Operator efficiency

City of Swan's Colin Pumphrey on the evolution of waste collection vehicles.
Whatever your waste management needs, GCM Enviro can provide you with the equipment and expertise that you need. From landfill compactors, shedders and compost windrow turners, through to state-of-the-art crushing and screening equipment, GCM Enviro has it all.

Top quality equipment from world-renowned manufacturers.

**Landfill Compactor**
- The most productive compactor on the market
- A minimum of 10% better compaction than any other compactor
- Extends the landfill’s life expectancy by several years
- Increases revenue with better airspace management

**Shark Shredder**
- The most versatile waste shredder on the market
- Applicable even for the most challenging materials
- Produce anything from 50 to 500mm particle size
- Mobile diesel and stationary electric models available

Speak to us today!

Ph: 02 9457 9399
Email: info@gcmenviro.com.au
www.gcmenviro.com
In this issue

Features

20 TURNING THE KEY
Oceania Clean Energy Solutions is bringing its gasification system to Australia earlier than anticipated, following significant interest from councils.

22 ENERGETIC INNOVATION
Waste Management Review speaks to Hitachi Zosen Inova Australia on the role of innovation in the budding waste to energy sector.

24 REDESIGNING THE WHEEL
Tyre Stewardship Australia is turning its focus to the latest iteration of its market development fund – demonstration and infrastructure.

28 A NEW CYCLE
Australian tyre recycler Tyrecycle is hoping to play an expanded role in the clean-up of legacy end-of-life tyre stockpiles across Australia.

30 FROM NDD TO RESOURCE
Dealing with large-scale infrastructure projects in Melbourne has led to new resource recovery solutions.

32 VALIDATING VOUCHERS
To help councils reduce risks and save funds, Mandalay Technologies is educating them in managing community waste collection vouchers.

40 KEEPING IT GREEN
Waste Management Review speaks to Green Industries SA’s Vaughan Levitzke about the work that has gone into achieving the highest diversion rate out of every state.

44 THE BATTLE CONTINUES
The War on Waste’s Craig Reucassel speaks to Waste Management Review about waste to energy and coffee cups.

48 CIRCULAR SUPPLY CHAINS
Australia Post’s Andrew Sellick outlines the approach required to help the nation transition to a circular economy.

50 A NEW WAY FORWARD
This year’s Australian Packaging Covenant Awards (APCO) demonstrated the conversation is shifting to taking a whole-of-life cycle focus for packaging, writes APCO CEO Brooke Donnelly.

58 SAFETY REFORMATION
The first type-approved on-board mass systems marks a momentous shift towards greater accountability, according to Transport Certification Australia.

Regulars

6 NEWS
56 PROMOTIONAL FEATURES
69 LAST WORD
IT’S BEEN A BUSY FEW MONTHS FOR THE RESOURCE RECOVERY sector as new facility contracts and tenders go out to market.

In July, ResourceCo and Cleanaway opened their jointly-owned process engineered fuel facility in Sydney’s Wetherill Park.

August saw Resource Resolution Pty Ltd apply to EPA Victoria for a $12 million a year liquid food waste processing facility that would produce biogas. That same month in NSW, Byron Shire Council opened an expression of interest for the supply of commercial organic waste to a proposed Bioenergy Plant in Byron Bay.

The message is clear – waste to energy (WtE) is happening and increasingly becoming an option for private sector and council operators alike. The topical subject matter offers the ideal timing for us to dedicate an entire featured topic dedicated to WtE.

On page 18, Chairman of the Waste to Energy Forum Barry Sullivan kicks off the section by discussing the various forms of WtE and the community education required to make it a reality.

Oceania Clean Energy Solutions’ Jayson Maskell-Drew similarly tells Waste Management Review on page 20 that the business was initially looking at bringing its WtE systems to Australia with a slow build up, but demand in the local government sector increased off the back of rising power prices in Australia and it commercialised it earlier than expected.

Earlier this year, the ABC’s Foreign Correspondent also featured a WtE episode on Sweden’s use of incineration, hosted by the War on Waste’s Craig Reucassel. Craig talks to Waste Management Review on page 44 about his views on WtE and its role in addressing Australia’s response to China’s ban on waste imports. We also speak to Craig about the success of the War on Waste.

WtE plants will likely continue to ramp up in Australia, as its role in a waste hierarchy has been clearly identified by the Federal Government as an option, in addition to the Victorian Government which is still finalising its position on it.

As stated by Sustainability Victoria’s Matt Genever in an online contributor piece for Waste Management Review: “Further downstream, we are seeing the emergence of new recycling technologies, such as waste to energy and mechanical biological treatment, to capture resources from residual waste.

“Australia is some way behind other jurisdictions in the application of these technologies and our sector will need to continue upskilling in this area.”

