate cross-sections were created at each of these critical junctures and included in the sideliner base file.

The final step saw Landair create a provisional design surface based on rockface grades observed in the cross-sections. This foundational design was given to the landfill operator and their design engineers for cross-checking and comments. Based on the engineer’s feedback, minor edits were undertaken to thickness levels and a final design plan was created for construction.

Landfill cell construction can sometimes bring up significant challenges and it pays to utilise all the technologies and skill sets available. By thinking outside the box Landair Surveys was able to utilise technology usually set aside for other industries to help solve a difficult design scenario.

Landair’s virtual building structures.
Three years ago, Geoff Pilgrim, now 67, was on the hunt for a new challenge.

With more than a decade operating the family-owned waste transportation business Geoff Pilgrim Transport, Geoff hoped to establish what he described at the time as a “relaxing recycling business”, allowing him to ease into a comfortable retirement. The new business, based in the west coast of South Australia in Port Lincoln, shreds and granulates materials from the aquaculture industries of SA and Victoria.

Based in Echuca Moama, Geoff Pilgrim Transport hauls waste from Echuca to Melbourne and general freight across northern Victoria. The business began in 1988, starting with one truck and over time boosting its fleet to 15 trucks, four utes and a van, with Geoff’s son John taking over as a director. After launching the new arm of the business in April last year, Geoff says the first year exceeded expectations, with 150 tonnes of materials already processed.

“We thought we’d be cruising along the coast to Victoria and have a few days off, but the business turned out to be bigger than Ben-Hur,” Geoff says.

Geoff determined that the excess plastic from the aquaculture industry, which includes pipes, bollards, abalone trays and oyster nets, could be shredded and granulated and sold on.

The father and son operation involves materials being transported from Victoria and NSW and shredded at Port Lincoln. From there, the materials are transported across Australia before being granulated into particle-sized materials at the company’s Moama headquarters.

To accelerate its performance, the company turned to equipment specialists Applied Machinery, which supplied it with a Genox V1000 shredder and GC800 granulator. As one of the nation’s largest and most respected dealers of new and used machinery for the sheet metal, engineering, recycling and plastic industries, Geoff saw the company as a reliable outlet.

He says the company shreds about five tonnes of material a day and granulates approximately a tonne an hour. The machine is capable of processing tough plastics. V1000 shredders are part of Genox’s Vision Series, which are capable of throughputs ranging from 300 kilograms an hour to 5000 kilograms, depending on the model, material type and application. These shredders are ideal for materials such as plastics and mouldings, timber and wood, paper and cardboard, copper cable, aluminium, textiles and foam. Designed for high-speed granulation, Genox’s Gran-Calibur (GC Series) is capable of sizing a variety of materials in a single pass, including plastics, rubber copper cable and organics.

At Port Lincoln, the material is run through a 40-millimetre screen before being blown into a bulker bag and prepared for transportation. The material sits in the bulker bag for three to four weeks before being transported to Moama. It is then fed into a hopper and moved onto a conveyor belt into the granulator, which reduces it from 40 millimetres to 12 millimetres. From there, it is blown into another bulker bag via a cyclone and ready to be sent off for external processing.

The new business has received extensive interest, with Geoff already looking at buying a float sink tank with a washer and dryer through Applied Machinery to develop an even cleaner product. The company will also be able to remove excess materials such as sand and shell, and process oyster nets which carry stainless steel clips.
Increasing the scope of crumb rubber

TYRE RECYLER TYRECYCLE EXPLAINS THE BENEFITS OF USING DOMESTIC CRUMB RUBBER PRODUCT IN ROAD INFRASTRUCTURE, CREATING A CIRCULAR ECONOMY AND THE GROWTH OPPORTUNITIES AVAILABLE FOR THE AUSTRALIAN MARKET.

Since the establishment of tyre-derived crumb rubber (CR) as an alternative component for spray sealing binders within the Australian road construction and maintenance sector, the scope for CR usage in the nation’s roads has increased.

Victorian based businesses such as Primal Asphalt have utilised CR-based polymer for spray sealing for a number of decades, opting to use tyre-derived product over polymer-modified binders or solutions using more virgin resources.

Tyre recycler Tyrecycle has been at the forefront of repurposing end-of-life tyres and turning them into a CR product for almost three decades, and supplies Primal with the CR used in its spray sealing operations.

Established in 1992, the business collects more than 110,000 tonnes of end-of-life tyres through processing facilities in each Australian state, converting more than 356,000 truck tyres into CR for roads per year.

The company is the largest supplier of recycled rubber to domestic Australian industries including civil engineering, manufacturing and automotive, and its products are often used to replace, enhance or extend the quality of the base virgin materials.

Not only is CR being used more broadly in Victoria and other states, but Tyrecycle Product Account Manager Adrian Jones explains that industry is taking on board the notion that an environmentally beneficial product is the key link in achieving a circular economy.

“I started in this side of the industry in the early 90s, but the use of CR in spray seal in Australia started with VicRoads back in the 70s. The volume has been growing in the past few years, and the impact we have had from using CR in roads is proving beneficial in helping creating a circular economy,” he says.

“Companies such as Primal are strong advocates for CR in spray seals and they’re using larger volumes of it, particularly in Victoria. All other states have been using CR in much smaller quantities, but they are growing, and there’s room for expansion.”
Likewise, he says, the use of CR in the pavement itself has also increased. “There’s growing acceptance of CR for its benefits in quality and we’re also seeing its use spread more so from a sustainability point of view. “The properties of CR in particular make it a favourable alternative of equal measure to traditional spray seal binders, such as SBS or polymer-modified products, especially when bitumen can be quite expensive,” Adrian says, adding that as more businesses shift their focus to sustainability and closed loop operations, the use of the end-of-life tyres has also increased.

Adrian says the wider road construction and maintenance industry is very active in establishing a circular economy for end-of-life tyres and has been pushing for further change. “We’ve been approached by a number of our customers trying to close the loop,” he says, adding that many large contractors are seeking to reduce their carbon footprint through such means.

“Tyrecycle is also working with several universities in this space, and a lot of that research is around adding rubber additives to cement. I think there’s a lot of potential coming from that research, even though it’s early days as far commercial outcomes go.”

As the use of CR in pavements begins to increase, Adrian asserts that contractors and businesses need to utilise CR products derived from domestically sourced end-of-life tyres.

This contributes to the idea of moving towards a circular economy, which boasts numerous environmental benefits for the country as a whole and ensures that Australia’s 51 million end-of-life tyres discarded annually are not stockpiled, which can create extreme fire hazards and environmental issues.

According to Tyrecycle, if Australia recycled the 51 million tyres wasted each year, for instance, it would save around 1.69 megatonnes of carbon dioxide emissions.

Adrian says the removal of a stockpile of approximately a million tyres from a site in Stawell in October proved a major eye-opener to the issue for the relevant regulatory bodies, with the Environment Protection Authority Victoria (EPA Victoria) leading a coordinated effort to remove the potential fire hazard.

“I think Stawell has helped push the message that we need to do something about these stockpiles,” he says.

In addition, he explains that the incident has helped shine a light on the potential to reduce such stockpiles by increasing the use of CR products in Australia, particularly those sourced domestically.

However, he warns that CR dealers utilising international product may not necessarily have control over the quality of the material either.

“Another issue customers face, due to unforeseen circumstances, is that volume required for particular jobs can vary from estimates.

