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"A LOT OF THE MATERIALS UTILISED TO BUILD OUR CRITICAL INFRASTRUCTURE ARE PERPETUAL. ALL OF THEM CAN BE RECOVERED AND REUSED WITH THE RIGHT TECHNOLOGY AND THAT IS THE SPACE IN WHICH WE ARE INVESTING."

- George Hatzimanolis, Repurpose It
THE NATIONAL FOOD WASTE STRATEGY ESTIMATES THAT 7.6 MILLION tonnes of carbon dioxide equivalent will be generated from food waste disposed of in landfill in 2014-15 as it decays.

Putting these figures in perspective calls for a stern reminder – food waste is one of the main sources of methane generation in landfill.

It’s why so many businesses across the country are now turning their focus to new and innovative ways of doing things, from vacuum systems to food dehydrators and commercial composting consortiums.

Of course, in remembering the waste hierarchy of avoid, reuse, recycle, reprocess, energy recovery and dispose, best efforts need to be made to improve consumer education. A number of programs having succeeded in this space, including the NSW Government’s Love Food Hate Waste, which helps businesses reduce their food waste by 21 per cent, or charity partnerships such as OzHarvest in Australia.

Inevitably, a hefty portion of food waste goes from plate to the landfill bin. This comprises 2.2 million tonnes from the commercial and industrial sector and 3.1 million tonnes of edible food at a household level.

Beneficial reuse should remain a key priority for government agencies, local governments and small to medium enterprises alike – which is certainly on the agenda. In this issue, you’ll find an entire section dedicated to organics.

The featured topic section begins with the Australian Organics Recycling Association, which on page 24 outlines the next steps required to boost the uptake of recycled organics, including consistent standards and workshops across the state that reach the growers and end users of compost.

Turning to page 26, Australian Vacuum Systems supplies technology to vacuum food waste out of commercial offices, supermarkets, data centres, universities and other enterprises. The food maceration system works to significantly reduce the weight and volume of waste – reducing transport costs.

On page 28, Metropolitan Waste and Resource Recovery Group reveals its food organics and garden organics collection guide that supports Melbourne’s organics network and will help scale up composting facilities across the city.

In what EPA NSW has dubbed an Australia-first, the agency on page 36 highlights its free online training course on best practice compost.

No doubt exciting times surround the next era of food waste recycling. Just imagine the possibilities once many of these businesses are scaled up further.
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Most Australians across all states and demographics believe the recyclables they put into their council bins are ending up in landfill, according to new research from the University of New South Wales (UNSW).

The series of surveys has also found that 49 per cent of people believe that green and eco-friendly efforts will not have an effect in their lifetime, with 63.8 per cent of those older than 65 seeing no benefits being realised.

Key findings also report that 72.4 per cent of people would recycle more of the material if it was reliably recycled.

Confusion also surrounds which level of government is responsible for residential waste and recycling services, with some people thinking industry instead of government is responsible for waste management.

UNSW’s Centre for Sustainable Materials Research and Technology (SMaRT) Director Veena Sahajwalla said rising stockpiles and increasing use of landfill, in the absence of a coordinated government solution to a waste problem, had not been lost on consumers. “Each council is fending for themselves right across Australia and while the meeting of federal and state environment ministers earlier this year made an important announcement about a new National Waste Policy stating that by 2025 all packaging will be reusable, compostable or recyclable, we don’t have to wait another seven years for this decision to come into effect,” Dr Sahajwalla said.

“It is clear on this issue that people want action, and they want governments to invest and do something now.

“A number of councils and private businesses are interested in our technology but unless there are incentives in place, Australia will be slow to capitalise on the potential to lead the world in reforming our waste into something valuable and reusable.”

UNSW’s SMaRT Centre launched a demonstration e-waste microfactory in April, which is able to recover the components of discarded electronic items for use in high value products.

UNSW is also finalising a second demonstration microfactory, which converts glass, plastics and other waste materials into engineered stone products, which look and perform as well as marble and granite.

“Rather than export our rubbish overseas and landfill waste, the microfactory technology has the potential for us to export valuable materials and newly manufactured products instead,” Dr Sahajwalla said.

“Through the microfactory technology, we can enhance our economy and be part of the global supply chain by supplying more valuable materials around the world and stimulating manufacturing innovation in Australia.”
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Queensland’s product responsibility organisation, Container Exchange, has selected recycling company Envirobank Recycling as the network provider of container refund points for the Queensland Government’s Container Refund Scheme (CRS).

Envirobank will provide a minimum of 48 collection points along the Queensland coast across Cairns, Townsville, Sunshine Coast, Brisbane and the Gold Coast.

Collection points will include Coles supermarket locations, community collection points with not-for-profit partners such as Surf Life Saving Queensland (SLSQ) and three large-scale automated depots for bulk processing of large quantities for businesses and community groups.

The Queensland CRS launches on 1 November 2018 and aims to reduce beverage container litter across the state.

Drink containers are the second most commonly littered item in the state, with around 2.4 billion generated annually.

A 10-cent refund is provided for each eligible container that is returned to a collection point. Payment is made through cash, retail vouchers or digital payments such as Scheme ID or a PayPal account.

Container Exchange Acting Chair Alby Taylor said the criteria for selecting operators was an extensive process designed to meet customer needs.

“Our tender process generated a lot of interest from both small and large operators and in the end, it came down to ensuring we provided the best service to the Queensland public,” Mr Taylor said.

“We have listened to the feedback from other states and in Queensland you will see a lot more mobile collections to ensure we can get to as many people as possible wanting a refund.

“We will have depot sites as well as bag drop options in many communities, with many operations benefiting local community groups and charities.”

Envirobank Founder and Managing Director Narelle Anderson said her goal is to make collecting refunds easy for the public so they can be rewarded for their recycling efforts.

“We are always dreaming up new ways to ensure people not only get convenient access to the scheme, but also choose the way they want to get their refunds,” Ms Anderson said.

“Envirobank has been a long-term network operator in the Northern Territory scheme and it’s evident the program is much more than a litter reduction initiative.

“With the right partnerships in place, the scheme has the potential to raise substantial funds for many charities that deliver the vital services we need in our communities.”

Coles Queensland General Manager Jerry Farrell said the partnership was in line with the retailer’s sustainability commitments to improve recycling and reduce waste sent to landfill.

“Coles has made a public commitment to crush waste and reduce landfill, and our partnership with Envirobank in Queensland is a great opportunity for us to work with our customers to stop empty plastic containers ending up on the streets, our waterways or in landfill,” Mr Farrell said.

The scheme offers charities, community groups and not-for-profits a way of fundraising by setting up donation sites.

SLSQ CEO John Brennan said the partnership with Envirobank will help maximise the benefits for volunteer surf lifesavers.

“We are thrilled that the CRS is coming to Queensland and, by partnering with Envirobank, it means that each of our 58 clubs right up and down the Queensland coastline will have the opportunity to benefit financially,” Mr Brennan said.

“Every valid container put in a donation point at one of our clubs is a new stream of income that will be reinvested straight back into their lifesaving work in their local community.”
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News

Tyre pyrolysis and gasification report to inform industry

To inform the industry on the use of tyres in thermal processing plants, Tyre Stewardship Australia (TSA) has released a report into the effectiveness of pyrolysis and gasification.

The Tyre Pyrolysis and Gasification Technologies – A Brief Guide for Government and Industry report looks at the global history of operating plants and considers the economic and end-product market factors that are critical to the commercial viability of recycling technologies in the Australian market.

High temperature thermal processing can create oil, synthetic gas, carbon black and steel, while also providing a way of handling a waste stream that can have potential environmental or health problems if stockpiled.

TSA Market Development Manager Liam O’Keefe said the motivation of the guide was to provide the industry thought leadership on both emerging technologies as possible recycling solutions and to better inform government and businesses considering investment in such technologies.

“Obviously, TSA is interested in any technology that can sensitively recycle almost 100 per cent of a waste tyre, but we must be aware of the prevailing market conditions, investment costs and competitive pressures that play a role in establishing the economic sustainability of such projects,” Mr O’Keefe said.

“We believe the guide, by providing a high level of consultation, analysis and technical and economic detail, will be an aid to decision making around proposed facilities.

“No one technology will meet the waste tyre environmental challenge on its own.

“The best result with such immense global resource recovery and management challenges usually comes from a combination of options, offering the flexibility to adjust to future conditions and developing market demands.”

A full report on thermal tyre processing technologies is available on request from TSA.

The tyre pyrolysis and gasification technologies report can be downloaded at www.tyrestewardship.org.au/pyrolysis-guide

Geelong launches $3M organics composting facility

The City of Greater Geelong has launched a $3 million garden organics composting facility that is able to recover 35,000 tonnes of green organics per year.

Compost from the Geelong Garden Organics Composting Facility will be used on council land, such as parks and ovals, and local farms.

It will see an abatement of 49,000 tonnes of carbon dioxide emissions per year.

Sustainability Victoria provided a $500,000 grant towards the facility on behalf of the Victorian Government.

Projects in regional Victoria have increased the organics processing capacity by 38,250 tonnes per year, with approximately 74,570 households now able to access kerbside collections for food and/or organic waste. With the launch of the new facility, kerbside organics collection services have resulted in an average abatement of 81,621 tonnes of carbon dioxide per year.

Sustainability Victoria Chief Executive Officer Stan Krpan said he was delighted to see the organics facility opened.

“We’ve been working closely with the City of Geelong to enable greater recovery of its valuable resources,” Mr Krpan said.

The new Geelong facility is able to provide long term benefits such as processing the council’s green organics, with the potential to process additional organic materials such as food.

“Geelong is one of three large regional organics projects funded by the Victorian Government.

“It followed Ballarat and Bendigo which all now divert large quantities of organics from waste streams.”
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**Impact Crusher**

**Feed opening 524mm x 350mm**

**Handrails, safety guard and ladder**

**Wide variety of feed conveyors**

**Hydraulic opening of crusher housing for easy maintenance**

**Mobile or static applications**

**Heavy duty three hammer rotor**

**Reversible hammers with 4 faces**

**Hardox 400 liners and impact plates**

**Up to 35 ton per hour throughput**

**Hard Plastic Containers -> 5-6 tons**

**Wood Frame Furniture -> 6-7 tons**

**Large Difficult Cardboard -> 7-9 tons**
VICTORIA’S RELIANCE ON EXTRACTIVE RESOURCES IS INCREASINGLY BECOMING AN UNVIABLE PROSPECT, BUT A NEW SOLUTION WILL SOON SEE MORE CONSTRUCTION AND DEMOLITION MATERIALS RECOVERED IN THE STATE.
Victoria has had the advantage of raw earth resources that have met the needs of the prosperous construction industry for decades on end.

According to the first-ever Extractive Resources Strategy, around 535 quarries within the state produce 50 million tonnes of stone, limestone, gypsum, sand and gravel each year. The 2018 strategy shows demand for extractive resources is at an all-time high due to population growth and a ramp-up in major infrastructure projects.

But emerging shortfalls in the supply of extractive resources is creating an urgent need for the government to secure high quality resources needed to meet Victoria’s current and future infrastructure plans. According to the strategy, a failure to do so within close proximity to growth areas and infrastructure will likely increase the cost of constructing houses and infrastructure.

As a result of Melbourne’s infrastructure boom, the city’s landfills are also under pressure with significant amounts of excavated materials being buried in landfill. According to the 2015-16 Victorian Recycling Industry Annual Report, aggregates, masonry and soils make up 22.8 per cent of all landfilled materials.

Fortunately, the amount of materials being reprocessed has increased by three per cent to recover 4.1 million tonnes of aggregates, masonry and soil material.

However, when the 4.1 million tonnes is broken down by weight, the composition of recovered materials encompasses just over 50 per cent concrete. The remaining composition covers a few other areas, but recovered soil/sand is only two per cent, mixed aggregates, masonry and soils make up 14 per cent and rock/excavation stone 11 per cent.

Relying on virgin resources means mining Australian quarries and using valuable resources, which consumes energy and can cause pollution. Furthermore, more than 900,000 tonnes of construction and demolition materials are being landfilled each year.

With quarries being pushed further out due to the urban sprawl, trucks on the road are increasing due to the vast distances required to transport materials, thereby raising Australia’s carbon dioxide (CO2) emissions footprint.

FINITE RESOURCES

George Hatzimanolis carries 15 years in the civil works and construction industry and has been well aware of these issues. This knowledge prompted he and four other business partners to establish Repurpose It in March 2017 – a resource recovery business founded on industrial ecology.

“My personal view is that in the long term, there has got to be a better way than building our infrastructure with resources that we know are finite and precious,” George explains.

George says that C&D waste has....
been traditionally difficult to treat due to the mix of contaminants.

“We looked at countries around the world that have less extractive resources available to them and asked: how do they deal with this issue?” George explains.

“What we found in other parts of the world was that manufactured sand was fairly prominent to replace virgin sand and we started looking at technologies around that.”

Repurpose It’s research led it to a UK supplier known as CDE Global – manufacturers in mineral processing and extractive resourcing. The company identified its C&D processing facility, used extensively in the UK, Germany, Norway and Sweden and other countries, as well equipped to process materials in Australia after an extensive study tour overseas in early 2017.

Leveraging a 150-acre former quarry site owned by the business’ directors, Repurpose It last year began planning the nation’s first construction and demolition washing plant set to be operational by the end of 2018.

Its Epping site in Melbourne was considered the ideal location due to its proximity to the city via the freeway and closeness to major infrastructure projects. The Cooper St West precinct, in which the site sits, has also been identified by Sustainability Victoria in the 2018 Metropolitan Waste and Resource Recovery Implementation Plan as a significant hub for reprocessing materials from C&D activities.

After establishing a best practice technology, the company applied for a $500,000 grant through Sustainability Victoria’s Resource Recovery Infrastructure Fund and was successful.

THE CAPABILITIES

The new C&D washing facility is capable of processing up to 250 tonnes per hour and will be able to accept a variety of waste streams, from traditional excavation waste such as rock, sand and silt, to waste mixed with other manmade inert materials, including concrete, grit and rail ballast. The plant will also be configured to handle non-destructive drilling and drainage waste, in addition to drainage waste and dirty glass. “All those will be used to make a variety of materials that will replace virgin materials, predominately manufactured sand as well as washed and cleaned aggregates that will go back to other construction materials,” George says.