From the Editor

Being resourceful
CREATING VALUE FROM WASTE

At Repurpose It, we hold the fundamental belief that landfills are a thing of the past, and that all waste can be converted to valuable resources.
City of Ballarat signs waste to energy agreement with MRCB

A due diligence study can now be undertaken for the construction of a $300 million municipal waste to energy plant in the Ballarat West Employment Zone (BWEZ).

It comes as a result of the City of Ballarat signing a Waste to Energy Heads of Agreement with the Malaysian Resources Corporation Berhad (MRCB).

The City of Ballarat has been planning for a waste to energy facility for five years, which would divert 60 per cent of the city’s waste into an energy source for industries and reduce the current regional landfill’s environmental impacts.

Currently, 30,000 tonnes of waste are deposited in the landfill each year, with waste disposal costing more than $18 million per year.

It is estimated that the plant would increase the size of Ballarat’s economy by $202 million through building and flow-on effects, with about 420 jobs created during construction and 120 ongoing jobs.

MRCB’s technology partner, Babcock and Wilcox Volund, built its first waste to energy plant in 1931 and has gone on to build more in the United States, China, Sweden, Ireland, Denmark, Malaysia and Korea.

City of Ballarat Mayor Cr Samantha McIntosh said the Western region was already a leader in renewable energy production, particularly wind energy, but this announcement would further enhance its standing.

“Signing this Heads of Agreement means we are one significant step closer to a Waste to Energy plant in Ballarat that would be a regional solution to our waste reduction issues while providing an affordable and reliable energy source,” Cr McIntosh said.

“It would also be a driving force in attracting industries and employment to BWEZ by delivering a uniquely competitive advantage.”

“We will also maintain our commitment to minimising waste through continual education about reuse and recycling.”

MRCB’s Group Managing Director Imran Salim arrived from Kuala Lumpur to witness the Heads of Agreement signing by Ravi Krishnan, CEO of MRCB International. “MRCB is delighted to be in Ballarat and looks forward to working closely with the City of Ballarat and the wider community on providing a world class facility,” Mr Salim said.
4 Elements of Voucher Management Best Practice

WEBINAR SERIES

Hosted by Simon Kalinowski
(CEO, Mandalay Technologies)

We will cover:

✓ Auditability
✓ Cost Effectiveness
✓ Fit for Purpose
✓ Analytics

Register now >>
naus.com/voucher-webinars
In a move to get Queensland councils levy ready, the state government will invest $5 million before the introduction of the waste disposal levy on 4 March, 2019.

Local governments can apply for funding under the 2018-19 Local Government Levy Ready Grant Program to support infrastructure improvements at waste disposal facilities.

The program will be open for submissions between 31 August and 12 October, 2018.

Possible examples of infrastructure are fencing, security cameras, traffic control, weighbridges, gatehouses, upgrading IT or signage.

The grant program is being administered by the department of Local Government, Racing and Multicultural Affairs on behalf of the Department of Environment and Science.

Queensland Environment Minister Leanne Enoch said the Queensland Government wants to ensure councils have efficient, accurate and secure levy collection and landfill facilities.

“Local councils with waste disposal facilities where annual disposal of more than 5,000 tonnes of waste is allowed can apply for infrastructure funding for weighbridges and gatehouses,” Ms Enoch said.

“The Queensland Government is committed to making sure there is no impact on municipal waste collection through the introduction of the waste levy.

“There will be no extra cost to putting your wheelie bin on the footpath each week and we are keeping that commitment,” she said.

Ms Enoch said Queensland’s new waste disposal levy would also lead to the creation of jobs, local waste management and resource recovery solutions and market development, particularly in regional areas.

“This will provide a growing incentive for the community and business to take advantage of expanding resource recovery and recycling options across the state,” she said.

“The levy will also bring Queensland in line with New South Wales, Victoria, South Australia, and Western Australia, which have similar levies.

Queensland introduced a waste levy in 2011, which saw resource recovery companies investing in new recycling and processing infrastructure, however it was later repealed.

Queensland Local Government Minister Stirling Hinchliffe said the amount of waste generated in Queensland was increasing faster than Queensland’s population was growing.

“Reintroducing a waste disposal levy is part of our broader strategy to improve waste recycling and recovery and support jobs growth,” Mr Hinchliffe said.

“Our local councils will play a key role in helping their communities reduce waste and increase resource recovery.”
IVECO Australia has a long and proud history of local truck manufacturing in this country, which began with the opening of our Dandenong manufacturing plant in 1952. Since then, over 230,000 trucks have been manufactured at Dandenong, more than any other truck manufacturer in Australia – and today the plant continues to build trucks, including ACCO and Stralis models, along with the Metro and Delta bus chassis. IVECO is proudly and successfully building world-class products in Australia for the local market – and with production of additional models commencing in our Dandenong plant this year, we look forward to building an even brighter future for Australian truck manufacturing.