“Tyrecycle offers a domestically produced option and the network capability to reach the location where product is required in short time frames,” he says.

Tyrecycle not only has facilities in each Australian state, but is transparent in its manufacturing process and invites customers to see its processes first-hand.

Clinton Habner, Tyrecycle National Sales Manager, agrees that a key factor in choosing domestic over international-sourced end-of-life tyres is the fact Australia has a desire to ethically and responsibly manage its own waste.

The Stawell stockpile, for instance, was a significant enough sign that Australia has stockpiling issues. These stockpiles can be addressed by businesses, such as Tyrecycle, that have the ability to turn this waste stream into a viable product for export or use in pavements.

“Since Stawell, EPA Victoria is helping the push to find a market for these end-of-life tyres. The manufacturing capabilities for CR products exist within Australia, so it makes sense to assess how we can increase their use, especially in pavement and spray seals.

“The advantage of our facilities is that all aspects of the production process is based in Australia,” Clinton adds.

Rather than use any end-of-life tyre, Tyrecycle currently recycles truck tyres into CR. Truck tyres contain higher levels of natural rubber and less fabric, making them more suitable for the kinds of applications the company’s CR product is used for.

Clinton says that while the capabilities are present to manufacture CR for a growing market, further regulatory change is still needed.

“There is change happening in specifications, which is providing more opportunity and increasing the amount of recycled CR in projects, and the next step is to ensure the product is Australian produced, but also specified in a national context.”

He says Australian states are specifying their own mixes for using CR in roads, particularly spray seals, with various councils and agencies using their own variations.

“If we united those specifications, it would be a really big step forward.

“There has been significant research already done around CR in roads, and each state has been running their own successful trials,” he says, adding the legwork is already done towards establishing a national specification.

“What we’d like to see is unification of specifications across Australia and a regulatory ability to enforce where CR products are coming from. The next step for us is to promote that message.”
Minimum C&D waste standards in review

The NSW Environment Protection Authority has released a draft set of minimum standards for the management of construction and demolition waste in the state. Waste Management Review investigates the implications.

In 2014, the NSW Government introduced its Protection of the Environment Operations (Waste) Regulation, in a bid to address what it referred to as poor waste practices.

In spite of these reforms, Environmental Protection Authority (EPA NSW) argued two years later that based on multiple investigations, industry feedback and data analysis, there were still a range of ongoing issues in the construction and demolition (C&D) waste sector.

As a result, the EPA released a consultation paper in 2016 which laid out a set of minimum standards for the management of construction and demolition waste in NSW.

In these minimum standards, EPA NSW argued the C&D sector could be returning large volumes of recovered materials into the economy.

EPA NSW noted “poor processes” pose a risk to the community and environment from contaminated products and can lead to less resource recovery.

Some of the issues highlighted in the sector include poor inspection and screening processes, which are failing to remove contaminants from mixed C&D waste, such as skip bins, as loads are processed and sent for re-use. Others include what the EPA NSW refers to as the negligent handling of waste, including asbestos, at recycling facilities leading to contamination. Sending unprocessed mixed loads of waste off site for disposal are also identified as an issue. Furthermore, the EPA NSW believes non-compliant production of recovered fines is occurring.

For these reasons, the agency proposed a number of reforms. These reforms will apply to C&D facilities that receive in excess of 6000 tonnes of C&D waste per year from the metropolitan levy area.

After consulting with the waste sector during 2017, the EPA NSW released a draft regulation. The proposed reforms cover a wide scope of areas and if approved will be amended in 2018.

For the recycling side of C&D, the agency proposed minimum standards for the sorting, recovery and responsible handling of C&D waste. Among these measures is a requirement for an inspection of each load at weighbridge by an appropriately trained person while the waste is still in the vehicle. These trained inspectors will determine if contaminants or asbestos is in the waste, while following written procedures.

Under the proposal, loads of construction waste found to contain asbestos at the tip and spread area, must be immediately re-loaded and rejected from the facility. Rejected
loads will be recorded in a register and accepted loads will be sorted into specific categories. All C&D waste will also need to undergo a specific sorting process. The proposals look to prohibit mixed sorted waste from being sent off site. All unpermitted waste types will be required to be transported offsite within a business day.

For C&D transportation, stricter penalties apply for non-compliance with asbestos transport and disposal. The EPA NSW plans to remove the proximity principle, which was introduced in 2014 to snuff out operators transporting waste to avoid landfill levies.

Increased penalties will also apply to those who transport waste unsafely, in addition to requirements for transporters not to remix loads that have been sorted at a waste facility.

For the landfill industry, the agency proposed introducing a new recovered fines specification to allow fines to be used as daily cover at landfills and a levy deduction for this use.

New specifications will be developed to ensure these fines are classified as general solid waste, are soil-like in appearance and derived from processing C&D waste. Landfill occupiers will also be penalised for exhuming waste. NSW landfill operators will not be able to claim a waste levy rebate on exhumed waste sent to interstate facilities.

Furthermore, the agency will now make waste facilities, claiming a transported landfill levy waste deduction provide evidence they are using the waste for its stated purpose lawfully.

It comes as the EPA NSW works to prevent levy liable waste facilities from claiming deductions on the levy for transporting waste to another facility, despite having the capacity to process it themselves. It is concerned this exception is being misused, as the waste deductions are intended to support recycling by relieving landfill operators of the levy when they can send materials on for further processing.

Gavin Shapiro, special counsel at global law firm Norton Rose Fulbright, believes the minimum standards are a prescriptive direction for the environmental regulator.

“These reforms will give the EPA the legal power to make compliance with the minimum standards a condition of every C&D facility’s environment protection license,” Gavin says.

“If you breach the document you will be committing an offence under the law.”

When looking at reducing asbestos in the waste stream, Gavin says the minimum standards should reduce these instances, but concedes that the controls required are only as good as those implementing them.

He says it should reign in poor performers by ensuring they are unable to send waste off site to cancel out the levy liability. However, the risk is that the standards will become subjective rather than objective, he adds.

“I think the ones who will get hit with a levy will be businesses who don’t have good records and are reliant on sub-contractors,” Gavin explains.

However, an EPA NSW spokesperson says it is of the view that there is no reason the reforms should lead to an increase in recoverable resources being disposed of in landfills.

“Landfill operators that currently hold a licence under clause 39 of Schedule 1 of the POEO Act permitting waste disposal by application to land that wish to recover resources to be sent off site for further processing may do so by applying for a resource recovery licence under clause 34 of Schedule 1 and organising their operations/premises accordingly,” they said.

For landfillers, the reforms, including the prohibition on transport of waste from landfills, means that materials may end up being buried, rather than sent on to another facility processing, Gavin believes.

“The unintended consequences are that tens of thousands of tonnes of material that could have been recovered legitimately at landfills could be prohibited,” Gavin says.

He says a one-size-fits-all approach is concerning, as different C&D facilities and landfills will have their own development consent and license conditions and operational constraints.

“My view is that the EPA should make an allowance to allow each site to
have standards varied by agreement with the EPA, where there’s a genuine case.”

Tony Khoury, Executive Director Waste Contractors and Recyclers Association (WCRA), in his submission reminds the EPA that a large majority of the operators in the waste sector already comply with all the legislative requirements and operate to a standard of best practice.