He adds the materials will then be reused as concrete, asphalt, sand and aggregate replacement applications and capping at landfill cells.

“We’ve also done a lot of work getting some engagement across large infrastructure projects, including the Western Distributor, Metro Tunnel and level crossing removal projects in their spoil disposal to help contractors achieve their sustainability targets,” George says.

He says independent lifecycle modelling has identified the C&D washing plant has potential to save more than 80,000 tonnes of CO2 emissions per annum.

The first part of the process involves separating materials from 150 millimetres in particle size. Metals are recovered under a
conveyor with a magnet. From there, the material goes into wet processing with intensive washing and scrubbing under high-pressure. Any larger particles greater than five millimetres are scrubbed and separated by density using forced floatation, including organics, paper and plastic.

Aggregates are scrubbed, screened and washed again, then screened and fractionated according to the end material specification required. Sand particles and any materials less than five millimetres in size go through a cyclonic sand washing process where they are separated over another wet screen to two different fractions of zero to three and three to five millimetres.

“We can also then blend it to meet different particle sizes within certain specifications of our sand. So we will be able to meet a variety of different sand specifications through this type of technology,” George says.

“We don’t anticipate the residuals to be more than 20 per cent based on all the technical research we’ve done. We’ve been testing a lot of the potential feedstocks for this plant over the last 18 months with significant research and development into the types of materials available in the market.”

FURTHER RESEARCH
Repurpose It is currently working with Melbourne’s Swinburne University with a research project underway to test manufactured sand in construction applications. George says work has also been conducted with the Australian Road Research Board in addition to Vicroads to update the specifications around the treatment of manufactured sand.

“I think there’s a lot more work to do in that space around getting some of these outdated specifications upgraded in particular where virgin materials are mandated,” he says.

He says Repurpose It is also working to get its materials certified under Green Building Council of Australia’s Green Star process.

“We need to make sure there’s continued growth in procurement around recycled products, but we are seeing a strong uptake compared to what we’ve seen before – hence we feel our timing is right with this investment,” George says.

He says the facility’s ability to use washing and forced floatation offers potential across other waste streams, including waste plastics and more advanced washing and scrubbing of glass followed by the next phase of water treatment.

With the new C&D facility almost operational, Repurpose It is already looking at next steps for the future. The facility’s electricity use has prompted the company to look at renewable energy to reduce its carbon footprint in that area. It is also looking at a new innovative process for organics and commercial food waste.

“Our view is a lot of the materials utilised to build our critical infrastructure are perpetual. “All of them can be recovered and reused with the right technology and that is the space in which we are are investing,” George says.
The War on Waste calculated that 6000 kilograms of clothing is dumped in landfill every 10 minutes – showing a giant pile of waste to demonstrate the impact of fashion waste.

According to the Ellen Macarthur Foundation report, A New Textiles Economy, clothing production across the globe has doubled in the past 15 years, which it attributes to fast fashion – more collections at lower prices. The term fast fashion has been used to describe a retail model towards seasonable trends, which leads to trends emerging and dropping in a matter of months.

Australian Bureau of Statistics data also shows 501,000 tonnes, or 88 per cent of leather and textiles, were sent to landfill in 2009-10.

It’s a problem that is not going away anytime soon, with global fashion waste predicted to grow by 60 per cent between 2015 and 2030, Global Fashion Agenda’s Pulse of the Fashion Industry report shows.

As the A New Textiles Economy report shows, companies like Nike and H&M are embracing the circular economy concept. Shoe giant Adidas has also vowed to only use recycled plastics in its products by 2024.

But will this and other developments contribute to reducing our fast fashion footprint? Waste Management Review explores the recyclability of current fashion items, while looking at the lessons of the past and possible areas of consideration for the future.

Organic and ethically-sourced clothing, zero waste clothing or boycotting fast fashion have all been mooted as ways of turning the problem on its head, but as one fashion and textiles designer learnt, this wasn’t so simple.

Mark Liu, Chancellors Postdoctoral Research Fellow at the University of Technology Sydney, more than 10 years ago presented a “Zero Waste” Fashion collection at London Fashion Week. The process involved taking waste materials from other industries such as scrap materials and leftover fabric and using advanced mathematics to design a new patternmaking technique akin to a jigsaw puzzle.

He says that conventional pattern cutting creates about 15 per cent wastage of material, even if a computer has optimised it. He says it was initially appealing to fashion buyers but once they saw the cost of it – it wasn’t so popular. Mark says that part of the challenge is finding an inexpensive product that is recyclable, which takes money and oversight.

Deakin University has developed a method of recycling denin.
H&M in its 2017 sustainability report indicates that 35 per cent of its materials were recyclable or sustainably sourced, with a target of 100 per cent by 2035.

“The labels don’t exist anymore. For example, the tricky part is finding organic cotton, as cotton is expensive. A small manufacturer doesn’t have the same pulling power as a large manufacturer,” he says.

According to H&M Group’s 2016 annual report, the company acknowledges that when a garment is no longer usable, recycling is the best option, but notes that because the technology “doesn’t exist for this to happen”, it is working to increase the share of products that can be recycled.

“We’re really vastly underprepared for this. Cotton is difficult to recycle because with current technology, the cotton fibres get thinner and shorter and this means the quality goes down.”

“If you want to regenerate them more, you almost have to take them on a molecular level, break them down into the monomers and stick them back together again which requires some solvents,” he says.

“Solvents can be recycled, but the facilities to do that are limited in Australia.”

Mark says taking the polycotton blend apart can be difficult as it is hard to blend it in with a new product without reducing its value. He says that even if it could be recycled, the question then becomes would it be recycled due to the cost of energy.

Mark says the technology to create recyclable fashion is still in its infancy, noting that many of the promising technologies use bacteria or fungi to grow or biodegrade the fabrics. For example, the University of Technology Sydney is working on algal-based technology – which could hold potential in creating a sustainable fashion product.

**UPCYCLING DENIM**

One issue in particular that faces textile recycling is the sorting process which often needs to account for the different colours and compositions of textiles. On top of this, one of the main challenges that face textile recyclers is that advanced techniques that require the use of chemicals make the process less cost effective.

Dr Nolene Byrne from Deakin University’s Institute for Frontier Materials (IFM) says population growth and the rapid fashion cycles of the industry has led to millions of tonnes of clothes and other textiles being landfilled. “Textile waste is a global challenge with significant environmental implications, and we’ve been working for more than four years to address this problem with a viable textile recycling solution,” Nolene says.

In collaboration with PhD candidate Beini Zeng, Nolene and the team at IFM have developed a method of turning denim into a lightweight material that can be used in cartilage bioscaffolding, in water filtration and as a separator for advanced battery technology.

This material is classified as an aerogel, which are sometimes referred to as solid or frozen smoke because of their low density. By using environmentally friendly chemicals, the team at IFM are able to add value to the materials and can address the limitations that affect other less cost-effective methods.

Nolene says the research team chose denim because it is made from cotton, a natural polymer derived from cellulose, but also because it is such an iconic fashion material that can be found in most wardrobes.

“Cellulose is a versatile renewable material, so we can use liquid solvents on waste denim to allow it to be dissolved and regenerated into an aerogel, or a variety of different forms,” she says.

“When we reformed the cellulose, we got something we didn’t expect – an aerogel with a unique porous structure and nanoscopic tunnels running through the sample.”

The sticky nature of the denim cellulose solution is what makes the aerogel unique and helps its use as synthetic cartilage. Denim is also

About 501,000 tonnes of leather and textiles were landfilled in 2009-10.
made entirely out of cotton, meaning it is much easier to sort and separate compared with a polycotton blend.

Aerogels were first created in 1931, but the majority are made of silica, carbon or metal oxides. The new research is now entering a pilot trial and aims to be available at a commercial scale within three to five years.

**CIRCULAR THREADS**

Blake Lindley, Senior Consultant at Edge Environment, helped develop the Circular Threads project – which has been investigating a business case to recycle unwanted corporate workwear since 2016.

Blake says corporate uniforms provide a logical starting point for the emergent textile recovery industry, as consistency among garments and the economic levers of corporate social responsibility and branding risks are driving strong market interest.

“Circular Threads is about mobilising the fashion industry and also the scale of recycling opportunities by using corporate uniforms as a stepping stone to broader post-consumer textile recycling,” Blake says.

“Our interest is in supporting providers to commercialise recycling technology. The industry is now at the investment decision stage looking at what is out there, what can we bank on and what are people willing to pay? Helping provide solid data, and linkage to procurement and scale is what Circular Threads is about.”

Circular Threads is working with textile procurement across construction, corporate uniforms and hospitality sectors to increase demand for recovered natural and synthetic fibres.

“The first recycling plant that can recycle uniforms will do well as there is massive demand for it,” Blake says. He says that secure disposal and certification currently required for many corporate uniforms costs well above landfill.

**NEXT STEPS**

Textile designer and sustainability strategist Clara Vuletich, who has created sustainable designs used by brands such as H&M and Gucci, says awareness has been building in the northern hemisphere with clothing labels increasingly taking responsibility for products at their end-of-life.

She says the Australian industry has been slow to progress in the past 12 months, but predicts this will escalate.

Clara cites recyclable fashion technology Worn Again Technologies as an example of initial signs of progress in this space, which has received some initial support from H&M. According to its website, H&M has also partnered with the Hong Kong Research Institute of Textiles and Apparel (HKRITA) to develop technologies to recycle clothes made from textile blends into new clothes.

In September, the H&M Foundation (the owners of H&M Group) and HKRITA opened two first-of-its-kind textile recycling facilities in Hong Kong, which use a hydrothermal method to recycle cotton and polyester into new fibres. The recycling technology consists of chemical and hydrothermal treatments to recycle cotton and polyester blends into new fabric and yarns. HKRITA is now focusing its research on improving the quality of the separated fibres and cellulose powders to develop more sustainable solutions for the industry.
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There are more than 1100 businesses in the Australian Skip Bin Rental industry, according to the Skip Bin Rental – Australia Market Research Report.

To stay competitive in the industry, many smaller firms are attempting to provide a cheap service that can separate them from the crowd.

A small number of these operators illegally dump collected waste to keep prices down, with a common scam of dumping waste onto vacant land or a warehouse, leaving the landowner or council with the clean-up costs.

Illegal dumping of waste can present significant risks to human health and the environment.

Local councils across Victoria spend around $30 million every year cleaning up this abandoned waste, which also accounts for two-thirds of the Victorian EPA’s prosecutions every year, according to the information on
the EPA website.

To combat the issue, $6.3 million of state government funding has been invested in the Victorian EPA’s Illegal Dumping Strikeforce, which aims to create a level playing field for operators doing the right thing and reduce the environmental risk of illegal waste management.

The strikeforce identifies partners in priority projects such as government, industry and community stakeholders to support interventions that encourage appropriate waste management.

To enforce compliance, the EPA is able to issue fines and prosecute parties that are found dumping waste illegally, with drones to help surveillance and investigations.

Chris Webb, from the EPA’s Illegal Dumping Strikeforce, has previously stated that there is a significant amount of waste being dumped in creeks, parks, rented buildings and on private land, with some of it containing asbestos from construction and demolition sites around Melbourne.

“EPA has targeted skip bin hire firms because the industry has attracted a number of operators who dump waste illegally, often in our forests or on private land,” Mr Webb said.

“The fine for illegal dumping can be thousands of dollars and then comes the cost of the clean-up and proper disposal.”

According to the Victorian EPA, a significant percentage of the materials that are illegally dumped are able to be recycled but instead end up in a local creek or park. Some of the most commonly dumped materials are bitumen, asphalt, brick, concrete, glass and asbestos.

Skilp bin operators in Victoria are legally considered a transporter of waste – meaning they can be found guilty of an offence if material is not delivered to the appropriate facility. One way the EPA aims to reduce unscrupulous operators is to advise the public to ask for proof of disposal from skip bin operators and to report companies that can’t adequately respond to questions about where their waste is going.

Mr Webb has also previously stated that fly-by-night skip bin hire firms specialise in dodging the cost of proper recycling and disposal by abandoning tonnes of waste wherever they can.

“Illegal dumping contaminates the environment and is unfair competition for the honest skip bin businesses that pay the fees for proper disposal and recycling,” he said.

To provide the EPA with the enhanced tools to deal with illegal dumping, the Victorian Parliament passed the Environment Protection Amendment Bill 2018, which gives the EPA the ability to issue tougher penalties for environmental offences from 1 July 2020.

Additionally, the legislation allows the EPA to enforce a general preventative environmental duty requiring businesses and individuals conducting activities to take reasonable steps to minimise or eliminate risks to human health or the environment. Corporations found conducting illegal dumping can face penalties of up to $1.6 million.
DISRUPTING DUMPERS

The EPA identified growth areas of Melbourne, such as the Cities of Hume, Wyndham, Brimbank and Manningham, as hotspots for illegal dumping and is working with councils to tackle the issue where it occurs.

Wyndham City trialled several litter abatement programs, with one successful approach being the Dumping is Damaging campaign. The campaign was designed to tackle growing illegally dumped waste in a target area of the suburb Tarneit. To get an idea of the scale of illegal dumping, a litter count found 29,520 kilograms of dumped waste collected by council litter crews.

The council identified many people in the area were renters, who typically need to move to a new house more often than home owners. This meant there was a portion of the community that needed to dispose of furniture and appliances and weren’t aware of the services on offer for collection.

In an attempt to reduce the amount of waste being dumped, a campaign was rolled out that called on the community to report illegal dumping and litter. Billboards, posters, newspaper articles and a letterbox drop of postcards targeted motorists, pedestrians, home owners and skip bin operators.

Following the campaign, Wyndham City recorded a 93.5 per cent drop in illegally dumped household waste in the target area.

Wyndham City’s Waste and Litter Strategy 2016-2040 was endorsed by council in 2016, setting a series of ambitious long-term targets including a goal of no incidents of illegal dumping by 2040.

To achieve this, the council aims to increase the number of community litter reports by 25 per cent from the baseline by 2020.

Richard Maugeret, Wyndham City Council Manager City Amenity and Safety, says the council has a proactive and reactive approach when it comes to addressing litter and illegal dumping involving a range of education and compliance activities.