Thanks to those who support local manufacturers.

THAT’S COMMITMENT. 
THAT’S AUSTRALIAN JOBS. 
THAT’S IVECO.
Ecostar’s Hextra Screen takes to the road

Since arriving in Australia three months ago, the mobile Ecostar Hextra Dynamic Screen has been rolling through demonstrations on compost and other problematic waste streams. According to sole distributor CSS Equipment, the demos have shown Ecostar to be economical, fast, and a highly flexible resource recovery tool. Making quick work of wet sticky compost and green waste in Melbourne, Woollongong and Sydney, the demonstrations have highlighted the effectiveness of the machine’s patented non-wrapping and non-clogging technology on this difficult waste stream.

CSS Equipment’s Neil Coyle said the speedy and flexible Ecostar mobile screen recently headed to Queensland to prove itself again on problematic scrap metal shredder flock.

“CSS Equipment Recycling Solutions is proud to be the sole distributor of Ecostar manufactured equipment in Australia, including and not limited to Ecostar dynamic screens,” Mr Coyle said.

“Purchase or book demonstrations of all Ecostar manufactured machinery directly with CSS Equipment to receive the benefit of the Ecostar warranty and spare parts service.”

NSW litter reduced by a third with help from Return and Earn

Litter in NSW has dropped by 37 per cent since 2013, with drink container litter being reduced by a third since the introduction of the Return and Earn scheme, according to new figures.

A report released from Keep Australia Beautiful has also found takeaway container litter has been reduced by 19 per cent from 2016 to 2017.

Print and advertising litter has also lowered by 35 percent from 2016 to 2017.

NSW Government Environment Minister Gabrielle Upton said Return and Earn’s impact can be seen by looking at the scheme coordinator’s figures for the three months from March to May 2018, which show it collected 67 per cent of all eligible containers supplied into NSW in that period.

“This shows the immediate positive impact the container deposit scheme is having on reducing drink container litter, which is the largest proportion of all litter volume in NSW,” Ms Upton said.

“Overall, there has been a 33 per cent drop in Return and Earn eligible drink containers in the litter stream since November 2017 – the month before the scheme was introduced on 1 December.

“On average, three million containers a day are being collected at return points. More than 560 million containers have been processed by Return and Earn so far and as more collection points are rolled out, these results can only increase and the amount of litter will decrease,” she said.

Ms Upton said the NSW Government’s commitment of $30 million to 2021 to reduce litter and littering behaviour through the Waste Less, Recycle More initiative is having the right effect. The program began in 2017 and will run until 2021.
No-one in Australia goes further in recycling rubber.

Every year, thousands of tonnes of tyres are dumped illegally. This is a major environmental and public health concern; but it needn’t be.

In Australia, Tyrecycle is the market leader in tyre recycling, with a national network of collection and processing facilities.

Our recycled rubber is used for sporting and playground surfaces, tile adhesives, brake pads and much more. It’s just another way of working towards our own goal of zero waste to landfill.

To learn more about us visit tyrecycle.com.au
call 1300 4 TYRECYCLE (1300 489 732)
or email sales@tyrecycle.com.au
WITH A PUSH TOWARDS GREATER EFFICIENCIES, THE CITY OF SWAN NEEDED A SAFE AND ECONOMICAL FLEET TO SUPPORT RAPIDLY CHANGING WASTE COLLECTION CONDITIONS.

In the sweltering heat, a driver climbs Perth’s Darling Range fully laden with waste on route to the local landfill site.

Travelling and servicing households east of Perth’s CBD, the steep inclines and open highways prove challenging in the 40-degree summer.

In Perth’s City of Swan, waste drivers need a fuel efficient, comfortable, safe and environmentally friendly vehicle to work reliably and safely every day in the tough conditions.

Operating in high density, rural and semi-rural areas, each day up to 18 Volvo FE Euro 6 Dual Control vehicles collect about 1200-1500 bins each across Perth households over an area of 1042 square kilometres.

Colin Pumphrey, City of Swan Fleet and Waste Manager, has spent the last 15 years managing the city’s fleet and waste services. Having an engineering background, Colin’s knowledge of engine design and automotive engineering places him in good stead to manage all aspects of the city’s waste, including vehicle specifications, personnel, scheduling, recycling and depot operations.

DRIVING DOWN THE PRICE
The City of Swan manages all of its waste services in-house, from collection and recycling, to kerbside bulk materials and litter control. Colin says competing against private waste companies on cost and service can be a challenge – which is why council sought to drive numerous efficiencies across its waste collection.
and infrastructure.

Its efforts have seen it recognised as having less waste management costs per resident than the national average in a major survey of local government – the Australasian LG Performance Excellence Program 2017.