“Lifting operating standards is regarded as a good initiative, however a measure of common sense needs to be applied in order to keep industry economically competitive in NSW,” Tony says.

“Equally, appropriate resourcing must be provided to the regulator to ensure the enforcement of any new legislative changes.

“We understand that the issue of resourcing is a matter for the government to consider.”

Tony says WCRA is happy to continue to volunteer its members as part of a working group to consider these regulatory changes.

Some of the points the association raises in regard to inspection requirements are that working C&D yards are dynamic in nature, with stockpiles moved around to tailor to commercial operations and market demand. WRCA’s submission notes training for personnel is already commonplace.

The suggestions also argue it would be helpful if the EPA NSW funded a training video detailing the expectations from the regulator about how to inspect waste and what to do with unacceptable waste.

Industry supports the sorting and requirements of C&D waste to be classified into individual waste types, while at the same time questioning how it will be enforced by the agency.

The submission also calls for clearer standards between C&D and commercial and industrial waste to allow for the inspections to be properly managed.

WCRA's view of the waste storage requirements is that it is reasonable to expect an unexpected contaminant or unwanted material in C&D waste from time to time and it is unreasonable to expect a facility to remove the unpermitted waste type each day. It calls for a longer time frame to be considered.

The submission notes industry generally supports the transport requirements laid out and calls for further confirmation of some of the transport restrictions.

Colin Sweet, Chief Executive Officer Australian Landfill Owners Association (ALOA), says it’s only fair landfill owners are subject to the same rules.

In this regard, ALOA agrees minimum standards at licensed C&D facilities are required for the inspecting, sorting, recovering and responsible handling of waste.

One of ALOA’s biggest concerns is that only a 50 per cent concession will be provided on a landfill levy for the use of recovered fines meeting specifications to be used as daily cover at landfills.

ALOA believes that no levy should be applied to the recovered fines to make it an economically viable concession.

“Unfortunately, the NSW EPA gave us the impression there would be a zero levy on recovered fines and now it’s 50 per cent,” he says.

“We’ve told them this would result in virtually no savings at all. It is a large financial imposition for landfill operators to exhume waste. For ALOA, it’s concerning that landfill operators could be digging up waste and transporting it Queensland in order to claim landfill levy deductions intended to support recycling.

“There are obvious occupational health and safety issues with this. In principle, exhuming waste from landfills should be discouraged, especially if it’s due to the levy in NSW versus the absence of a levy in Queensland,” Colin says.

Colin says the repercussions are an influx of unnecessary trucks on the road to Queensland.

ALOA agrees that preventing the sending mixed loads of waste offsite for disposal is an appropriate initiative, as laid out in the minimum standards. However, it’s concerned it could disincentivise some rural operators with multiple operations on single properties from having to take out an additional license in order to recycle the materials.

Overall, Colin says ALOA agrees with many of the standards in principle, but believes the regulations are only
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as good as the regulator’s efforts to enforce them.

When asked about whether the EPA would be provided with additional resources to police its standards, the EPA NSW spokesperson said:

“As an effective and efficient regulator, the NSW EPA prioritises and allocates its resources to achieve good environmental outcomes and fulfil its responsibilities.

“This will include the enforcement of the proposed regulatory changes and standards.”

In regard to ALOA’s concern of a 50 per cent deduction for recovered fines, the EPA NSW spokesperson said the initial consultation paper on the proposed reforms did not set a rate for the concessional contribution for recovered fines.

“External economic analysis has since been conducted to determine a rate that would incentivise use of recovered fines as daily cover, resulting in the proposed 50 per cent concessional contribution rate,” they said.

Turning to the repeal of the proximity principle and reducing interstate waste transport, the EPA NSW said it is working closely with its interstate counterparts to develop a national approach to waste regulation.

“The introduction of a meaningful waste levy in Queensland would see the immediate cessation of most waste travelling from NSW to Queensland,” the spokesperson said.

“The purpose of the proposed changes is to increase the quality and quantity of recovered construction waste in NSW by diverting valuable resources from landfill back into the productive economy, and ensure safe re-use.

“The EPA expects the changes will support industry to improve current practices and achieve these objectives.”

Once the proposed changes are in place, the spokesperson said the EPA NSW intends to provide guidance to support C&D operators to meet their obligations.

EPA NSW also addressed the concern of one business day potentially being insufficient for C&D businesses to remove contaminants.

It reiterated its objective of the standards to minimise and control the risk of asbestos and other contaminants affecting waste-derived products.

“The requirement to move all unpermitted waste types to a designated waste storage area, then transport that waste to a facility that can lawfully accept it within one business day of receipt at the facility, is intended to support this objective.

“The EPA released the draft regulation and standards for comment to capture stakeholder feedback and is currently reviewing submissions received through the public comment period which closed in December 2017.

“If feedback indicates that a one-business-day time period is insufficient, the EPA will consider amendments in the context of the overall objectives of the reforms.”

The spokesperson said once the standards are in place, a transitional period of six months will apply to existing facilities.

“The NSW EPA has prepared a draft regulation that takes into consideration feedback from industry. You can view it here: http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition/construction-and-demolition-waste

“The unintended consequences are that tens of thousands of tonnes of material that could have been recovered legitimately at landfills could be prohibited.”

Gavin Shapiro, Special Counsel at Norton Rose Fulbright.

Tony Khoury received extensive feedback from contractors in preparing his EPA NSW submission.
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The movement of goods from A to B may seem like a simple process on paper for the average consumer. But it has taken years of development, progress and innovation to reach this level of streamlining, and that process is only becoming faster and more efficient.

For the industrial supply chain, this can be an intricate process, involving a variety of stakeholders with countless variables to consider along the way when moving goods from one place to another. Road, rail, air and sea transport, warehousing, packaging services — there are many different facets adding value to every step of the supply chain.

Giving the freight and logistics providers, and their customers — manufacturers, wholesalers and retailers — the opportunity to see the businesses, technology and innovation leading progress within the Australian and international supply chain is one way to help the industry grow and reach a new level of supply chain safety, connectivity and efficiency.

THE FUTURE OF SUPPLY CHAIN AND LOGISTICS

MEGATRANS2018, a new multimodal supply chain trade expo, aims to provide this unique platform and bring industry together under one roof. The event, delivered in partnership with the Victorian Government, is designed to bring together those who plan, implement and control the efficient and effective forward flow and storage of goods, services and related information between the point of origin and point of consumption.

This supply chain covers all facets of Australia’s industrial transport and logistics sectors.

These specific industries comprise the main features of the trade show, which makes its debut 10 to 12 May this year at the Melbourne Convention and Exhibition Centre, based in the heart of the world’s most liveable city — Melbourne.

But just who will be attending the trade expo? Simon Coburn, MEGATRANS2018 Show Director talks to Waste Management Review about who will be making their way to Melbourne for the major industry event.

“MEGATRANS2018 is poised to be the biggest supply chain and logistics trade event in Australia and the Southern Hemisphere.

“By spreading the expo across all 30,000 square metres of exhibition space at the Melbourne Convention and Exhibition Centre, we’re trying to include every business, service provider and leader within the supply chain,” he says.

“From warehousing to road transport, infrastructure, telematics businesses, manufacturing companies and packaging specialists — the show is including everything and everyone involved in the movement of goods from one place to another, with significant focus on the technology driving this process.”