“Illegal dumping of construction and demolition waste by tipper trucks and dumping of residential waste are the main sources of illegal dumping in Wyndham,” he says.

“Council has a strong working relationship with a number of legal skip bin operators and a permit system to regulate their use in Wyndham.”

“Council also regularly reviews information made available from litter investigations, clean-up intelligence and landfill staff so that we are able to actively manage emerging issues.”

Other strategies employed by the council include the rapid removal or waste from council-controlled land and roadsides to counter the development of waste dumping grounds. Surveillance strategies are also involved to deter or catch offenders.

Permits are also required for skip bins to be placed on a nature strip or on building sites in an attempt to regulate their use.

Wyndham City has also introduced the Building a Cleaner Wyndham program to liaise with developers, builders and tradespeople to reduce the amount of litter found in and around building sites.

The six-week program combines education, infrastructure and enforcement to ensure non-compliant sites are reported and potentially penalised.
It also launched the Keep Wyndham Clean campaign, which encourages residents to report littering as well as promoting the council’s three free hard rubbish collections per year to ensure waste is being disposed of appropriately rather than illegally dumped.

Communication and collaboration are key tools in the council’s strategy, with Wyndham City engaging two dedicated waste and litter education officers to provide education and raise awareness of the impacts of litter within the community as well as an embedded EPA Officer for the Protection of the Local Environment (OPLE).

The OPLE program gives councils access to EPA capabilities in an effort to improve response time, enable faster identification and resolve smaller-scale local pollution and waste issues.

Richard says Wyndham City Council and the local EPA officer work together by sharing information and intelligence to address illegal dumping in Wyndham.

“Most councils in our region are proactively tackling illegal dumping and from time to time will meet with us to share intelligence,” he adds.

To continue the fight against illegal dumping, the EPA’s Strikeforce has been granted $9.1 million over the next four years to continue targeted investigations, compliance activities, intelligence gathering and public information campaigns. The EPA encourages businesses and individuals in the waste industry that have witnessed or suspect illegal dumping to report it via their website or by calling 1300 372 842.
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FEATURED TOPIC – ORGANICS

THE AUSTRALIAN ORGANICS RECYCLING ASSOCIATION’S DIANA DE HULSTERS AND PETER WADEWITZ OUTLINE THE STEPS REQUIRED TO BOOST THE UPTAKE OF RECYCLED ORGANICS.

With a strong business and association management background, Diana De Hulsters is poised to connect organics processors and recyclers with the agricultural industry, federal, state and local governments.

Diana took over as National Executive Officer of the Australian Organics Recycling Association (AORA) earlier this year. Alongside Chairman and composting industry leader Peter Wadewitz, the team has spent the past few months advancing efforts to boost AORA’s agricultural networks, while representing the industry on critical policy consultations.

“Our plan is to get workshops in every state meeting the growers and getting out and explaining what compost is all about and the benefits of compost and what we can do with it,” Peter explains.

“Part of that is our strategic plan which we have in place and will review in November to make sure we are communicating with the growers, farmers and horticulturists, which is one of the key drivers of our strategy.”

Diana says that part of AORA’s strategy will involve collaboration with other associations, in addition to leveraging members’ current network of processors and growers and large associate membership.

According to the National Waste Report 2016, Australians generated 542 kilograms of organic waste per capita, with 51 per cent of this recovered mostly through composting and some energy recovery. When it comes to food waste, the recovery rate sits at 41 per cent. In states like South Australia, organics are the second largest contributor to the overall value of resource recovery, according to the Recycling Activity in SA 2015-17 report.

The push to increase the nation’s recovery rate of organics comes at an opportune time for AORA, with the Federal Government, through the National Food Waste Strategy, setting a target to halve Australia’s food waste by 2030. The National Waste Policy will also be updated at the end of the year to include circular economy principles.

AORA provided its views to the Federal Government on the updates earlier this year. It noted the importance of the government giving due consideration to a target of a 25 per cent reduction in organic waste to landfill by 2025 (on 2018 benchmark levels) laid out in the government’s discussion paper. Since just over 50 per cent of organic waste is diverted from landfill, this means about 63 per cent diversion by 2025. AORA supported a 50 per cent reduction or 75 per cent diversion as both practical and desirable. Peter says that historically, the national interest in organics recycling has been mixed, with some progress in states like NSW through the EPA’s Organics Market Development Fund, but lacking in other states like Queensland which historically hasn’t had the right price signal in the absence of a waste levy.

“One of our biggest problems to this day is contamination and that requires education and training and getting some of that levy money that is put in general revenue out back into the market,” Peter says.

Diana says that as a newcomer to the industry she was surprised by the level of contaminants in the food organics and garden organics waste stream.

“I’ve been out to some processing sites and it is amazing how much plastic is stuck in garden waste that is collected. You see broken toys out of the garden that have ended up in the green bin,” Diana says.

Peter adds that consistent standards are of particular importance. For example, he says agencies in some states seem to be taking a hard-lined stance against PFAS with some incidents occurring of the chemical ending up in biosolids, which he argues hasn’t been conclusively proved as harmful if treated properly.

“It doesn’t matter whether it’s that or plastics or fluoride. We need some real risk versus probability analyses and to work with the industry to get
sustainable outcomes,” he says.

AORA also supports a ban on all single-use non-compostable plastics, including plastic bags of all gauges, agricultural films and packaging that cannot be reused, recovered or recycled in any way. Peter says that one of the issues with traditional plastic bags which carry the food waste is that they’re not certified compostable or biodegradable. For example, Adelaide council Holdfast Bay has trialled compostable bags across Foodland shopping centres.

AORA also encourages all regulators to ban unprocessed organic resources from landfill so long as the necessary infrastructure, education and regulation have been given due consideration.

“Bans are a good thing but a lot of foresight has to go into them. For example, NSW did a good job with 10 years of messaging around its landfill levies and price increases which gave the opportunity to go and invest and make sure the infrastructure was there,” Peter says.

He says a lot more composting infrastructure has to be developed across the country, including in regional areas like Griffith and Mildura, to minimise landfill and boost its demand in agriculture.

And as AORA lobbies for change, the organisation has hosted a number of events across the country showcasing the benefits of compost, including its Compost Benefits for Soils on the Mid-North Coast at Coffs Harbour and the annual AORA conference in May.

Peter and Diana also remain optimistic about developments such as the Soil CRC for High Performance Soils, which brings together scientists, farmers and industry to find practical solutions for the nation’s underperforming soils.
The average ocean-going cruise ship’s capacity is around 3000 guests, according to CruiseMapper data. On these voyages, kitchen staff need to prepare breakfast, lunch and dinner for holidaying guests and crew.

As with almost all commercial kitchens, food waste is generated not only in the preparation of meals, but also when the plate returns to the kitchen. Unlike most land-based kitchens however, the food waste on a ship will need to be stored until the ship can reach a port or is in a suitable area for discharge to the sea.

Space is an important consideration on these vessels, meaning conventional gravity-based maceration, drainage and collection systems may not be applicable. Additionally, food waste fermentation can begin quickly, producing foul odours and releasing gases that can become health hazards in ship kitchens and refuse areas.

To solve this food waste issue, waste and wastewater management company EVAC implemented a vacuum system in naval and cruise ships to macerate and transport food waste. The technology reduces the amount of labour and customer disruption from multiple bin movements and maximises the amount of waste storage available on a ship.

In-feed stations are located in kitchen areas and places where food waste is generated. The stations each contain a macerator which is able to shred vegetable scraps, bones, fish skins, and other food waste before it’s mixed with a small percentage of water to help create a slurry. A magnet ensures there are no metal contaminants within the system, and then the macerated food waste is then transported through a single 50 or 75-millimetre pipe to a central collection point using a vacuum.

The waste tank can be located anywhere on the ship and is not limited by horizontal movements because transport is made possible using vacuum, allowing flexibility for designers to install the system.

This technology is now being brought on shore to reduce landfill output in large buildings such as hotels and shopping centres by the Australian representatives for EVAC, Australian Vacuum Systems (AVS).

Sustainability Victoria’s Statewide Waste and Resource Recovery Infrastructure Plan 2015-2044 reports the commercial and industrial sector generated 282,000 tonnes of food waste in 2011-12, but only 31,000 tonnes were diverted from landfill.

The plan states food waste feedstocks from the hospitality and hotel sector can have low contamination rates and consistent supply tonnes, making them attractive as base loads for reprocessing, which can lead to increased resource collection.

Chris Herbert, Australian Vacuum Systems National Sales Manager, says the vacuum system reduces the need for odorous and potentially heavy waste trolleys and creates an easy collection point for food waste.

"By separating food waste from the general refuse, it reduces the overall amount required for municipal collection. Further, by macerating the waste into a slurry, it doubles the storage density as more liquid can fit into a cubic metre than solids," he explains.

"For building developers and operators with hospitality precincts, this has the potential to reduce the collection interval of food waste..."
by 50 per cent,” Chris adds.

When used in a commercial development, the system connects a network of in-feed stations placed strategically throughout a hospitality precinct to a waste tank which can be stored in an out-of-the-way location to maximise space and reduce refuse areas returning valuable plant room to building owners.

When the level of food waste reaches a certain point in the waste tank, it can then be discharged via a suck truck through a single pipe which allows building designers to locate the tank in unusable locations, such as under a vehicle ramp, while still being accessible for collection.

The waste can then be used in a variety of applications, such as anaerobic digestion, or for compost instead of being sent to landfill.

Chris says the direct processing and transport of food waste away from kitchens reduces the requirement for back-of-house bin storage, which means restaurants are potentially able to provide more seating for customers within their tenancy.

“One on project, developers were able to include up to three additional tables into their restaurants, increasing capacity and revenue which significantly increased the return on investment,” he says.

“Additionally, with the introduction of the Queensland waste levy, we expect the system to help businesses reduce their collection fees and future proof the building by providing a separate waste stream.

“It also helps to reduce truck traffic in certain areas around the building, as a collection point can be specifically located away from general traffic.”

The system is custom designed for a building’s unique needs and tenants, though Chris notes it will work best when there is a significant amount of food waste. To assist with its implementation, AVS provides design and engineering along with installation support and maintenance.

Chris says that AVS also trains facilities management teams in its operation to provide a level of self-sufficiency while also being able to offer high-level repair and maintenance.

“Our focus is on using vacuum technology to help solve the challenges food waste presents to the hospitality industry,” he adds.

“By assisting businesses to separate their waste streams, it makes it easier for them to divert food waste from landfill.”

Compost Facility Management is a free eLearning course.

It is self-paced and can be completed in five to eight hours.

The course provides the knowledge and skills required to manage and operate organics processing facilities and produce quality products that meet regulatory requirements.

How to FOGO

METROPOLITAN WASTE AND RESOURCE RECOVERY GROUP HAS DEVELOPED A COMPREHENSIVE GUIDE TO HELP COUNCILS DESIGN, IMPLEMENT AND MAINTAIN A HIGH-PERFORMING FOOD ORGANICS AND GARDEN ORGANICS SERVICE.

How do you design a food organics and garden organics (FOGO) collection service for success and what are the major considerations that go into a business case for local governments?

These are the questions statutory authority Metropolitan Waste and Resource Recovery Group (MWRRG) sought to answer when developing a FOGO guide for councils to access. With 19 Victorian councils operating a FOGO service and five others undergoing trials, MWRRG has been working to boost these numbers as part of its task of developing Melbourne’s organics network.

Increasing the recovery of organic waste is one of MWRRG’s four key strategic objectives in its 2016 Metropolitan Waste and Resource Recovery Implementation Plan. To achieve this objective, an organics processing network to

MWRRG’s research found that 71 per cent of participants responded positively to the concept of separating their food waste.
divert Melbourne’s organic waste from landfill has been developed through collective procurement contracts in Melbourne’s north-west, south-east and east.

**THE JOURNEY**

Rob Millard, MWRRG Chief Executive Officer, says EPA Victoria has worked hard over the past 10 years to improve the regulation of the composting industry and the design and operation of such facilities. He says that facilities now have a social licence to operate they didn’t have 10 years ago.

“You can really go back to 2009 when composting facilities were being closed because of odour problems and issues with planning permits,” Rob explains.

He says that industry has put substantial time and resources into developing infrastructure and markets to ensure the ongoing sustainability of collection systems.

“We’ve been building a new network of organics processing facilities and part of having a sustainable industry with composting facilities is to have an output in the market for those products.”

Rob says that progress on FOGO really started to take place when the planning phase transformed into a business case and procurement strategy. The first step occurred in 2013, when Veolia established a large-scale green waste processing facility as part of its contract with MWRRG and 11 northern and western metropolitan councils.

Since then, MWRRG has secured the South East Organics Processing Contract involving eight councils and three organics processors, as well as an agreement involving five councils and three preferred tenderers in Melbourne’s east.

Together, the organics processing facilities network has the potential capacity to divert more than 520,000 tonnes a year of food and garden waste (from household and commercial/industrial sources) from landfill by 2019.

**BACK TO EARTH**

In 2013, the award of the first organics network contract in Melbourne’s north and west spurred on MWRRG’s the Back to Earth Initiative.

The Back to Earth Initiative is an educational campaign involving partnerships with 19 metropolitan councils and three councils in the Goulburn Valley. As a communications and education campaign, it goes beyond instructional messages and provides a link between what residents put in their bins and the process that goes into creating an end product that can be used on gardens and farms.

The Back to Earth Initiative includes a website, Facebook page and a series of videos showcasing farmers who use compost resulting from organics collection.

Participating councils are supported with a communications guide, advice and collateral development.

Although initially established to support garden waste collection, the Back to Earth Initiative has increasingly been used to support councils rolling out FOGO collection.

**FOGO SOCIAL RESEARCH**

In 2017, MWRRG commissioned a desktop review of FOGO services across Australia and social research to explore the community’s willingness to separate and recycle food waste via their kerbside waste collection system. The research found 71 per cent of participants responded positively to the concept of separating their food waste.

The research also showed that residents are motivated to participate in food waste recycling when they understand its end use and benefits. This approach was found to provide opportunities over time to build positive social norms around separating food and garden waste services, much like other recycling.

“There is an opportunity for councils to start building awareness of the food waste problem, as well as the benefits of reducing food waste in landfill, even if a food waste recycling service has not yet been introduced,” Rob says.