The show is designed around the needs of the logistics firms, freight companies and various technology innovators and service providers involved in the supply chain.

Those coming to the event will be the retailers, manufacturers and third and fourth-party logistics providers (3PLs and 4PLs) utilising the supply chain and looking for new ways to increase efficiency and security in the movement of goods.

“Those who need to move goods by sea, air, rail, road, are those who will benefit the most from hearing about the latest in telematics, data optimisation, freight forwarding, Industry 4.0 and future developments in the industry,” Simon says.

“These are the people — the business leaders and decision makers — who will be making their way to Melbourne for the show, and we can’t wait to hear about all of the successful partnerships, business meetings and engagement coming off the back of this event.”

BRINGING INDUSTRY TOGETHER

Many major industry conferences and events are being held in conjunction with the show and are aimed at drawing even more national and international leaders from across different facets of the supply chain.
MEGATRANS2018 brings together a variety of international and domestic conferences, including the Australian Logistics Council’s (ALC) inaugural Supply Chain Technology Summit 2018, Australian Road Transport Suppliers Association (ARTSA) Global Leaders’ Summit, the Logistics & Materials Handling Mercury Awards, a Ministerial Breakfast delivered in partnership with the Victorian Government, Transport Certification Australia’s (TCA) Technology Hub and the 2018 Global Shippers Forum Conference (GSF2018).

The ALC Supply Chain Technology Summit, for instance, will gather key industry leaders and businesses and will take place on 10 May, onsite and in partnership with MEGATRANS2018.

“Technology is a major component of the logistics supply chain and will play a dominant role in the exhibitions at MEGATRANS2018,” says Michael Kilgariff, Managing Director at ALC. “The Supply Chain Technology Summit 2018 will align well with the technology theme and ensure that those who attend the integrated event can maximise their time and investment.

“The dedicated Supply Chain Technology Summit will focus on the policy priorities articulated by ALC in Freight Doesn’t Vote – our submission to the inquiry into National Freight and Supply Chain Priorities. This includes collecting greater data on freight movements, adapting to automated technologies and global labelling standards.”

Peter Hart, Chairman at ARTSA, says MEGATRANS2018, and the industry players it will draw, is a good fit for the association’s annual summit.

“We see this event as an opportunity to bring together international thought leaders in a world-class conference and exhibition hosted in Melbourne,” Peter says. ARTSA will be holding its 2018 Leaders Summit as part of the scheduled events, featuring industry authorities from around the globe debating the

business models, systems and equipment that will continue to deliver for the customer.”

The GSF2018 likewise, will host its conference and AGM in Australia for the first time.

The Australian Peak Shippers Association (APSA), the peak body for Australia’s containerised exporters, will host the GSF2018 in coordination with the International Cargo Handling Coordination Association (ICHCA), the Freight & Trade Alliance and MEGATRANS2018.

Paul Zalai, Director and Founder at the Freight Trade Alliance, the Secretariat for the Australian Peak Shippers Association, says the GSF2018 is set to host policy makers and international trade practitioners from around the world, people whose decisions have a lasting effect on the way cargo is moved in Australia.

As the event is run in conjunction with MEGATRANS2018, which covers all facets of the supply chain, Paul says it will attract representatives from across the sector.

“It’s quite unique to have transport operators, freight forwarders, customs officials, cargo owners and policymakers, all in the one room discussing logistics and trade issues,” he says.

GSF2018 takes place alongside MEGATRANS2018 and a range of other events either running concurrently or book-ending the show. As a result, Simon expects Melbourne will be the place to be for leaders and stakeholders in the global and national supply-chain sectors come May.

Simon explains that as the borders between industries blur, new multi-dimensional concepts have to rise to the challenge and facilitate conversation between the key stakeholders in these areas, and MEGATRANS2018 is leading the way.

He says a trade event with the same scope as MEGATRANS2018 hasn’t been done before in Australia.

“We’re inviting everyone to be a part of this game-changing expo format and we anticipate that everybody, from hands-on decision makers in the supply chain and logistics industry to chief executive officers, chief operating officer, regulatory bodies, urban planners and government on all levels, will be out in force,” he adds.

MEGATRANS2018 is designed around the needs of logistics firms, freight companies and technology innovators and service providers involved in the supply chain.
In 2006, former United States Vice President Al Gore starred in a documentary aiming to educate the masses about global warming.

The film, *An Inconvenient Truth*, was credited for raising international awareness of global warming and grossed $26 million at the international box office. One year later, former Australian Prime Minister Kevin Rudd referred to climate change as the “greatest moral, economic and environmental challenge of our age”.

In one of his first moves as Prime Minister, Mr Rudd ratified the Kyoto Protocol, which saw Australia commit to limit its average greenhouse gas emissions over 2008-2012 to eight per cent above its 1990 levels. The decision later resulted in Australia signing the second phase of Kyoto for further emissions cuts, along with another agreement in Paris at the COP 21 Paris France Sustainable Innovation Forum.

As these events unfolded, cosmetics manufacturer Natalie Isaacs was in Sydney working on establishing a critical mass to help reduce the nation’s carbon footprint.

“I was a cosmetic manufacturer for 24 years. For all of my working career, I owned and manufactured skin care products and never once thought about waste and over-packaging,” she explains.

She says the year of *An Inconvenient Truth* was a turning point for her, as the media began to portray climate change as a critical issue. The epiphany for Natalie arrived when she was able to reduce her electricity consumption by 20 per cent just by being conscious of when she was using power. From then on, Natalie left behind what she describes as the “over-packaged world” of skincare and beauty products to establish 1 Million Women.

According to a 2013 report *Women: the next emerging market* by global investment advisory firm EY, women will control close to 75 per cent of discretionary spending worldwide by 2028. The report predicted in 2013 that by 2018, the global incomes of women will grow from US$13 trillion
to $18 trillion. 1 Million Women is a registered charity which encourages individuals to fight climate change by reducing their carbon footprint and overall waste.

1 Million Women was inspired by an inference that women make a majority of consumer decisions in developed nations and 85 per cent of the decisions that affect the household’s carbon footprint. It encourages women to join the movement by joining the site free of charge and pledging to reduce their carbon footprint. They are able to track their progress online by taking part in programs such as the carbon challenge (and a soon-to-be-released mobile app) – which show how their actions contribute to and reduce carbon dioxide emissions. 1 Million Women also runs events at schools and corporations, allowing these institutions to take part in similar challenges. The movement recognises the power consumers have in reducing the carbon footprint, while seeking to influence manufacturers and governments to make decisions that contribute to a circular economy.

Natalie says she spent two and a half years getting the enterprise off the ground, which was officially launched in 2009.

“The first few years were really hard because we never had much money and we had an audacious goal of getting a million women to be part of the movement,” Natalie explains.

She says the initial set up saw women sign up and pledge to cut a tonne of pollution from their life within a year, before later moving on to staff empowerment programs with major businesses such as Telstra.

“We didn’t have much of an active social media presence in the first few years. It was a lot of building through workshops at schools and businesses and other events.”

The 1 Million Women community is now over 700,000. Their blog in 2017 was viewed 4.5 million times, and Natalie has garnered support from numerous high profile figures, such as federal Labor Senator Penny Wong and the Director and CEO of the Australian Museum Kim McKay. To date, its members have pledged to reduce more than 200,000 tonnes of carbon pollution. In 2013, 1 Million Women was recognised by the United Nations, winning its Momentum for Change awards in 2013 at the United Nations Climate Change Conference in Warsaw, Poland. Natalie Isaacs also won Australian Conservationist of the Year in 2017.

“In the years since we launched 1 Million Women, we’ve seen a transformation within industry. Governments have responded to people power with policies that work to reduce waste. For example, we work closely with the NSW Environment Protection Authority on its Love Food Hate Waste, which provides citizens and businesses with the tools to reduce their food waste.”

She says consumers have a powerful role to play in influencing manufacturers to design their products in an environmentally sustainable way. Natalie will be presenting a talk on 1 Million Women at the Waste 2018 Conference, one of the industry’s leading waste management conferences. The event takes place in the coastal city of Coffs Harbour from 8-10 May and will feature two and a half days of presentations, a detailed trade exhibition and networking events on three nights.

“Coffs Harbour will be a critical conference as 1 Million Women aims to help bridge the gap between consumers and the waste industry. After all, we cannot achieve positive social change without cross-collaboration between consumers, manufacturers, the waste industry and governments,” Natalie says.

Cleaning up the games

THE ORGANISERS OF THE 2018 COMMONWEALTH GAMES CORPORATION HIGHLIGHT THEIR MULTIPRONGED APPROACH TO SUSTAINABILITY, WASTE MANAGEMENT AND RECYCLING.

The first ever British Empire Games were held in Hamilton, Canada in 1930. With the onset of the Great Depression, resources were scarce. Since then, the games have grown from an event featuring 11 countries and 400 athletes to a modern sporting spectacle, comprising 70 nations and territories and more than 6600 athletes and team officials. That’s according to the organisers of the Gold Coast 2018 Commonwealth Games Corporation (GOLDOC), who are now prepping themselves for an influx of waste at this year’s event.

Rhys Ewers, Cleaning and Waste Section at GOLDOC, tells Waste Management Review that approximately 1.2 million ticketed spectators are expected to pass through the gates during the 4-15 April event this year. With a workforce of some 16,000, including volunteers and contractors, it is the largest mega-sporting event to take place in Australia this decade.

“Each event has the opportunity to improve on the previous one and being a competitive sporting nation we’re always keen to do one better! We’ve achieved a lot of ‘firsts’ for Gold Coast 2018 (GC2018) and our sustainability reach has been extensive,” Rhys explains.

Rhys says that waste generation at previous games shows levels of around 1000 tonnes. To put this in perspective, the City of Gold Coast manages more than half a million tonnes of waste per annum. Rhys says waste streams for previous events are similar to GC2018, with GOLDOC adding further recovery streams to divert more waste from landfill.

Establishing sustainability policies for wide scale events such as GOLDOC is complex.

GOLDOC’s multipronged approach comprises environmentally responsible procurement policies and trade deals, including guidance on materials and packaging requirements. Minimising litter and avoiding plastic bags and helium balloons also forms part of their strategy, in addition to coordinating its recycling and reducing litter to best practice methods and training its workforce accordingly.

SMART PROCUREMENT

According to Chelli Easson, GOLDOC Manager Sustainability and Legacy, the organisation’s procurement approach takes into account everything ranging from production impacts such as ethical sourcing and environmental considerations, to legacy opportunities for assets that have been procured outright. When procuring, the
organisation considers whole-of-life costs, not simply the cheapest product or service, she says.

“In many cases GOLDOC has elected to hire goods where there is no legacy benefit and the goods are only required for the event period. That has allowed us to minimise the waste and carbon impact of the event and mitigate other sustainability issues related to the production of goods,” she explains.

“When we source responsibly our whole supply chain is positively impacted, from material selection to labour rights and local capacity building.”

As part of its corporate social responsibility, GOLDOC also works with its suppliers and sponsors to responsibly manage their products. Its sustainable sourcing code sets a minimum standard for suppliers, including sponsors, to comply with when providing goods and services to GOLDOC. The materials and packaging policy similarly stipulates what GOLDOC suppliers can bring into GC2018 venues.

“GOLDOC has formed an Asset Dissolution Working Group and have worked with every single one of our more than 40 departments and government partners to go through a process of identifying assets and possible legacy outcomes,” Rhys says.

RECYCLING THE MATERIALS
Recycling at GOLDOC will be divided into front of house and back of house streams. Front of house consists of recycling and landfill, while back of house waste streams consist of cardboard/paper, compost, soft plastics, glass and batteries, fats and oils and medical waste.

Rhys says that GOLDOC’s approach to recycling and waste management for both GOLDOC’s headquarters and the GC2018 event is based on the waste and recovery hierarchy. GOLDOC has even adapted the waste hierarchy and called it a resource recovery hierarchy to encourage its workforce to think differently about precious resources.

“Our recycling practices were awarded an innovation point by the Green Building Council of Australia, contributing to our four Star Green Star – Interiors PILOT rating for our Ashmore headquarters,” he says.

RESPONSIBLE PACKAGING
According to GOLDOC’s Materials and Packaging Policy, up to 85 per cent of waste generated by the general public is expected to be from food and beverage packaging sold by catering contractors. Rhys says to match Gold Coast waste facilities and recycling capabilities, the organisation has designed its materials and packaging guidelines around all recyclable packaging.

“Our aim is to have the majority of food packaging recycled due to this approach,” he adds.

“Packaging (including food packaging) will also be minimised to avoid unnecessary packaging costs, demand for raw materials and carbon emissions.

“All packaging in venue will need to follow the sustainable sourcing code and the materials and packaging policy.”

GC2018’s recycling and waste management systems and practices will be designed to maximise diversion from landfill within the constraints of the city’s existing recycling and waste management facilities. Rhys says GOLDOC’s materials and packaging policy will be a key contributor to the responsible management of GC2018 waste.

MINIMISING LITTER
Rhys says the organisation has planned to maximise efficiencies and phase out unnecessary waste wherever possible. Spectators will be reminded to dispose of their litter thoughtfully and to use the correct bins.

“Training will be provided to our 15,000 volunteers and more than 1400 workforce as well as contractors to recycle, look out for rubbish and put it in the right bin,” he says.

“We rely on the support of our suppliers, contractors, workforce and spectators to play a role in managing litter.

“We are avoiding light-weight plastic bags and helium balloons. This was an important issue raised by the local community and we are encouraging spectators to bring their own re-usable water bottle, with water refill points provided on venue.”

MEETING ITS GOALS
Guiding GC2018’s sustainability delivery is the international standard ISO 20121: Event Sustainability Management System and the Global Reporting Initiative framework for sustainability reporting. By implementing these frameworks incorporating stakeholder consultation and feedback, GOLDOC has identified the following key sustainability priorities for GC2018: food and beverage (reducing packaging waste), transport (encouraging public transport), accessibility and inclusion (eliminating barriers), environmental impacts (protecting oceans and waterways), carbon (minimising emissions), sustainable procurement, understanding community expectations and reducing waste to landfill.

“Sustainability is all about continuous improvement. Some people just don’t know where to start with their sustainability journey. Incremental steps do add up and amount to bigger outcomes,” Rhys says.

“Certainly the international frameworks have provided us with great guidance for tackling an event of this size and they also help to compare events and make improvements.”