Overall, the research found that FOGO was best pitched to residents with positive messaging on the societal benefits of a service, layman’s terminology, bin stickers and education on contamination and encouragement and enforcement in accordance with desired rollout outcomes. Rob says feedback from the research showed getting community buy-in for the full FOGO solution was critical.

“All councils will consider a FOGO service when each council is ready to. Some councils are ready to do it
now, while others plan to do it in the future or are weighing up the options for their community,” Rob says.

*Introducing a kerbside food and garden organics collection service – A guide for local government* brings together the latest research, modelling and lessons from FOGO pioneers.

The guide was developed with the support of councils, state government and industry, which collaborated through an advisory group to develop a document that helps councils design, implement and maintain a high-performing and cost-effective FOGO service.

The guide is presented in an easy-to-use interactive online format, with practical tools and advice for planning and implementing a service in six stages.

**SIX STEPS TO FOGO**

The six stages of the plan encompass understanding the case for change, designing for success, developing a business case, procuring FOGO services, rolling out the service and monitoring and improving it.

“Each component will have a council overlay, so we’re not being prescriptive in the service design,” Rob says.

The guide comprises sections targeted at a variety of audiences, including waste officers, CEOs or councillors.

He says the document may be enhanced in the future as new ideas emerge and could be reviewed roughly every 12-18 months to ensure it remains current.

“There would be nothing worse than a poor performing FOGO service in one council negatively impacting a number of other councils, so we have to ensure services are designed, implemented and managed well.”

Rob adds that he is confident that Melbourne’s organics-recycling network will be able to increase its capacity despite the city’s growing population.

“It’s all about protecting the buffers and having them in the right locations that won’t be affected by population growth. For instance, the three facilities in Dandenong are in an industrial zone and won’t be affected by increases in our population,” Rob says.

While there is a finite limit to the city’s buffers, Rob says the network was designed to allow businesses to take their organics out to the
regions once the respective processors reach their capacity.

**COUNCIL TRIALS**

Melbourne’s City of Darebin in the city’s north provided direct feedback to MWRRG following a six-month trial of FOGO in Kingsbury to inform the development of its guide.

Kelly Barnes, Environment Officer, Water, Waste & Litter, says council measured participation through pre and post-trial surveys, door-to-door interviews, truck weigh data, visual bin inspections and kerbside audits. She says the trial found 72 per cent of the wider Darebin area supported a FOGO service.

“The key messages were spruiking the benefits of recycling food waste – diverting food from landfill, reducing greenhouse gas emissions and creating a useful end product used by Victorian farmers,” Kelly says.

Kelly says it was also important to make it as easy for residents as possible, with kitchen caddies provided free as an incentive to participation.

She says getting community buy-in involved identifying the perceived barriers surrounding odours and pests and providing the community with strategies and information on how to overcome this.

Kelly says that in terms of the business case supporting a circular economy, reducing greenhouse gas emissions and increasing diversion from landfill made it a compelling proposition.

The City of Darebin is now looking at rolling a FOGO service out across the municipality.

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**Fast Fact**

What a successful FOGO service looks like:

- High household participation rates.
- High diversion rates of food and garden waste per participating household.
- The lowest contamination levels possible.
- A strong evidence base through data collection and analysis.
- Community support for recycling food waste.
- An assessment of expected performance and net costs and benefits of options.
- An analysis of service options to identify a preferred option.
- A staged rollout.

Source: MWRRG

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In December 2017, the Launceston Waste Centre Organics Processing Facility opened in the north of Tasmania with the ability to process food and garden waste.

It used a method of forced aeration to process up to 20,000 tonnes of organic waste per year – enough to handle the entire kerbside waste for the majority of northern Tasmania.

With the introduction of the new facility, the City of Launceston was able to roll out a food organics and garden organics (FOGO) collection program to divert waste from the council-operated landfill, which can make up 30 to 46 per cent of municipal solid waste, according to the Australian Department of the Environment.

To ensure the City of Launceston was making the most of the new facility, it contracted waste consultancy firm JustWaste.

Justin Jones, Director of JustWaste, says the council wanted a system that had a minimal amount of contamination to create a high-quality end product.

“The council didn’t just want to give out a second waste bin and determined the best option to ensure the system was used properly was to make the FOGO system voluntary,” he says.

More than 6500 residents signed up for the scheme since it began in October 2017, however Justin says that while the volume of material being collected is higher than expected, the amount of food in the bins was significantly low.

JustWaste looked to find out why the system wasn’t being used for food waste and create educational materials to correct the issue.

Isabel Axio, JustWaste Consultant and Environmental Manager, says bin contamination was hovering around one per cent but so was the amount of food content in the bins.

“Find out why the food content in FOGO bins was so low, JustWaste began a two-part study which involved a survey and bin inspections,” Isabel explains.

“We surveyed 1942 residents that signed up to the scheme and found participants were already quite conscious of reducing food waste, with many using it for animal feed or home compost.

“This meant that a lot of avid recyclers weren’t generating much food waste and were mostly using the bin for their garden waste.”

Around 42 per cent of the survey participants said they put the household’s food waste in the FOGO bins. However, bin inspections revealed this was closer to 22 per cent.

Isabel says the bin inspections are important to gather data to evaluate a system’s performance after its implementation, especially as survey responses may not be totally accurate.

“We’ve found that residents with FOGO bins want to reduce their waste but still encounter barriers, such as certain foods being perceived as distasteful to leave in a bin for a fortnight, especially in the summer months,” she says.

“By finding these barriers, we’re able to provide educational material and practical advice to improve the scheme. JustWaste recently participated in a video rollout of two characters called Fo and Go to explain the service, along with leaflets dropped into participating households and videos via social media.”

“By knowing what is happening in people’s kitchens, we’re able to focus on the right education material to drive diversion.”
Bill Kollatos, enrich360 Founder and Director, could see the impact of farmer soil degradation from chemical fertilisers used as a result of mass production.

With his team at In2food (previously Yarra Valley Farms), a leading wholesale supplier of quality fresh fruit and vegetables, Bill realised his vision to improve farmer products, consumer transparency and reduce the impact of food waste in landfill.

Understanding that the future is determined by the health of planet and a need to support farmers – enrich360 was launched in 2016. To support its ambitious endeavours, the company received finance from Sustainability Victoria in late 2017.

Enrich360’s program uses a dehydrator to condense food waste into recycled water and biomass that can be utilised as fertiliser. The model is established on a closed loop system where restaurants and cafes across the country convert their food waste into rich organic fertiliser to give back to farmers and grow better, more nutritious produce.

Dean Turner, Chief Executive Officer of enrich360, says the company has seen significant growth since he took over earlier this year, having partnered with 300 businesses nationwide, including major organisations such as IKEA in Richmond and David Jones in Bourke Street, Melbourne. Dean says enrich360 will also soon be in other major outlets such as the Victorian State Library, shopping centres and a major airport.

“We don’t proclaim to be a waste company, we don’t see ourselves as a competitor. We’re about our niche and supporting our customers that want to give back to the environment,” Dean explains.

He explains that the company leverages a reverse logistics model by having In2food drivers pick up the condensed waste during their usual drop-off route. Dean says the food dehydrator is able to reduce the volume of food waste by up to 93 per cent.

He says that on average, a commercial and industrial outlet such as IKEA produces about 200 kilograms of food waste a day, which can be reduced into two 22-litre bins comprising 15 to 20 kilograms of dry biomass and about 150 litres of water. The twice-weekly collection of sterile pathogen-free biomass is taken directly to a farm or composter for end use.

“We’ve got machines that can do 30 kilograms of food waste which could run twice a day and up to one that does 1.1 tonne on the larger end, reducing the waste to just 100 kilograms – which significantly reduces trucks on the road,” Dean says.

He says the company’s certification scheme will give consumers peace of mind that they are dining at a sustainable food service. The scheme requires partners to demonstrate compliance to the organisation’s program to be granted an enrich360 certification mark.

“Getting the produce out of the farms and back into restaurants forms a complete circle. Once people are up and running and into the routine of that, we will go and check what they’re doing, make sure that they’re capturing all of their waste and then award them enrich360 certification,” Dean says.

Once enough commercial partners are signed on, consumers will be able to use enrich360’s mobile app to ascertain where their raw materials are coming from and information on the farm – adding a further layer of traceability to the process.

Enrich360’s program includes a certification scheme to allow consumers to identify which food services are sustainable.
COMPOST TRAINING GROUND

THE NSW EPA HAS DEVELOPED A FREE ONLINE TRAINING COURSE FOR COUNCILS, REGULATORS AND ORGANICS RECYCLERS TO IMPROVE THEIR KNOWLEDGE AROUND BEST PRACTICE COMPOST FACILITY MANAGEMENT.

A well-managed composting facility is crucial to producing a quality product with minimal environmental impact.

Through the $105.5 million Organics Infrastructure Fund under Waste Less, Recycle More, the NSW Environment Protection Authority (EPA) has supported organics market development in the state, while providing funding for food and garden organics collections and new and enhanced infrastructure. These programs span funding for collection services, new facilities and upgrades and organics market development, right through to community education through Love Food Hate Waste and Food Donation Education.

To upskill the industry as new jobs are created and facilities expanded, EPA began further research in 2015 to explore training options. An industry survey undertaken by the Australian Organics Recycling Association (AORA) in 2016 identified training needs and a working group, comprising AORA, local government and EPA compliance, regulatory and training experts and was set up to oversee the development of an online course.

The culmination of three years of research and organics industry collaboration led to the launch of an Australia-first free-to-use online Compost Facility Management course. The five-to-eight hour course comprises seven modules and has been designed for regulators and people in all roles working in organics facilities. It uses interactive content, animation and video to engage learners, with the aim of embedding high-level skills and knowledge for best practice facility management.

Amanda Kane, Organics Manager Waste and Resource Recovery at the NSW EPA, says the training course supports the industry growth and expansion being driven by other components of EPA organics programs.

“We also know through our support for market development that product quality is critical when it comes to ensuring a good price and demand for recycled product,” Amanda says.

Amanda says that as a regulator, EPA NSW also wants to make sure that those new facilities, as well as existing ones, understand their environmental responsibilities and are managed well to minimise environmental risk.

“With content developed from expert industry input, the course brings together for the first time training on every aspect of managing an organics processing facility, meeting compliance requirements and producing a quality product,” she says.

From understanding the feedstock to managing contamination and process control to record keeping, Amanda says the online platform for the course makes it accessible to everyone, particularly facility workers in remote areas and new staff in an industry which often has a high staff turnover.

“It caters for the range of facility worker roles, from pickers to managers, as well as state and local government regulators. We’ve also
had feedback that it’s useful for council waste officers to understand the detail of what happens to the content of the green lid bin once its gets to the facility.”

The seven modules include an introduction to composting, composting processing control, managing operations, managing environmental risks, operational responsibilities, products and uses and applying recycled organics to land.

Amanda says each module features videos with facility operators, workers and regulators discussing issues they’ve experienced and how they dealt with them. “Drag and drop features provide interactive learning to make it interesting and effective as a tool, while self-assessment questions at the end of each topic confirm you’ve understood the issues.

“The managing environmental issues module includes click and show animations and an explanation of each issue – such as odour, noise or air management and how to identify and manage it.”

Amanda notes that best practice management is a key component of the EPA’s broader program to increase organics recovery and recycling in NSW.

She says the EPA is already looking to complement the training with advanced skill development and is working with AORA to develop a series of webinars to link back to the training with additional learnings on those topics.

“We’re also working with IMC in Melbourne, a provider of digital learning, to develop smartphone nuggets – follow-ups from the course that you can use onsite to reinforce the online learning, for example around record keeping or testing for temperature control.”

Amanda says there is also scope in the online platform to develop a forum where users can ask questions and share knowledge on issues they are facing.

“While the online course is a really good opportunity and is accessible to everybody at any time, there are also other ways of learning and skills that suit the industry, such as knowledge sharing, workshops or field visits. So this is very much a start in this new space that we intend to build on and expand to take it a step further.”

“We’ve also been talking to other jurisdictions to make the training available to them initially free of charge to establish a national standardised training approach.

“Although it has been developed for NSW and a lot of the content is state-specific, particularly the regulatory requirements, there is also a variety of useful content on composting fundamentals and operational management that cross boundaries and apply to any facility anywhere.”

You can register on the EPA’s learning management system here: https://learning.epa.nsw.gov.au
ENERGY COMPANY AGL MACQUARIE HAS PARTNERED WITH LOOP ORGANICS TO SUPPLY A SIGNIFICANT AMOUNT OF ORGANIC MATERIAL TO REHABILITATE ITS 850-HECTARE MINE SITE.

The NSW Government requires all mining companies to rehabilitate closed mine sites to return the land to a condition that is as good, or better, than it was before. Open cut mining and the associated infrastructure, such as tailings dams, roads and buildings, removes and disturbs topsoil. Above ground mining generally involves the stripping and stockpiling of topsoil so it can be replaced, but long-term storage can result in a decline in soil quality.

In the Hunter Valley, NSW, energy company AGL Macquarie is rehabilitating around 850 hectares of old mine sites that once supplied coal to power stations. Ash is being placed into the mine voids to create a more natural landform. To return the land to grazing pastures, AGL needed to develop a biologically active soil with a sustainable carbon and nutrient cycle.

To do so required a significant amount of organic matter and compost to mix with the degraded soil, so AGL set up a tender process to select a company that would be able to supply these materials.

Matt Parkinson, Environment Advisor from AGL Macquarie, says the old mine site required around 1.4 million tonnes of organics in total to return the land to its former state of grazing pastures. Additionally, there are other areas which will also require another one million tonnes of organics for rehabilitation in the years ahead.

“We are required to meet the waste exemptions, which include conditions we must strictly adhere to. For pastures we want a lot of good nutrients in the soil to promote sustainable plant growth. For woodland areas, we want to provide ecological value for native species,” he explains.

AGL required around 1.4 million tonnes of organics to return its mine site to its former state of grazing pastures.

“Some organic streams are high in these nutrients while others have liming properties, which is good for the soil structure as it helps to break down the clay.

“We selected Loop Organics after we were impressed by their credentials and chose them to provide us with a high-quality supply of organic compost. They have set up a composting facility and have been helping us for the last three years,” Matt says.

The facility is able to process up to 50,000 tonnes of garden organics and biosolids to create specialised soil amendment products for rehabilitation purposes.

Matt says the organic material is vital to ensure AGL has the amount of topsoil it would require to complete site rehabilitation plans.

“Our relationship with Loop Organics is an important one, as they also provide us with expert rehabilitation advice in addition to the work they’re doing at the composting facility,” he says.

Loop Organics was established by Lisa Rawlinson and Dominic Flanagan, who have more than 50 years of experience in the organic waste management sector between the two of them.

The company operates large scale biosolids management and reuse programs for Central Coast Council, Hunter Water and Coliban Water, reusing more than 100,000 tonnes of biosolids and food waste per year.
through land application programs.

The Hunter Valley facility, located in Ravensworth, is situated within a market with a large demand for organic products and along B-double transport routes.

The project was supported by the Environment Trust as part of the NSW EPA’s Waste Less, Recycle More initiative funded by the waste levy.

It uses an open windrow composting process to create products that meet EPA NSW requirements over a number of weeks.

Dominic Flanagan, Loop Organics Environment Manager, says biosolids have been used in mine rehabilitation in the Hunter Valley for more than 20 years to provide increased nutrients and better soil quality for effective plant growth.

“Subsoil typically has limited value as plant growth media due to its poor structure, low levels of nutrients and organic matter and high salinity. Biosolids can be used to create the topsoil with properties suitable for the target vegetation,” he explains.

“We provide suitable biosolids to be used in mine rehabilitation, organise collection and transport to the site, manage the storage and application of biosolids with the mine site.”

Lisa Rawlinson, Loop Organics Director, says the company has experience with the land application of organic wastes since 1994, and provides many other organic services.

“We utilise biosolids as they are a valuable source of nitrogen, phosphorous, trace elements and moisture for mine rehabilitation and agricultural soils.

“They also help to create the correct mixture for composts using woody green waste and other high carbon-containing inputs,” she explains.

“In Sydney we also operate a liquid food waste soil injection program, using liquids from bakeries, poultry producers and food preparation and manufacturing facilities. These provide nutrients, organic matter and moisture to improve soil fertility.

Another service that Loop provides is sludge lagoon dewatering using a range of technologies, including centrifuges and geotextile bags. The dewatered materials can then be recycled by direct land application or composting.

“Our practical experience and technical understanding in reusing a wide range of organic wastes enables us to deliver proven and sustainable solutions for our clients,” Lisa says.

“We look forward to working with AGL Macquarie to help with the success of their rehabilitation program.”
Q. How has waste collection in the City of Adelaide evolved over time?
A. Community expectations change over time, influencing our services from single stream general waste collections to the introduction of kerbside recycling. These changes were delivered through partnering with Green Industries SA.

Q. How do you manage the challenges of urbanisation and a shift towards apartment living? Do the collection process or vehicles need to change?
A. Our development and density influences the design of our collection services. With the introduction of the three-bin system, it was noticed early on that this system works best in a low-density development environment but can create conflict in high-traffic (pedestrian, cycle and vehicle) and high-density areas. As such, we are developing a design guide for resource recovery in high-density areas and mixed-use buildings.

Q. Does this involve liaising with developers when new apartments are built in the city to ensure collections can support them safely?
A. We consider this as an important role yes, and have built strong relationships with developers, architects and strata management companies here in Adelaide.

Q. What do you look for in a successful tender and why?
A. Like all local government authorities, we have standard evaluation process with key elements to assess. As a part of this, a strong focus for us is assessing how partnering can assist in delivering our strategic goals for our community.

When it comes to selecting a waste contractor, in addition to the range of standard criteria we have from a procurement perspective, the City of Adelaide greatly values a strong, constructive partnering approach which includes shared values to ensure the best possible services and outcomes for our communities and the broader environment.

Q. How do smart waste bins support the City of Adelaide’s plan to become a smart city?
A. To become a smart city, data is crucial to guiding our decisions and community and our smart bin locations are supporting this aim. Using technology in delivering waste and recycling services is improving our resource efficiency, understanding of the volumes and nature of waste collected and has a positive impact on the customer experience of the city.

Q. How is food waste disposed of at City of Adelaide?
A. The City of Adelaide piloted food organics recycling in the late 2000s when we committed to delivering this service to all residents that had or accessed our green waste collection service.

As part of our services to apartment
living, we introduced a weekly collection for dedicated food organics. We now supply kitchen organic containers and compostable bags to support the pathway from kitchen to the bin.

Our apartment communities receive the same opportunities to recycle as other residents and this service change led to a significant increase in diversion away from landfill.

Q. What are the challenges going forward for the City of Adelaide in waste and how does council plan to solve them?

A. The transition of current waste and recycling services to a circular economy is a challenge for the City of Adelaide, along with the entire sector and other levels of government. Working with our communities to affect the practise and behaviours which are needed to effect the changes to deliver this approach is also a challenge for us all.

Our roles in engagement, education (behaviour change), procurement and service provision are all being reviewed as a part of our emerging Waste Management Strategy together with our role as an advocate and influencer with industry and state and Federal Governments.

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SOLO WASTE’S IVECO STRALIS MODEL IS PROVING TO BE HIGHLY ADAPTABLE IN ITS COMMERCIAL AND INDUSTRIAL WASTE COLLECTION EXPANSION IN WESTERN AUSTRALIA.

When the Swiss Army knife was introduced in the 1880s, it was made for soldiers that needed a foldable tool to open canned food and allow their rifle to be disassembled.

More than a century later, it has been adapted with even greater versatility to perform several tasks with a single tool. As businesses seek to increase their efficiencies, the same idea of using one product to perform multiple tasks applies to many industries, including waste.

Solo Resource Recovery is a major player in Australia’s waste industry, namely along the country’s eastern seaboard where it has provided waste solutions for government, business and households for more than 80 years.

Solo specialises in the collection, transport, processing and disposal of all types of waste from household to commercial, industrial, medical and hazardous, along with organics waste and recyclables. The company also manufactures a range of its own waste bodies, putting its decades of industry experience into practice.

More recently, Solo expanded into the Western Australian market, and rather than putting all of its faith into a single service, the company introduced a vehicle that could provide a number of waste collection options.

Dave Hancock, Solo Resource Recovery National Fleet Manager, says the company’s foray into Western Australia had thrown up some challenges.

“We started with a small fleet in WA and also chose vehicles and body configurations that would provide us with added flexibility – our IVECO Stralis is a good example of this,” Dave says.

Solo Waste’s Stralis 8x4 vacuum truck features a 10,000-litre tank mounted on a hooklift frame and also hauls a quad axle dog trailer fitted with a 15,000-litre tank.

The truck is kept busy six days per week working on a range of commercial and industrial projects along with wharf collection. Depending on the job at hand, the vehicle will either operate as a truck only or with the dog trailer as well.

According to Dave, a closer look behind the Stralis’ cabin sees a hook and tarp, which also allows the truck to be used for hooklift bin work. He says changing the bodies is a fast and straight-forward exercise.

“A five-minute changeover might be cutting it a little fine, but it shouldn’t take too much longer than that,” Dave says.

“The tanker body has some quick release couplings and then it’s just a case of disengaging a few hoses and sliding the body off. It’s as simple as that.

“Coming into the WA market, it was ideal that we could cover off a couple of different types of waste collection with a single truck and this vehicle has allowed us to do this, admittedly though its working life to date has mainly been as a vacuum truck.”

This Stralis is powered by a Cursor Cursor engine.
13 engine producing 500 horsepower and 2300 newton metres of torque from a low 1000 revolutions per minute.

The engine is matched to the Eurotronic 16-speed automated transmission while smoothing out the bumps is front and rear airbag suspension.

Dave says that the Stralis is performing well and is popular with the driver.

“The Stralis works hard and is often operating near its maximum weight. Some days it can travel up to 600 kilometres and, once on a job site, is idling for extended time at 1000 revolutions per minute while the pump is operating – everything runs off the engine,” Dave says.

“I’m impressed with the fuel efficiency, despite the weight and idle times it’s still returning figures of around 19.4 litres per hour. That’s pretty good going.

“For this truck we normally use one driver, given that it’s dangerous liquids registered. He has the extra training needed to drive and operate the vehicle.

“He enjoys driving it. It’s a comfortable work environment and does the job exactly as it should.”

Given Solo Resource Recovery’s sizeable investment in the truck and body, it will remain on fleet for around 10 years. It’s also regularly serviced and maintained to ensure this longevity. Dave says that maintenance responsibilities are shared between the company’s in-house mechanic and IVECO Dealership AV Trucks.

“We have our own workshop but still being early days in the operation we only have one full time mechanic at this stage,” Dave says.

“He’s kept pretty busy working on our fleet of 17 units, so we also call on the local IVECO dealership to help out. The arrangement works well for us.”

“It was ideal that we could cover off a couple of different types of waste collection with a single truck and this vehicle has allowed us to do this.”

Dave Hancock, Solo Resource Recovery National Fleet Manager

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Blind spot relief

As part of a move to increase the safety of its customers, SUEZ has applied an integrated system of on-board mass and surveillance systems to its operations in WA.

Following its successes with Brisbane City Council, SUEZ has applied many of its safety learnings across its collections in Western Australia.

To improve the safety and security of its fleet, SUEZ earlier this year installed eight cameras on 148 of its vehicles operating in Brisbane, which enabled front forward, side and rear-facing lines of sight. The cameras offered recording and images and aimed to support driver safety by providing evidence for council should any incidents occur.

In Western Australia, SUEZ has looked to a best practice CORE System that incorporates a package of Hi Tech Rear Vision cameras and on-board mass systems in response to feedback from its customers.

Ken Cowl, State Collections Manager, WA at SUEZ Recycling & Recovery Australia, says that with urban encroachment and high-density living taking hold in cities like Perth, a best practice approach was required to increase safety around trucks during bin collection.

“Increased density through housing infill means trucks will be parked stationary for slightly longer periods of time. Instead of emptying one bin, drivers could be emptying three or four,” Ken explains.

“In our local government collections, there are up to 1200 lifts being performed a day, which can mean interaction with the public and increase the potential risk of hazards.”

Ken says that the Hi Tech Rear Vision cameras were chosen due to their reputation for quality in previous SUEZ operations. Hi Tech Rear Vision Founder Fong Tio tailor-made the cameras for the Brisbane operations and Ken says the same systems were ideal for WA.

“We thought the camera system specified for Brisbane City Council was great to include in our new purchase because it met the needs of our drivers and took the blind spots out of the corners of trucks,” he says.

Ken says that the cameras were recently installed in SUEZ’s fleet, servicing a number of Perth councils this year transitioning to the CORE system, following a successful trial last year. SUEZ has installed eight cameras on its 16 vehicles as at July 2018, including on the dash, front grill, left-hand and right-hand front mirror, lifting arm, reverse, hopper and top-left body kerbside facing. He says the front grill camera offers 180-degree vision. The combination of all eight cameras ensures a 360-degree vision, ensuring the driver is across all lines of sight of the vehicle.

By July next year, more than 40 trucks will be installed with Hi Tech Rear Vision cameras.

Ken says the strong points of the technology are that the camera set-up identifies blind spots. He says the system provides high-quality images and DVR records that are able to hold about 22 days of data. Still images can be transmitted instantaneously to CORE for customers to look at. The systems
also offer the ability to search for minute-by-minute footage and swap disks easily.

He says the information is great at providing security against potential incidents.

“We will only take the hard drive out of the truck and plug it into the computer if there’s an incident that needs us to send video footage over the internet,” Ken says.

“Customers want accountability. They are able log in and look at the exceptions online. For example, if a driver sees a damaged car parked near a bin, they can take a picture of it as they’re approaching it to prove that it was already damaged beforehand.”

He says that another example could be if bins have been vandalised. Ken says that a driver can take images of the bins and report them directly to council, which can log on online to view the exception.

Ken says the cameras provide a high quality and reliable image.

“The images are better quality than anything we’ve worked with before. While this is the first system that takes photos, if you’re in a truck and looking at the camera system through a monitor, the pictures seem clearer.

“I think it takes pressure off drivers so they can focus more on their run, especially with relief drivers filling in for those on leave. It makes it a lot easier if they need to use a GPS.”

Ken adds that a time stamp is provided on the footage adding an extra layer of accountability to the set-up. He says that Fong provided a smooth service. While it is still very much early days in the rollout, Ken says there haven’t been any issues, which is a positive sign of the camera’s reliability.

“I think it takes pressure off drivers so they can focus more on their run, especially with relief drivers filling in for those on leave.”

Ken Cowl, SUEZ Recycling & Recovery Australia WA, State Collections Manager

ClearWeigh is the premier weighbridge management system available today. Completely flexible, the system may be customised to suit the waste, quarry, grain, mining and other industries. ClearWeigh is particularly suited to large multi-site installations, with all data automatically transferred from each site to a central database for reporting and administration. For local operations, data may also be reported on and administered at each local site.

ClearWeigh integrates seamlessly with traffic management systems such as boom gates, traffic lights and number plate recognition systems. Our short range RFID readers can be interfaced to all our weighbridge management systems to provide simple unmanned weighbridge operations or incorporate other facilities such as site access security.
Pushing the boundaries

WITH HIGH VOLUMES OF MATERIAL AND A NEED TO REDUCE LABOUR COSTS, NT RECYCLING SOLUTIONS LOOKED TO A NEW WAY OF THINKING TO BUILD ITS MATERIALS RECOVERY FACILITY.

Thinking laterally or “outside the box” requires one to break free of current thinking patterns, open one’s mind to new possibilities or distance oneself from traditional logic.

NT Recycling Solutions (NTRS) was faced with a unique set of parameters and required such a way of thinking. Early last year, the City of Darwin went out to tender to send its kerbside recycling materials to a materials recovery facility (MRF) – with NTRS getting involved in the processing through an arrangement with another organisation.

For NTRS, its aim was to develop a high-volume MRF with lower-than-average labour costs, a challenge somewhat impeded by conventional optical sorting technologies.

It was a problem compounded by the high glass content of its MRF’s throughputs. What was vitally important for NTRS was to distinguish between Container Deposit Scheme (CDS) containers and non-CDS containers, including HDPE, PET, aluminium and steel. The company therefore required an intelligent optical sorting line able to sort a variety of materials.