AUSTRALIA’S MAJOR WASTE MANAGEMENT COMPANIES TOXFREE AND J.J. RICHARDS & SONS EXPLAIN HOW THEY ARE BENEFITING FROM VACLIFT’S VERSATILE BOB ITK MULTIHOOK HEIGHT MACHINES.

Vaclift supports

ACQUISITIONS
Giving due consideration to a trend of acquisitions in the Australian waste management sector, Vaclift Managing Director Jon Pament sought about distributing a new hooklift machine from its flagship BoB brand.

The BoB ITK multihook height machine, which carries one large container, was designed to cater to a mixed fleet of specifications, with 16, 20 and 26-tonne capabilities.

Released to the Australian market in 2017, the new BoB hooklifts can be quickly adjusted to three different rail widths and features a lifting hook that can safely work with 1060, 1150 and 1180 millimetres. Vaclift has been the sole Australian importer of BoB hooklifts since 1995 and, in that time, has installed well over 550 units throughout the country.

The BoB ITK MHH also features a lifting hook that can safely work with 1430 through to 1610 millimetres hook heights without any operator adjustment required. This gives organisations the ability to carry a mixed fleet of bins, offering them the freedom to set up a machine out of a depot with various rail widths and hook heights. They can also move them around the country to different states operating under varying hook heights.

Jon says that states such as NSW and WA are predominately operating under 1430-millimetre hook heights. Victoria tends to be 1610 millimetres, he says, as does Queensland, with a mixture in other states and territories.

“Commonly, what people have done in the past to deal with this, is have a hook that the driver can slide up and down manually. A hook weighs about 70-75 kilograms and they’re trying to set it up at the right height for a container so they can pick them up. But if they don’t get it right, they can damage the machine,” Jon explains.

“With our machine, the driver doesn’t have to adjust anything. It automatically adjusts to what’s coming on the back.”

Two of the nation’s large waste collection and disposal companies, Toxfree and J.J. Richards & Sons, have been using the BoB ITK multihook in some of their fleets since BoB came out with its latest iteration last year.

Owen Burton, National Fleet Manager at J.J. Richards & Sons, says the company is using more than 150 BoB ITK across Australia for its bulk waste collection.

“We’ve also got a significant number of liquid tankers set up to be able to run on the back of the hooklift machine,” Owen says.

He says the machines are capable of being reconfigured according to the state J.J. Richards & Sons is operating in, allowing them to shift their fleet around with ease.

Designed for the modern collection fleet, the hooklift chassis of the BoB ITK has been pre-drilled with a 50-millimetre pattern to enable quick fitment to the newer truck chassis that feature a 50-millimetre bodymount pattern of holes.

“What it means for the end user is that they can get their fleet working sooner, which is particularly crucial for commencing a tender on time,” Jon says.

The machines also continue the BoB function of using hydraulic interlocking instead of electronics, which makes maintenance a whole lot easier.

“Electronics can be prone to failure as they are locked into corporate computer diagnostics – so this prevents any possible downtime.

“Hydraulic interlocking also means it’s simple for a hydraulic company to diagnose if something has gone wrong and fix it on the spot.”

Toxfree has also benefited from the versatility of multiple rail widths throughout its Sydney and Melbourne operations. Tony Burrowes, Toxfree’s Group Procurement and Asset Manager, says standardisation is of great importance as the business has grown over the years through acquisitions.

“Many of the businesses Toxfree have acquired have a fleet of bins that has various rail widths, so the BoB ITK lends itself to a wider range of bins,” Tony says.

Commenting on the BoB ITK multihook, Glen Bourdon, Toxfree Dandenong Operations Manager, says the company needed the versatility of 1150 or 1160-millimetre rail widths to carry containers and compactors in a variety of locations.

Jon adds that the machine also has a built-in option of front locking systems, which allows for four points of locking on the container.

“BoB has that built into the machine so it’s a simple add. It stabilises the container significantly more both in transit and in tipping,” he says.

“The locking system on this multi-rail lift machine gives three different indications depending on what rail width is on the back of it, so it doesn’t just rely on travelling to the narrowest point. If any one of the three rail widths is not locked on, it will tell you.”

Precision is key for Jon, who adds that the hook lift is made of high grade weldox steel, ensuring it remains robust and reliable.
W hen Sean O’Leary joined his father’s business in the mid 90s, he started off with a single truck and a handful of bins. Now, Rhino Bins has 35 trucks and has expanded across Melbourne.

The family-owned business, which processes construction and demolition (C&D) waste, has had to adapt to the changing landscape of C&D in metropolitan Melbourne. “Every year is different in the waste industry. The technology changes are enormous. You have to work hard to survive,” says Sean, director at Rhino Bins.

He says the building sites he works on now have changed dramatically over the past couple of years. “Access to building sites have changed in Victoria, and Melbourne especially. It’s moved from larger properties to tighter multi-units with big high rises, where most trucks just can’t get access to,” Sean says.

In response to these changes, last year, Sean approached Bulk Transport Equipment (BTE) to find a smaller more compact hooklift. Over the past 10 years, BTE has designed and built bin transfer trailers, rear ejection waste and scrap trailers and live floor trailers, but has now become the importer of the Succi range of hookloaders from Italian company CPS.

Sean was able to get a 14-tonne model with a knuckle neck which aims to assist with operating under lower overhead costs. BTE recently signed an agreement with Italian company CPS to provide their extensive range of hookloaders to the Australian market.

The Succi hookloaders offer a vast range of sizes and options, including

Rhino Bins found a compact hooklift in the Succi brand.
the Dino spec multirail units designed specifically for Australia, and a range of knuckle neck models from 14-40 tonne and fixed neck models from 8-30 tonnes.

Sean says the knuckle neck arm allows for a lower lifting point, making it to get it into sites with height limits. It also allows him to lift more while lowering the bin at the same time.

“With a normal hook, the main lifting arm is fixed and does not allow us to pickup bins under awnings or low obstacles. But with the knuck neck, we can lower the neck back and adjust the hook to go back, which gives us a lower lifting point and lets us get into tight places with no problem,” Sean explains.

It can carry one skip, when full, but can carry multiple when empty and stacked inside each other.

Sean says he remembered how reliable it was when he recalled the Succi name.

“They have fantastic durability. I bought one of them in 1996 and I’ve still got one of them today,” he says.

After one week of his 14-tonne knuckle neck hooklift being on the road, Sean says that it’s managed to generate additional sales leads.

Even a small increase in productivity eventually adds up, he adds.

“The little one per cents are the things that add up the most and make all the difference. You don’t realise how good a machine like this is until you’ve got one.

“With some weaker performing products you may have to work around their limitations, but with the Succi hooklift, we’re getting the job done and we no longer have to negotiate with building site managers to gain access.”

The Succi knuckle neck also lets his trucks get into basements and similar with low access.

BTE’s agreement with CPS means that they will take on the importation, sales, service and spare parts for Succi hookloaders throughout Victoria and Tasmania.

By taking control of the entire supply chain, BTE says it can provide high quality Italian products at a competitive price. The team can also use their extensive knowledge for installation and service backup.

Sean couldn’t be happier with the team at BTE, as they were able to set him up before Christmas and gave him great service.

“We’ve been operating with BTE for eight to nine years now, and if everything keeps going well, we will be put an order in for three more skip loaders,” Sean says.

As the director of a local company, Sean understands and values the support that BTE provides.

“They follow the same morals that we do as a small business. They follow through with what they say and get the job done.

“They’re a local company and they know that a happy customer will keep coming back,” Sean says.

The trust that has been built up between the two businesses is important, as it helps everyone get the best results.

“In any industry, good relationships are the most important thing,” he adds.

“When you’ve got trust, you’re not spending your time negotiating or chasing prices. If you trust someone, you’ll grow together.”

Sean hopes that his new Succi will live up to its predecessor.

“Durability is a big deal in the waste management industry. Everything gets worn out and maintenance is so important. A lot of them haven’t cut it.”

BTE’s service department is located at both of its factories in the Melbourne suburb of Dandenong to make sure customers like Sean have speedy access to emergency repairs and schedule services to keep all equipment operating as it should.
An emphasis by regulators on load restraint is prompting waste transporters to turn to cost-effective tarping solutions, explains West-Trans Group’s Les Carpenter.

Over the years, the NSW Environmental Protection Authority (NSW EPA) and other state and territory regulators have continued to ensure waste transporters are covering their loads.

Waste Management Review made an enquiry to the agency upon industry whispers that it was tightening its monitoring of scrap traders. We asked them whether the EPA NSW would be asking scrap traders to install more effective tarping solutions and if there would be further legislation to ensure it was a requirement for skip loaders and hook lift vehicles.

In response to these questions, a spokesperson for the EPA NSW reiterated to Waste Management Review its proposed new minimum standards for scrap metal facilities, remaining tight lipped on whether the changes apply to transportation. The spokesperson explained the consultation process closed in September 2017, and that working groups with key industry and government stakeholders met in January to explore specific elements of the standard. Once this process is complete, the EPA NSW will release a consultation report and next steps.

On transporting waste, the EPA NSW spokesperson redirected us to

The TransCover system was released in 2017.
its online page on what the general requirements were.

We also spoke to Tony Khoury, Executive Director of the Waste Contractors and Recyclers Association (WCRA) NSW. Tony explained that as far as WCRA could ascertain, these proposed standards do not apply to the transport of scrap metal.

“The Protection of the Environment Operations (Waste) regulations currently allow scrap metal to be transported in bins and trailers without the need for cover. WCRA is unaware of any proposed change to this exemption,” Tony said.

However, Tony emphasised that the National Transport Commission’s (NTC) 2018 Load Restraint Guide states that loads of all sizes and types should be restrained to prevent any part of the load from unacceptable movement during all expected conditions of operation. The NTC’s updated Load Restraint Guide 2018 was released in February and provides practical advice on how to safely transport a load.

Not only this, the Work Health & Safety (WHS) 2017 NSW regulations state that any person conducting a business or undertaking (PBCU) must provide workers with safe working systems and equipment.

“The fixing of well-engineered, auto tarping systems to hook, dino and skip style trucks that transport waste and recyclable material, is consistent with the need for PCBU to meet their WHS obligations and to achieve compliance with the principles of the Load Restraint Guide,” Tony says.

“WCRA has also developed NSW waste industry specific compliance material, with the assistance of Roads and Maritime Services, for hook, dino and skip-style trucks, to assist members to comply with the Load Restraint Guide.”

To help waste transporters secure their loads, UK-based TransCover and West-Trans Equipment have teamed up to deliver a series of tarping systems to the Australian market, designed to give operators a light and user-friendly alternative to traditional tarp configurations.

According to Les Carpenter, General Manager of the West-Trans Group, the TransCover system is lightweight, easy to install and economical to maintain.

“TransCover had achieved this by developing a tarp cover that could operate in unison with a hooklift or a skip loader, which it called a HyCover and a Mini HyCover,” Les explains.

“The systems have been specifically designed to help operators of hooklifts and skip loader safely secure their loads, as we are aware of the increasingly emphasis state and federal regulators and advisory bodies are placing on safe transportation,” he adds.

Les says the take-up of the tarpaulin systems in the Australian market since launching in January 2017 has been impressive.

According to Les, the secret to the HyCover and Mini HyCover’s success is that both products use air rather than hydraulics to extend the tower, and a high-duty cycle electric motor to extend and retract the heavy-duty, but lightweight, tarp.

“This results in a system that weighs just under 200 kilograms, which is half the weight of the traditional hydraulically actuated tarps currently being used in Australia, at roughly 70 per cent of the cost,” he says.

“In addition, TransCover also manufactured an entry level tarp system to cater to budget-conscious operators known as the PullCover. The PullCover system is fixed into the load board and operates with a simple spring-loaded drum, similar in operation to a Holland blind. All versions are available with and without side flaps.”

Les also advised that they have asked TransCover to develop both a manual and hydraulically operated DoubleCover system for the large open top scrap trailers that will stay within the maximum width and height regulations in readiness for any tightening of policy in this part of the industry sector.
HIAB’S LATEST RANGE OF SKIPLOADERS IS HELPING POSITION THE COMPANY FOR FUTURE TRENDS IN THE WASTE MANAGEMENT SECTOR.

Since ski manufacturer and Swedish inventor Eric Sundin founded Hiab in 1944, the company has become a leader in the load-handling industry. The product of Sundin’s entrepreneurship, the Hiab Method, resulted in more than half a million loader cranes being used by people in 120 countries around the world. Its products range from loader cranes, to truck-mounted forklifts, forestry and recycling cranes hooklifts and skip loaders and tail lifts.

In 2018, the Australian arm of Hiab is preparing itself for the release of its latest skiploader, the MULTILIFT Futura 18, expected this quarter. With significant improvements on the previous iteration, the MULTILIFT Futura 18 skiploader boasts an 18-tonne capacity in a single trip, along with other increased productivity features and decreased fuel consumption and emissions.

Steve Lelean, Hiab Australia National Product Manager-Moffett, says the launch of the model strengthens the company’s position in the global skiploader market. He says Hiab’s drive for innovation is best described by the Japanese concept of kaizen – which refers to continued improvement of an organisation.

Steve says the design of the MULTILIFT Futura 18 offers greater fuel efficiency through a combination of design innovations and improvements. The swan-neck arm, which allows independent arm movement, provides the operator greater positional control of the load, reducing truck movements as a result.

He notes the use of EvoLight steel in the construction of the skiploader, which helps maximise the payload without compromising on strength. The steel, he says, has less mass compared to traditional types used, but is stronger, allowing for greater payload and faster operation. He says over the typical
lifecycle and combined with faster cycle times, this provides greater efficiencies and fuel savings. This design thinking also applies to the MULTILIFT XR26S hooklift range.

In terms of maintenance costs, the skiploader is designed with longevity in mind, Steve says, adding that the MULTILIFT Futura 18 skiploader can be optioned with maintenance features that advises the operator when maintenance is required. For those less inclined to schedule their maintenance, it can carry out a basic performance check without the need for specialised tools.

Steve says when it comes to safety, for those using DIN standard skip bins, the company’s safety plus hydraulic side and rear locks are a more efficient and safe option. For those using alternative designed skips, there are numerous lashing points for straps, he adds.

“We can option up alternative lashing systems to help operators comply with the National Heavy Vehicle Regulator Load Restraint requirements.”

The ability to customise the skiploader is aided by the flex control system, which provides the user with a combination of options from faster operational speed to control locations options: outside, in-cab, radio remote controls or a customised combination.

“Quite commonly, if you have one set of controls in one position, there will always be a blind spot,” Steve says.