NTRS also had an existing baler and set up at its MRF so it was after a solution that could work within its existing infrastructure and equipment, while ensuring minimal downtime.

These factors prompted an innovative approach and the company turned to Wastech Engineering to provide a bespoke solution.

Dean Caton, General Manager of NTRS, explains that a stringent quality control system was crucial to solving the company’s challenges.

“Even though we have a CDS in Darwin, we still tend to get a lot of glass in our kerbside recycling bins,” Dean explains.

“The important consideration for us was to make sure that glass was removed at the start of the process as it can be a highly abrasive product.”

As an expert in concept design and the manufacture of turnkey solutions for materials recovery facilities, Wastech Engineering took on the challenge to help the site reduce its labour costs.

To work within NTRS’ requirements, Wastech designed and developed an optical sorting system in conjunction with US-based company MSS. Wastech engineers visited the site last year around April to ascertain the plant and componentry size required. Engineers put together 3D CAD designs, mapped traffic flow on the site and worked around NTRS productivity.

According to Neil Bone, Managing Director of Wastech Engineering, conventional optical sorters can be costly and often require multiple machines for a variety of materials.

“With low throughputs and a high quantity of containers, NTRS was looking to keep its costs down. We submitted that to MSS and they provided us with a technology that is usually used at the end of the MRF cycle on residuals as a last chance of finding materials that the system had missed,” Neil says.

He says the Wastech team had to think outside the square in discovering...
the MSS technology, as NTRS was not a greenfield site. Working among people and traffic was a challenge, so as to avoid any occupational health and safety issues and ensure easy access.

Dean says the Wastech team pushed the boundaries and went above and beyond, increasing the incline rate on the conveyor in order to ensure the systems fitted the plant design.

He says that Wastech designed an optical sorting system able to handle 10 different types of materials, which he says is unique. The sorting was designed to be conducted across 10 bunkers, with optional screening across three quality control stations if required.

“Wastech’s MSS optical sorting system has the intelligence to tell containers apart depending on size and density for 95 per cent of CDS materials, as well as a quality control station which limits our manual sorting to only one person,” Dean explains.

“We were working within a relatively tight space and the system fitted in well with other componentry.”

Dean says the optical sorting system uses machine learning to characterise the material type before being shot with compressed air and sent through to final bunkers to be baled and onsold.

“We have an additional quality control point for the material once it is out of the bunker and before it is baled to ensure any unwanted materials are removed,” Dean says.

He adds that NTRS also required a five-tonne-an-hour machine and 4500-tonne-a-year processing capacity, which he says can even be achieved with the machine running at about 50 to 60 per cent capacity. To fulfil these requirements, it was particularly important NTRS was operational the entire time, with Wastech completing the set-up in roughly eight to 10 weeks with no downtime.

He says Wastech also provided a high level of after-sales support, returning a month later to assist with fine-tuning and modifications to maximise efficiency.

“We had a list of 35 things to consider for the plant and to their credit they designed, changed and modified the gear.”

With a dedicated after-sales customer service support team of around 40, Wastech is there to ensure any problems are solved in a timely manner.

“Wastech also has access to MSS online system so they can jump online and look at what is going on should we have any issues,” Dean says.
“Only three per cent of Australia’s battery waste is recycled each year – this will ensure Victoria has one of the best e-waste collection infrastructure networks in the country,” Victorian Government Environment Minister Lily D’Ambrosio said in April this year.

The words come off the back of the government’s announcement to upgrade 130 e-waste collection sites across the country.

The government’s $16.5 million investment will coincide with the state’s ban on e-waste to landfill, which commences on 1 July 2019.

One company that has remained far ahead of these developments has been CMA Ecocycle. When Waste Management Review last caught up with CMA Ecocycle’s Daryl Moyle in its September 2018 issue, Daryl explained how the organisation had been keeping a close eye on overseas developments.

CMA ECOCYCLE HAS SPENT THE PAST 18 MONTHS PLANNING A FIRST-OF-ITS-KIND BATTERY RECYCLING PLANT SET TO BECOME A CRITICAL PART OF VICTORIA’S E-WASTE RECYCLING INFRASTRUCTURE NETWORK.
trends, having attended international conferences such as the International Congress for Battery Recycling for a number of years.

Its capabilities in lighting waste recycling remained well established through its processing plant and batch process distillers. Now, CMA is taking its abilities to the next level with the planning of a first-of-its-kind battery recycling plant expected for launch in April 2019.

The $2.5 million plant has capacity to process more than 5000 tonnes of batteries each year with the ability to identify more than 3000 battery types by chemistry, brand, size and shape. The plant has been made a reality thanks to a significant grant from Sustainability Victoria’s Resource Recovery Infrastructure Fund. To ensure the facility can service Victoria’s upcoming ban on e-waste to landfill, the facility combines a best practice combination of overseas turnkey solutions and Australian-engineered conveyors and sorting systems.

With CMA’s Chief Executive Officer Doug Rowe having visited international battery plants and conferences around the world, the facility has been in development for more than 18 months. Significant planning was required for CMA around selecting the right technology, e-waste bins and set-up. Daryl says that one of the most inspiring schemes CMA saw was the Bebat program in Belgium, which has operated for more than 20 years and obtained a 70 per cent collection rate in 2016 from its 24,366 collection points.

WHEELS IN MOTION
When planning the facility, CMA found a suitable space in its old silver recovery site at its Campbellfield facility in Melbourne, designing the plant from the ground up to fit into its existing building.

He says that the process flows formed a critical part of the planning process, including material inflows and outflows, with consideration given to ensuring mixed batteries are not stockpiled.

Daryl says that significant planning was required around the collection and types of bins required, with efforts to boost community engagement around battery recycling.

“We’ve looked at user-friendly containers that can sit on your kitchen bench and are aesthetically pleasing to ensure batteries are placed in there after being used,” Daryl says.

COLLECTION FOOTPRINT
As its collection process is already well established, CMA has also engaged with schools and offered its e-waste recycling services across the country. For other select clients, CMA offers degraded battery collection and storage boxes made of galvanised steel to prevent battery explosions. The lids of the boxes also contain aerosol fire extinguishers designed to suppress lithium battery fires. “The safety aspect is huge. We are bringing into the country the latest technology in dealing with lithium battery fires.”

Daryl says CMA has also been observing fires in electric vehicles and is at the forefront of technologies which could solve these challenges.

AUTOMATED SORTING
As far as the plant is concerned, the facility will involve a combination of pre-sorting, automated and manual sorting and separate all types of batteries into their respective streams, whether it be alkaline and zinc, which make up the greatest proportion of battery waste, or lead acid, nickel cadmium, nickel metal hydride, lithium and button cell batteries.

“We felt it was the best available technology in the world due to its ability to sort at such a wide range, speed, accuracy and identify up to 3000 brands.

“Plus, any new types of batteries that come into the market can be added to the program,” Daryl says.

He says the plant will not only be able to weigh batteries, but CMA will be aware of all batteries travelling through the system – a useful tool for batteries importers or others wanting to ascertain the lifespan of the variety of international and local brands.

Daryl says that while the plant is commercially viable now, CMA is a strong proponent of a battery stewardship scheme in Australia and active participant of the Battery Stewardship Council – which is tasked with designing an industry-led scheme. Daryl hopes a scheme will be presented to the next meeting of environment ministers in November for further consideration.

“This is Australia’s first major battery separation plant, but we brought it to Victoria for a reason to help with the e-waste ban to landfill,” Daryl says.

“We want to be part of the ban and support it so we can take our processing plant to the next stage as time goes by and see a total battery solution here in the country.”

CMA offers specialised storage boxes to prevent battery explosions.
A welcome presence from the Queensland Government saw three different state ministers and various government departments present at this year’s Future Waste Resources Convention 2018 – with more than 250 guests attending the three-day event.

With a waste strategy under development and waste levy scheduled to commence on 4 March, 2019, the trade exhibition and equipment displays offered an opportunity for delegates to discuss ways to improve the state’s waste diversion and resource recovery growth in line with industry aspirations and community expectations.

Held at Ipswich’s Workshops Rail Museum from 11-13 October, the event featured an address from the City of Ipswich, Veolia’s Henry Gundry on the company’s Rethinking Sustainability campaign, MRA Consulting Group’s Mike Ritchie discussing the impact of National Sword and Adam Nicholson on Queensland’s Container Refund Scheme.

Government representatives included an official opening from Queensland Environment Minister Leanne Enoch and a second day welcome address from Infrastructure Minister Cameron Dick. Michael Burke of the Department of State Development, Manufacturing, Infrastructure and Planning spoke of the bio economy, while Chris Hambling of the Department of Environment and Science discussed the state’s waste strategy that is currently under development. Mike Pickering of the Department of Transport and Main Roads also provided an update on pavements and sustainability.

In front of a large audience, Minister Enoch told businesses and local councils that the state government’s priority is to work with the community and industry to reduce landfill and encourage resource recovery.

“We are in a fortunate position to have internationally competitive businesses right here in Queensland, using cutting-edge technologies and processes for turning waste into valuable and profitable, products and services,” she said.

“We want to build on that competitive advantage.”

Rick Ralph, CEO of Waste, Recycling Industry Association of Queensland (WRIQ) told Waste Management Review that the event was the largest convention of its kind in Queensland history.

“It was the most broad group of stakeholders I’ve ever seen in my 14 years with the association,” Mr Ralph said.

“With three different state ministers and associate ministers present, all the messages were the same and aligned with where the industry wants to go.”

Mr Ralph said some of the highlights included an ABC-chaired panel on waste to energy and discussions on the bioeconomy and using food in a smarter manner. Sustainability Victoria’s (SV) Julian Sparks also spoke about how SV’s model could be applied to Queensland.

The event featured more than 30 trade exhibitions, including a diverse array of products, from new electric waste trucks, to concrete processors and odour and dust suppression technologies.

With more than 30 year’s experience in the resource efficiency sector, Ray Georgeson was a keynote speaker at

UK resource efficiency expert Ray Georgeson’s main message was not to delay with developing a waste strategy focused on market development.
Mr Georgeson noted that an industry strategy to encourage more recyclables isn’t going to happen overnight, so it’s about looking for quick wins in the mean time.

“My main message is don’t delay with developing a waste strategy focused on market development and developing local industry policy. Your journey has to start somewhere. It could be looking for quicker wins in improving your collection system and quality of materials,” Mr Georgeson said.

“Short-term markets can be found, or policy improvements made over time, to address issues such as procurement and mandatory recycled content. It would take even the best government in the world at least a year to formulate legislation and get a strategy through parliament.”

A landmark announcement of Future Waste Resources was that WRIQ would be hosting a new event next year in the form of an equipment field day from 28 to 29 August, 2019. The Australia-wide event will be held in a new venue in south-east Queensland. It will feature equipment demonstrations, in a field day to showcase innovative waste and recycling technologies such as drones, trucks and water treatment.

“I am confident that Ipswich will not be known as the dumping ground of the resource recovery sector but rather the innovation capital in the fullness of time,” Mr Ralph said.
On the outskirts of Sydney about 50 kilometres northwest of the central business district, artisans bend and fabricate steel.

Hydraulic control valves are fitted, and hydraulic tubing is bent into shape, as craftspeople are hard at work building and assembling a range of components. Sheet metal is cut and formed into shape as tradespeople build load boards, decks, arms and other components to detailed specifications.

It’s just another day at West-Trans Equipment’s factory in Mulgrave, NSW. For more than 25 years, West-Trans has manufactured specialised truck bodies. Over this time, the company has responded to customer demands for tougher, more durable and focused pieces of equipment.

The journey began when owner Jim Whittle bought the business as a custom-truck body shop. Before long, demand for his hooklift and skip loaders escalated, and appreciation of the quality Jim was known for became more widely known. For the past 15 years, West-Trans has made building tough, reliable and well-engineered components its specialty.

Customising elements such as deck length, tie down points, hand rails, hook or chain unloading systems, West-Trans works with a range of small, medium and large enterprises to continually develop its products to meet the ever-increasing demand for quality and reliability in the waste collection industry. Adding finishing touches like custom colours, work lights, toolboxes, beacons or mesh in-filled load boards aims to add to the customer experience.

Andrew McKinna, National Sales & Marketing Manager, explains that West-Trans Equipment builds all major components in-house at the Mulgrave factory to ensure they meet the high standards its customers expect.
says West-Trans continually develops and refines its products to suit rugged Australian conditions.

The Mulgrave manufacturing hub comprises sections for manufacturing and fitting, with customer fit-ups, service and maintenance also available interstate.

At Mulgrave, once the bodies are fabricated, they travel across to the finishing and fitting section, painted to a customer-specific build colour or standard white. Customer-specific accessories such as hazard beacons, work lights, toolboxes and water tanks are also then fitted to specification.

“One of the things I try to convey to people is that when a hooklift is mounted onto a truck, it doesn’t look that heavy and substantial, but the hook alone weighs about 20 kilograms. They are really solid,” Andrew says.

The building of the sub-frame on a jig sees the start of the assembly process. All components are laid into the jig to ensure they remain in the right place to start fabrication.

“That does two things. It means that the product that you’re going to build is always the same because the materials are all held in the same place during fabrication.

“It’s also then faster for the fabricator because the materials are already square and the correct height so they can drop the components in and start welding, rather than having to check and measure. This improves quality and production efficiency,” Andrew says.

“We’ve innovated some of our manufacturing processes over the last two years. Each body was a one-off. What we’ve tried to do is standardise and streamline production.”

He says that to improve the accuracy and cleanliness of the end product, West-Trans now uses a one-piece laser-cut and pressed load board that used to be fabricated from a number of pieces. It is now faster to build, more accurate and presents better. Andrew says that the backboard carries West-Trans branding as part of its stamp of quality.

“Our cylinders are manufactured to our specifications to meet our specific requirements of quality, and durability. One of the defining things with our gear is that our cylinders and hydraulics are very solid,” Andrew says.

He says that most of the hydraulic pipework is brought in and bent in-house to shape, while most valves and hydraulic fitting are bought from local suppliers.

“We also buy all of small components from local businesses and our cylinders are built locally.”