“The beauty of the flex control system is you can use any combination of controls to position yourself in a commanding position safely. You can see the position of the skip, ensuring safety, maximum flexibility and that you don’t damage the environment, yourself or others.”

Talk of safety leads Steve to a discussion of Australian legislative trends when it comes to the loading and movement of skips. Load restraint is a topical issue in the waste management industry, along with weight, Steve says, as the legislation has recently been updated in collaboration with the National Transport Commission.

“There’s a need for both the driver and the owner to know the gross vehicle weight on all Australian roads and be aware of their truck tare weight, but what about the load weight?”

Steve says the flex control system offers an optional “indicative weighing system”, enabling drivers to monitor the weight of their load in real time.

“To me, it’s just a matter of time until this is a mandatory requirement, but experience tells me factory fitted options are always cheaper than retrofitting aftermarket equipment.”

Establishing and maintaining relationships with buyers and contractors in the waste industry is also a critical part of Steve’s job, who remains ahead of the curve on equipment requirements.

The use of EvoLight steel helps maximise payloads without compromising on strength.
Increasing visibility is critical to managing one’s assets, according to Brett Werner, Founder and Chief Executive Officer of Sprightly Transport Solutions.

Larger skip bins typically cost between $5000-7000, and can be as much as $10,000 each, he says. For small companies with only 50 bins through to those with thousands, the book value is considerable.

“There are plenty of stories of drivers not finding bins where they should be when they need them, and driving around unnecessarily looking for them,” Brett says.

To help eliminate these issues, Sprightly Transport Solutions has created a mobile asset management solution for the waste industry, with a special focus on skip bins. Sprightly’s asset management system uses Global Positioning System (GPS) tracking to help equipment and operations managers monitor where their assets are located now, and where they have been.

“The bin where you think it should be? Where is the bin that I need right now? These are just some of the problems the technology helps solve. Especially when you’ve got an ad-hoc job on, such as a major client asking for an extra bin in a hurry.”

Brett says another example of the technology’s usefulness is identifying secret stashes – assets hidden by contractors. A third example is tagging special use assets, which means an asset manager is able to quickly locate the most suitable bin for the job, or put them aside, so they’re not used elsewhere.

“Everybody has their brand new and freshly painted assets that they want seen. If you’re supplying skips to a major sporting event, you want your best looking assets on display,” he says.

“Without GPS tracking, it can be impossible to know where an asset has got to. Suddenly a mobile asset in a city becomes a needle in a haystack,” Brett says.

“Knowing where your bin is right now helps your drivers get to them efficiently. Considering the asset value and industry estimate of $120 per hour for vehicle and driver, the savings can quickly add up.”

Sprightly’s online platform allows assets to be categorised making it easier and faster to locate the right asset for the job at hand.

Brett says that in his experience, many companies don’t have adequate formal asset management in place. He says Sprightly Transport Solutions is therefore on hand to put a business’ mobile asset information online – where it is readily accessible.

“Everybody has their brand new and freshly painted assets that they want seen. If you’re supplying skips to a major sporting event, you want your best looking assets on display,” he says.

Another important advantage of Sprightly Transport Solution’s technology is security. Brett says knowing where your assets are and have been is crucial to identifying unauthorised usage and minimising theft. Brett adds that’s not to mention the significance of battery life – skips are unpowered assets so batteries are needed.

“We have had to very carefully tweak the hardware to maximise battery life. You want the tracker to wake up from movement only when the bin is being moved and not every time someone is simply throwing in bricks or metal or concrete. That has taken a lot of time and effort. You certainly cannot just use any GPS tracker for this purpose,” Brett says.

Brett says that Sprightly Transport Solutions is on hand to provide a customised service to help customers get as much as possible from the system. The location data captured can be further used to determine utilisation, optimise the use of assets at hand and help make informed purchasing decisions.
THE AUSTRALIAN PACKAGING COVENANT ORGANISATION’S (APCO) NATIONAL PACKAGING RECYCLING LABEL PROGRAM WILL HELP DRIVE CONSUMER RECYCLING BEHAVIOURAL CHANGE, WRITES BROOKE DONNELLY, APCO CEO.

Global politics on waste and recycling has been dominating news headlines in recent months, such as the announcement of UK Prime Minister Theresa May’s long-term plan to eradicate all avoidable plastic waste in the UK by 2042.

Another global announcement that will undoubtedly have a much greater effect on us here in Australia is China’s ban on the importation of certain foreign waste and recyclable materials. This is expected to have an enormous impact on the amount of recyclable material that is exported from Australia each year – so there’s no doubt it will shake the very nature of the recycling industry locally.

With all of these global announcements many have been asking – what is Australia doing? There is no right or single answer to the current problems facing our waste and recycling industries. The issues are complex. Even the country itself, the very ground we walk on, contributes to the complexity of the problem. One of the best things about our country is its space – the wide-
open plains, never-ending farmland and sparsely scattered cities. While this space is a great commodity, it makes the collection of recycled materials a more complex and daunting task when considering the sheer amount of ground that needs to be covered. According to 2016 World Bank figures, Australia’s population density was three people per square kilometre – far behind the UK figures of 271 people per square kilometre, 90 times that of our country.

Our geography, among other things, makes it impossible for us to simply look at other markets and adopt their approaches, however grand they may seem. We need to find a solution that is right for Australia with all its unique qualities.

So what is the best way forward? A circular economy is obviously the most appropriate solution – where we as a nation can re-use our products and packaging in a way that means we don’t have to rely on the export of recycled materials, and we don’t keep contributing to our ever-growing landfill sites.

There are many steps involved in this process, and it won’t happen overnight. It requires a shared commitment between government, consumers and industry. And one of these groups cannot solve this issue in isolation. Consumer awareness is a crucial piece of the puzzle. Ambiguity around recycling methods and what packaging is and isn’t recyclable has caused confusion among consumers for many years.

Earlier this year, the Australian Packaging Covenant Organisation (APCO) announced the launch of a national Packaging Recycling Label Program that will help to drive change in consumer recycling behaviour in Australia for many years to come. Executed in partnership with Planet Ark and PREP Design, it is the APCO’s first ever nationally consistent, evidence-based labelling program to encourage recycling and help consumers better understand how to recycle products effectively. The APCO truly believes this will have a profound impact on our environment. By bringing together the priorities of government and industry, we’ve been able to deliver a scheme that has real value for all parties and for the broader community as well.

Importantly, a unique feature of the Packaging Recycling Label Program is that it will offer committed organisations access to an analysis tool that will allow them to better understand the materials they use in packaging and their associated environmental impacts. By allowing a more thorough understanding of problematic materials and where they fit in the supply chain, businesses will be able to address issues more quickly and effectively.

Major brands from across a range of industries, including Australia Post, Blackmores, Nestlé, Officeworks, Unilever and Woolworths, have already pledged their commitment to implementing the program. Having such significant organisations on board so quickly really shows the leadership from within the business community for an opportunity to get involved in progressive sustainability.

It’s important to note that the Packaging Recycling Label Program, and more broadly consumer awareness, is just one piece of what is a very large puzzle. If Australia is to succeed in minimising the impact of packaging on our own environment, we must work together toward a collaborative solution that addresses all parts of the product life cycle – from sustainable packaging design right through to creating a valuable end market for recycled materials. It’s a challenge we all must rise to and the APCO looks forward to being part of it.
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