With service operations covering NSW, VIC and WA and service agents in the other states and territories, Andrew notes that West-Trans’ national service network is ready to assist should anything go wrong.
There are currently no mandatory bin standards across Victoria, which means bins can come in all shapes and sizes. This diversity can present issues for transporters, as not all hooklifts can move all designs.

While Monash City Council primarily uses its own bins, the council wanted to ensure its hooklift would be able to handle those supplied by other carriers, if only to move them out of the way.

For this reason, Derek Naylor, Monash City Council Coordinator Fleet and Operations Centre Management, says the council selected a BoB ITK 26 hooklift fitted to a Volvo FM410 8x4 cab/chassis from distributors Vaclift and CMV Truck and Bus.

Derek says that the BoB hooklift provided several features that made it stand out compared with the other applicants, including the ability to use the same vehicle for wider and narrower bins.

“The council’s bins are fairly consistent. However, the multi rail allows us flexibility to move or transport other bins if we ever need to,” he says.

The BoB ITK 26 has an articulating jib with a specially designed hook that can pick up containers with pin heights between 1430 millimetres and 1610 millimetres automatically.

Derek says that prior to taking receipt of the new vehicle, the council had found that three of the four contract trucks weren’t able to pick up council’s bins.

“It came down to as little as 10 millimetre’s difference in rail width at times that restricted the loading,” he adds.

Another factor that influenced the procurement decision was the system’s additional front support arms and integrated front stability locks, which provide an extra two points of contact and support for loaded bins. The locking system engages to the front of the bin, providing greater security while in transit. Derek says having redundant capacity with the additional clamps gave confidence to council under the new Chain of Responsibility legislation.

Monash City Council expects the hooklift to travel 80,000 kilometres per year, which will make it one of the most travelled vehicles in the fleet. Derek says safety was one of the council’s major considerations, so the additional security was easy to justify.

“Hook trucks are inherently dangerous machines, as operators can’t always be 100 per cent confident about the load inside the bin. With the additional stability arms, we feel the driver is more able to feel any shifts in the centre of gravity.”

Derek says after-sales support from Vaclift and CMV Trucks has been excellent, with training provided the council’s drivers and mechanics about the Volvo chassis and detailed operation the hooklift and attached hydrotarp system.

“The team at Vaclift and CMV provided excellent documentation and individual hands-on coaching as each driver loaded bins and drove the loaded truck with the instructor on-board to provide real time instruction and guidance,” Derek adds.

“They gave us valuable feedback of our driver’s performance and provided us with an assessment of their skills at the end of the day. The driver’s feedback of the experience was very positive.

“Council expects many years of reliable operations.”

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Hiab Australia has introduced a range of small hooklifts to meet the growing challenge of narrow access for operators while ensuring greater safety and efficiency. The company is increasing its range of hooklifts and skip loaders to include the Multilift XR7 and Multilift XR10 Hooklifts (seven and 10 tonnes respectively). Its decades of experience in the European market are now being applied to meet the current challenges in Australia.

The Hiab Multilift XR10 and XR7 range aims to carry bigger payloads and enable access in tight spaces, with the goal of boosting operator return on investment all while remaining strong, robust and light.

The Hiab Multilift XR7 with its seven-tonne lifting capacity and the Hiab Multilift XR10 with its 10-tonne lifting capacity works to offer operators maximum performance and excellent functionality. The equipment’s low weight combined with extreme strength makes it a multipurpose tool.

As in all Hiab Multilift demountables, safety is a key priority in the XR series. Safety features include load-holding valves directly on the cylinders and a tipping lock mechanism.

Hiab also applied the latest 3D-CAD methods and modern production technology in the design and manufacturing of the XR range, which minimised the welding needed in construction and resulted in a stronger structure. The low weight/high strength ratio enables larger payloads, enhances the versatility of the vehicle and maximises its usage.

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Palfinger’s hookloaders were designed for maximum payload and efficiency of operation. The variety of models boast increased payloads and tipping capacity, low transport heights, hydraulic locking, an articulated arm, cab control and a range of other features.

Palfinger is able to offer hookloaders to suit a desired application, from the telescoping loaders for different container lengths loading, to its telescopic A systems which offer an ability to handle shorter containers.

High-tensile steel reduces hookloader weight for maximised payloads while optimising the weight to increase truck longevity and reduce fuel costs. Low build and compact subframes enables reduced transport heights, with a low centre of gravity providing better and safer driving conditions. The loading of higher containers increases transported volume.

Palfinger’s telescopic hookloaders also work to reduce horizontal forces and increase tipping capacity.

For increased safety, articulated arms allow very low loading angles and avoid load sliding, while offering under-roof and under-floor loading. Hydraulic locking secures the containers in the front while the crane operates, with tank containers or containers with hydraulic devices for very high and long containers. Cab controls are ergonomic and intuitive and offer magnetic fastening while thin cables facilitate cab control manipulation.

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With increasing costs and a need to determine greater accuracy in its billing, Power Waste Management looked to weight-based billing to reduce overloaded bins.

As the price of landfilling increases, businesses are becoming increasingly conscious of ensuring they have accurate weights and not overloading their bins as a result.

That’s according to Noel Mancuso, Advisor at the Sutherland Shire-based collection service Power Waste Management, who says that many of his customers are not aware of how much material can be recycled.

With a fleet of five trucks, Power Waste Management provides front and rear-lift bin services for a range of businesses in the Sydney area, including hospitality, retail, construction and medical companies, handling their general, recyclable or bulky waste.

To accurately understand how much to charge their clients, the company installed two Loadrite weighing systems last year.

“We installed the Loadrite system to ensure customers that are overloading their bins understand more about how they can manage their waste and to further discuss potential recycling opportunities,” he says.

“The system provides us with an accurate and reliable method of weighing each bin as it is loaded onto our trucks, which can be printed in the cab or sent electronically.”

The Loadrite system uses solid-state position sensors to continuously track the position of the lift arms to get an accurate reading of the weight of every bin lifted.

It also includes an auto-add mode, which adds each bin to the total weight of the payload along with customisable numeric fields for details such as customer identification, number and bin size.

By monitoring the weight of the total payload, Power Waste Management is able to enforce overloading regulations and let drivers know when a vehicle has reached its legal capacity.

Noel says this information helps reduce maintenance costs in the long term and is important for accountability under the new Chain of Responsibility laws.

“In today’s environment, you need to make sure your payload is legal at all times. The Loadrite system is able to perform the extremely important task of informing the driver of how much weight they are carrying at all times,” he explains.

“By reducing the amount of overloading, not only is it safer, but it also reduces the amount of wear and tear done to the truck in the long term.”

Since implementing the system, Noel says there has been an increase in productivity and cost efficiency from the streamlining of the weighing process and the reduced amount of labour required.

Noel adds that the system is easy to use for drivers, with a simple interface that can be connected to most onboard computers.

“The screen is relatively uncluttered meaning the driver is able to focus on what they’re doing with minimal distractions.”

One aspect that Noel says has been outstanding is the after-sales support from Loadrite.

“There is an excellent relationship between the two companies, and the team at Loadrite is always quick to ensure our vehicles’ scales are calibrated correctly,” he explains.

“All we need to do is make a phone call and they’re there to help us, no matter what.”

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TRANSPORT & WASTE SOLUTIONS AUSTRALIA’S NATIONAL MEASUREMENT INSTITUTE CERTIFIED SYSTEMS ARE SUPPORTING A PUSH TOWARDS INCREASED SAFETY IN THE WASTE COLLECTION INDUSTRY.

As a leading supplier of weighing systems and software, Transport & Waste Solutions Australia (TWSA) has seen increased demand for its services in the wake of new Chain of Responsibility (CoR) laws.

Since going live on 1 October, the new CoR laws have added an extra layer of accountability and safety to waste collection. Under the CoR, if you are named as a party in the chain of responsibility, and you exercise or are capable of exercising control or influence over any transport task, you have a responsibility to ensure you comply with the law.

By being able to provide accurate weights on their loads, TWSA’s systems and software have supported the shift to CoR in mitigating safety risks.

According to TWSA, the company is able to retrofit most popular trucks and weighing equipment for National Measurement Institute (NMI) certified class three and four weighing for rear-end compactors and front-end loaders. With more than 30 years of experience in waste equipment and repairing of a variety of makes and models, the company offers a range of services, including hydraulic repair, service and a total after-market solution.

Craig Lovell, Operations Manager at REMONDIS Australia (Taren Point), says that to improve the safety and accuracy of its vehicles, the company’s entire fleet was installed with weighing systems from TWSA.

The Taren Point facility is now equipped with four rear lifters with Green REL Bin weighing systems offered by TWSA. A further five front loaders have Green FEL systems. Both loaders and lifters are NMI-certified.

Craig says that the systems were first tested and installed on one truck around five years ago prior to being installed on all REMONDIS Australia (Taren Point) trucks.

He says the ability to read accurate weights allows the company to improve its productivity and assess its runs and change them as needed. Knowing accurate weights is also key to improving safety and ensuring drivers are not travelling overloaded, he adds.

“The systems also assist with charging customers that have heavier bins. We can provide better rates for those with lighter bins,” he says.

According to Transport Waste & Solutions, the Green REL Bin weigh system (rear end loader) uses robust Class III Certified Mloadcells that have 400 per cent overload protection. The systems can be tailored to exact requirements and are ideal for collecting and recording net and gross weights, highlighting excessive loads and recycling and incentive schemes.

The Green 3000 FEL aims to work in the toughest of conditions. The front loader loadcells are mounted between the forks and the hook and have accuracy of 0.03 kilograms right up to 3500 kilograms. Onboard computers, RFID, printer, collection software, GPS tracking and fleet management are also available.

In other areas of weighing, Griffith City Council in NSW equipped itself with TWSA’s Axtec OnBoard for axle weights to align with CoR laws. The Axtec OnBoard provides individual axle and gross vehicle weights for most vehicle types from 3.5 tonnes through to 26 and 32-tonne rigid for maximum weight artic and offers customer set-up and fit option, GPS connection, overload control, automatic downloads, automatic trailer detection and optional facilities.

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PRODUCT SPOTLIGHT – SOFTWARE AND SYSTEMS

CLEARWEIGH WASTE MANAGEMENT SOFTWARE

ClearWeigh marks the third generation of Newcastle Weighing Services’ (NSW) weighing systems for the waste industry.

Newcastle Weighing Services has supplied and installed hundreds of weighbridge management systems to local government and commercial organisations throughout Australia. Designed for flexibility and functionality, the system comprises software and hardware modules. ClearWeigh reporting collects information from a user’s facilities and delivers it to their desktop with informative and accurate reports. From waste movement to cash drawer reconciliation reports and audits and environment protection authority reports, ClearWeigh covers a range of reporting requirements, irrespective of location.

Suited to single and large multi-site installations, the modular design and highly-configurable interface supports an extensive range of external hardware devices that allow each site to be individually configured.

ClearWeigh’s data replication facilities allow sites to be replicated to one or more consolidated administration databases, with all remote sites administered from a central management system. The system supports a highly configurable security model, user defined documents, reports, costing rules and payment methods, in addition to multiple products per transaction and a robust structured query language client server database management system.

Since 1976, NWS has manufactured weighbridges and all types of weighbridge equipment. The ClearWeigh Waste Management software can interface with any make or model of weighbridge.

MANDALAY CS

Mandalay CS offers a complete solution to transaction ticketing, payment processing and data capture for all movements in and out of waste and quarry industry sites.

The system processes and captures vehicle movements while delivering critical functions such as payment processing, hardware interfaces and data capture. With more than 10 years of continuous development, Mandalay has offered a range of key features bundled into modules across ticketing, access control, driver control stations (advanced and basic), reporting, regulation and administration and security.

Its ticketing system offers docket printing, alerts, payments, till shift management and temporary account management. Ticketing and administration features ticket management, vouchers, vehicle management, image capturing, advanced driver management, multiple weighed products, product pricing and a range of other key features.

Mandalay CS’s reporting capabilities are complemented by its ability to integrate with the company’s naus platform and supporting products. Through naus, data can be used for integrating external systems through multiple suites of application programming interface; complex modelling and scenarios of multi-site environments for budgeting and forecasting; enhanced data insights using other sources of data and a variety of products already under development.

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Manufacturing in excess of 1000 hooklift bulk bins during the most recent financial year, TORO Waste Equipment has strengthened its reputation on building high-quality, well-designed steel bins.

As part of this growth, TORO Waste Equipment has been hard at work designing and developing a full range of stationary and integrated compactor bins with multiple installations across Melbourne and Sydney. The durable and low-maintenance products have been designed for private waste companies and their customers in the commercial and industrial sector.

Late last year, TORO launched its fully sealed Integrated Compactor bins ideal for wet and general waste compaction. The integrated mobile compactor bins are suited to deployment in locations where large amounts of waste and recycling are generated and require no special installation.

Michael Leong, TORO Managing Director, says the company has seen significant demand in shopping centres, with private waste management companies seeing the value of the high-volume compactor. He says the compactor offers more weight per lift and transport efficiency.

Michael says the company understands jobs are won and lost on delivery and installation time, which is why TORO has focused on standardisation and stock holding to reduce installation time.

“The key requirements from our customers are reliability, low maintenance, standardisation, simplicity and short delivery times and we have made these key priorities in the design of our bins,” Michael says.

He says that building innovative and connected systems is also a key requirement, which is why TORO has added features to its compactors such as a modem and SIM card to diagnose and capture compaction data.

“The system allows you to change settings remotely. We’re building a client portal which will allow customers to log into that unit at any point in time to see how it’s tracking,” Michael says.

He says that having the ability to adjust torque and current setting to suit a particular waste stream allows the bins to generate higher compaction rates, providing greater value to the client.

The highly mobile sealed compaction chamber of integrated compactor bins offers a low-feed opening for ease of use, auto reversing feature and smooth sides for digital wrap and client advertising.

Michael says that in response to customer feedback, all integrated compactors are manufactured with dual end pick-up and programmable logic controller with a modem for remote diagnostics and connectivity. He adds that rolled side and roof panels are also features that provide added strength and high visual appeal, in addition to a rear door seal with internal sump.

Optional extras include internal epoxy coating for rust resistance, nylon rollers, signage and full panel livery.

The compactor units are also available in a stationary configuration which come in a variety of difference capacities, from 10 to 35 cubic metres.

Michael says that TORO has an integrated nationwide service network and can cover any after-hours breakdowns 24-7 in all capital cities across Australia. TORO offers routine or scheduled servicing three times a year for the low-maintenance compactors.

“We’ve been building bins for close to 15 years and experience is our strength. We’re continuously looking for improvement and innovation,” he says.
TELFORD SMITH HAS LAUNCHED A NEW SMART BIN DESIGNED FOR AN 85 PER CENT MORE EFFICIENT COLLECTIONS PROCESS.

Smart investment

From fewer bin changeovers paving the way to staff efficiencies, to reduced trucks on the road lowering Australia’s emissions footprint, the benefits of a smart bin are a no brainer.

That’s according to Telford Smith, which has cemented its reputation in the area of indoor smart bins and is now entering the solar bins market with the launch of its Procopress RAY solar waste compactors.

The company’s waste compactor capabilities have already been proved with the Orwak TOM 1040, which holds up to seven times more waste than a conventional bin, right through to the TOM Junior, developed specifically for environments with special design requirements. Both systems are being deployed widely across the commercial and industrial market, from restaurants and cafes right through to airports, railroad stations and transportation hubs, shopping areas and other outlets.

David Picone, General Manager at Telford Smith Engineering, says that the ability to hold seven times more waste than conventional bins helps to significantly reduce transport costs to landfill.

“The payback on these bins is great for a shopping centre with a payback of 12 to 15 months in efficiencies on staff savings for collection,” David explains.

In one case study, Melbourne’s shopping centre giant Vicinity Centres was the first in Australia to install a TOM smart compacting bin. Installed at Chadstone Shopping Centre two weeks before Christmas, one of the largest shopping centres in the Southern Hemisphere, the bin’s installation allowed cleaners to clear more tables and get more patrons through a fresher environment.

A built-in sensor allows TOM to ascertain low-traffic periods and compress the waste to keep it compacted.

Highlight features include a motion sensor to understand when users approach, status indicator for fullness levels, an automatic door for hands-free operation and modem-based communication system to send SMS or emails when the bin is full or requires maintenance.

Justin Warke, Marketing Manager at Telford Smith, says the company’s smart bins allow for a tidier, more hygienic and therefore more inviting system. He adds that many can be branded with wrap-around advertising.

In terms of the company’s entry into the solar bins market, the new Procopress compactors for public spaces have been designed for an 85 per cent more efficient collections process with similar reductions to the carbon footprint. According to Telford Smith, it enables more than five times the original waste volume to be collected before emptying the bin becomes necessary.

The Procopress RAY uses a standard 120-litre bin with the waste hopper able to be locked and unlocked remotely if required for safety reasons. As with the other smart bins, the system sends an email notification when RAY is nearing full.

David says the company’s solar waste compactors offer a rust-proof design and are made of galvanised steel. The solid steel construction makes it resistant to vandalism and unwanted attention.

“We believe we’ve got the best bin on the market for various reasons. We follow a simple design so there are no handles and key holes – they open with an RFID card so that there is nowhere for people to put bubble gum or glass or cigarette butts,” David says.

He says after-sales support is crucial and is supported by Telford’s web-based portal that allows the company to resolve any collection issues promptly.

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Ingredients for success

MOBILE BINS AUSTRALIA’S RICHARD SMITH PROVIDES AN UPDATED SET OF TIPS FOR SELECTING THE RIGHT COMMERCIAL-GRADE BIN.

In his 30 years of experience, bin industry stalwart Richard Smith has constantly strived towards quality and innovation.

Throughout this time, Richard has kept his ear to the ground for industry trends as Managing Director of Mobile Bins Australia. He tells Waste Management Review that the company has recently supported a range of Australian start-up waste collectors and provided them with the necessary advice to strengthen their customer service offering.

“The businesses that are going from strength to strength are those that manage their bin fleet and treat it with the respect a well presented bin fleet deserves,” Richard explains.

Richard says that his recent experiences have served as a timely reminder of a company’s responsibility to provide the right advice – a key ingredient of success. For this reason, Richard provides five points of advice for his clients.

1) Determine a minimum volume: Richard and his team advise clients to determine a minimum volume that they retain for immediate response to a new client or service. He says this could be anywhere from five to 50 bins depending on the size of the waste collection company. Once clients reach the minimum, this should trigger another order to top up their bin stocks.

2) Forecast those volumes: Establishing a forecast of anywhere between two to six months could be vital depending on the bin sizes and volumes a company is estimated to require, Richard says. He says this will help the bin supplier provide, and have on hand, the right colours and sizes and hot stamp and deliver bins to the client quickly.

3) Pick a colour scheme in advance: Richard says that picking a colour scheme that adheres to Australian standards commonly accepted by the Australian public is key. While mixing and matching unique colours and combinations can help separate businesses from the pack, Richard advises customers to help blend an engaging and accurate colour scheme that will be readily available and look the part.

4) More intricate services may be required: Richard notes that some commercial and industrial operators and councils may require an additional layer of security branding and, as such, it pays to consult an expert. He says Mobile Bins Australia encountered a recent Victorian regional council that required a unique serial number hot stamp with council logo and alpha and numerical numbers, in addition to a waste identification. Richard notes that multiple hot stamps may take longer – which is why planning and forecasting are crucial.

5) Always ask about the bin supplier’s terms: Richard says that too many clients have experienced the pitfalls of inferior products. He asks customers to always read and ask bin suppliers about their respective warranties and how these work, as well as general terms and conditions.

Richard says that Mobile Bins Australia and its team move quickly to make a determination if there’s been any manufacturing defect and quickly resolve the issue of a client.

Final thoughts: To provide an even higher quality of service, Richard says that Mobile Bins Australia is now offering exclusive arrangements with loyal platinum, gold and silver customers. If customers meet key criteria that includes spend per month, he says discounts can be afforded in addition to other services such as additional hot stamping and services at no extra charge.

“Sometimes our client may benefit from entering into an exclusive arrangement with us to achieve greater customisation and services, but is permitted to buy outside this agreement in the event we can’t supply.”

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Waste Management Review is a “must read” for those leading, working in, or associated with the industry.
Dependable cleaning

TO HELP IMPROVE SAFETY AND PERFORMANCE FOR FACILITY MANAGERS, TENNANT AUSTRALIA & NEW ZEALAND HAS UNVEILED ITS NEWEST BRAND OF AUTOMATIC SCRUBBERS.

Since 1870, Tennant Company has worked to empower its customers to reduce their environmental impact and create a cleaner, safer and healthier world.

Its products have spanned equipment for cleaning and maintaining surfaces in industrial, commercial and outdoor environments; detergent-free cleaning technologies; and commercial floor coating systems for protecting and upgrading surfaces.

According to the organisation, Tennant Company’s extensive global field service network has seen it achieve sales of $1 billion in 2017, selling its products directly to 15 countries and through distributors in more than 100 countries. In Australia, Tennant Australia is bringing new products and technologies to the marketplace to help facility managers find better floor care solutions to their cleaning and operational challenges.

In August of this year, Tennant Australia & New Zealand announced the unveiling of its newest automatic scrubber line – the Tennant T600 and T600e workhorse.

Chad Angeli, General Manager, Tennant Australia and New Zealand, says the models were designed with the latest in cleaning technology to deliver a consistent, high-quality performance, while working even harder to meet the needs of today’s facility managers.

“The durable 5680/5700 line from Tennant has been providing customers from around the world with a unique value proposition for over 20 years. Its versatility has helped customers that span from large retail stores, to industrial manufacturing facilities,” Chad says.

“Now, the T600 workhorse takes what customers have always come to expect from the 5680/5700, but moves forward with a new design that makes it easier to use and a dependable cleaning result.”

In terms of versatility, the machine is able to clean a wide range of hard-floor surfaces with a choice of cleaning heads, including an orbital option. When compared to previous models, the large-scale 121-litre solution tank and 140-litre recovery tank allows users to scrub longer between empty and fill cycles. A variable speed control bail, propel toggle and speed setting are designed with operators in mind and all within reach for enhanced ease of use.

Easier maintenance is supported by the machine’s Smart-Fill automatic battery watering system (standard on T600/T600e), which offers a nearly maintenance-free battery watering system by removing the task of checking, opening and filling flooded batteries. It is also built to withstand the toughest environment with industrial-grade construction featuring corrosion-resistant scrub deck and rustproof polyethylene body and tanks and carries an exclusive 10-year warranty.

“For maintained safety, Tennant is the only company that has a listed Type EE battery-powered floor cleaning machine for use in a number of special hazardous environments,” Chad says.

The T600 and T600e replace Tennant’s current 5700/5680, which Chad says has been recognised for its durability, reliability and superior performance for more than a decade.

“Tennant ANZ is committed to bring more new products and technologies to the marketplace in the years ahead to help customers with solutions to their cleaning and operational challenges.”

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EXCAVATORS

Waste Management Review’s February 2019 issue explores how the latest excavators are helping operators lift more waste in an efficient and timely manner, while maintaining all the hallmark qualities of visibility, stability and comfort.

As a key communication platform to waste generators, service providers, manufacturers, councils and consultants, Waste Management Review is the ideal medium to reach a major market and detail exactly what makes your product stand out from the rest.

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Towards a circular economy

This year has brought a host of challenges for local governments, giving rise to calls for federal government leadership to promote and strengthen a circular economy in Australia, writes Australian Local Government Association President David O’Loughlin.

Waste management in Australia is currently in a state of review and revision. We are producing more waste and many of our current market solutions, materials pathways and collection services are no longer viable or sustainable.

In 2014-15, Australia generated 64 million tonnes of waste, with 54 per cent going to recycling, four per cent to energy recovery and a whopping 42 per cent to disposal in landfill and incineration, according to Blue Environment’s latest Exports of recyclables from Australia to China report.

The 2016 National Waste Report shows our rates of waste generation and recycling are around the average for a developed economy. However, as a nation we know (and our community increasingly expects) that we can do much more to reduce the amount of waste generated and make it easier for products to be recycled.

Having long been at the coal-face of waste management, no other level of government understands this urgent need more than local councils. We are the kerbside collectors, community educators and often the processors and landfill managers.

But 2018 has brought with it a range of new challenges for us to contend with. These include balancing the rising costs of collection and processing services with meeting the expectations of communities and ratepayers – all while continuing to encourage good waste management practices already occurring in most Australian households.

Recent decisions impacting the export of recyclates to overseas processors caught many off guard and the global collapse in prices triggered a chain of discussions and renegotiations between service providers and councils around the nation. The effects being felt at the local level to date have been varied. Some councils are reeling from the financial impact, some believe they are immune, while many are adopting very progressive policy positions regarding banning or phasing out single-use plastics and actively seeking to utilise their procurement power to preference purchase of products with high levels of recycling and to drive change in the marketplace.

The idea of moving to a more circular economy is not new. European nations have introduced a range of targets and initiatives to better capture and use resources already in the system and reduce the amount of new materials being added to the “global waste bin”. Australia has to play catch up, but we can certainly learn lessons from others along the way.

A move towards a circular economy requires system-wide
change. It affects material processing and application in product design. It affects the buying decisions we make, as consumers on everyday items as well as at commercial and government procurement levels. It also affects the end of life for products and packaging, when the materials change from being a resource or product to being regarded as waste or, hopefully, feedstock for other products.

This is where local government has a big role to play – providing collection services and working with recycling processors and product stewardship schemes to help turn waste into a resource, and returning as much as possible back into the system for the materials to be reused, recycled or composted.

But the responsibility to cultivate a circular economy doesn’t solely lie with local government. While the primary obligation for waste management in Australia is dealt with under state law, the Federal Government also has a critical role in promoting and strengthening a circular economy for a sustainable future. Failure to do so risks mounting stockpiles of recycled materials manufactured here and overseas, along with the associated safety concerns and ever-increasing amounts of potentially useful materials going to landfill.

At the next election, the Australian Local Government Association will call for the incoming Federal Government to play a more effective role in strengthening Australia’s circular economy.

They can achieve this by leading, developing and implementing a national waste and resource recovery strategy, in collaboration with key stakeholders, underpinned by circular economy principles, the waste hierarchy, product stewardship and extended producer responsibility. At a minimum the strategy should address six key areas:

1. More emphasis should be placed on extended producer responsibility, with a clear focus on improving the design and manufacturing of products and packaging – including supply chain considerations and imports – so that unnecessary, problematic or hazardous materials are avoided, volumes are reduced and material content is more easily reprocessed into new products.

2. The need for clear and nationally consistent messaging in education campaigns with a focus on reducing consumption, encouraging waste avoidance and building on our good efforts to recycle more in our homes, community, government and businesses. This includes setting national targets for waste reduction, reuse, recycling and recovery.

3. Streamlining current collection systems to provide nationally sustainable and commercially viable options that capture valuable resources and create new onshore jobs. This should benefit all stakeholders in the product lifecycle – from the producer, consumer, ratepayer and processing industry to remanufacturers and purchasers – as well as the Australian economy.

4. Improving the number, capacity and technical capabilities of onshore processing facilities, including infrastructure upgrades, improving sorting technology and increasing processing fidelity.

5. Leveraging government procurement and funding opportunities to drive demand for products containing recycled materials and supporting local innovative product development to establish new market solutions.

6. Improving data capture, reporting and system improvement protocols so we can more consistently and thoroughly track performance and drive further improvements over time.

Failure to adopt a coordinated, Australia-wide approach will lead to inefficient local circular economies which may lack the scale and impact necessary to generate new industries, markets and job creation. Our advantage right now is that “waste” has taken a prominent place in the national conversation, so now is the time to put a strategy and system in place that will create a more sustainable future for the generations that come after us.

In 10 years’ time, my vision is that product manufacture and waste processing should be a flourishing, interconnected and economically viable industry union, where products and packaging are made from materials that are easily collected, efficiently reprocessed and profitably incorporated into new products as preferred feedstock.

This will benefit the environment, local and national industry, employment and investment activity, the national economy and local taxpayers. It will also lead to a higher level of social licence for manufacturers and greater participation in recycling by local consumers as they see tangible evidence of resource reuse in their local roads, park furniture and mulch, food production and their personal consumption choices.

I hope that this vision can become reality. Many consumers are asking why we are not there already.