Colin says that being able to bring all the services together and share resources has offered council a significant competitive advantage.

“We don’t require multiple or complex contracts. We share the vehicles and plant equipment and personnel around all the various services,” Colin says.

He says that over his long career, safety and efficiency have become the main concern for the local government sector in managing their waste services.

“The public expects the best possible collection and recycling service to ensure they’re getting value for money on their rates. You have to provide that at a competitive price and that is a big challenge,” he says.

Colin says ongoing changes to waste collection, including three-bin systems, higher density living and an ageing population (leading to more retirement villages), mean the City of Swan will have to continue to adapt its services and infrastructure.

“The waste industry is an awakening giant and the collection industry still needs to go through a lot of adaptation in the City of Swan and many other Australian cities, particularly the ones on the urban fringes,” he says.

HOLISTIC PURCHASING DECISION

As part of a commitment to safety, the changing expectations of the public and the new infrastructure that comes with this, the City of Swan selected Volvo to provide a solution.

Volvo was successful in a competitive tender process to support the City of Swan’s bulk verge collections, providing it with a fleet of new FE Euro 6 Dual Control vehicles.

The City of Swan purchases two to three new vehicles each year in a replacement program to ensure it keeps pace with the latest technology. The fleet of dual control vehicles has now reached 20, with 18 vehicles running at any one time as two perform routine maintenance each day.

Colin says that keeping operational costs low and retaining a high level of service is a major challenge. For this reason, he says safety, whole-of-life costs and fuel economy are key factors when choosing to purchase waste trucks.

“In the City of Swan our selection of any plant and equipment has to go through a very rigorous evaluation process. The Volvo FE’s were chosen because of their safety record and operating efficiency,” he says.

He explains whole-of-life costing includes the purchase price, all operating costs and potential resale value after five years. Fuel efficiency, resale value and maintenance are part and parcel of the whole-of-life costing.

One of the key tenets of the FE Dual Control’s safety features are a left-hand steering circuit independent to the right with its own steering box. Independent left-hand steering means the driver has full control when picking up bins using the left-hand drive, while also maintaining the capability to drive at standard speeds on the highway in a right-hand position. Independent left and right-hand drive can be adjusted to suit drivers at the flick of a switch.

Colin says independent left-hand steering allows for a more precise alignment with bin pick-up and easier control of operation. He says that left-hand independent steering control maintains a full view of road placement, vehicle monitors and safety warning systems.

“Drivers are still able to identify all the visual areas they need to look at, but because it is easier for them, it enables them to get a more accurate pick-up and still be aware of everything else around them.”

To improve driver visibility, the FE Dual Control vehicles feature ergonomic mirror positions in addition to an optional back-up monitor.

“Good driver visibility is critical even with the various camera, mirror and sensor arrangements, which are all great tools,” Colin adds.

“The Volvo FE’s were chosen because of their safety record and operating efficiency.”

Colin Pumphrey, City of Swan Fleet and Waste Manager
He says driver acceptance has been high, with positive feedback provided on the left and right-hand side cab layout.

Volvo’s FE Euro 6 also offers an electronic braking system, which aims to provide instantaneous brake response under varying conditions.

The system offers hill start assist, reducing the risk of rolling back, maintaining traction and improving drivability in slippery or uneven road conditions.

Forward collision warning with emergency braking and lane keeping support, also lowers the risk of accidents and collisions, whether the truck is picking up bins in a residential area or on the highway travelling to the tip site. Large all-wheel disc brakes are standard features for increased safety and durability.

In order to deliver an ergonomic unit, the FE Euro 6 Dual Control features a significantly quieter cab and braking system when compared to previous models.

Colin says that an aerodynamic design allows for a relatively quiet operation at higher speeds.

**HIGH ENVIRONMENTAL STANDARDS**

Euro 6 is the latest in emissions standards which defines the acceptable limits for exhaust emissions of new vehicles sold in European Union and European Economic Area member states. Euro 6 compliant selective catalytic reduction is a way of converting nitrogen oxides (NOx), a key contributor to air pollution, into harmless diatomic nitrogen and water vapour.

Compared with previous models, Volvo estimates the Euro 6 engine has halved particulate emissions and reduces oxides of nitrogen oxides by close to 80 per cent. The engines have been engineered to comply without losing power or torque, or increasing fuel consumption.

“Euro 6 is exceptionally low in its emissions, be it nitrous oxide or hydrocarbons. They’re out in the suburbs operating among people and the environment all the time so it’s critical emissions are as low as possible,” Colin says.

A high level of after-sales support and keeping downtime to a minimum is also imperative for the City of Swan.

With two vehicles in the fleet performing routine maintenance every day, the City of Swan’s local Volvo truck dealer Truck Centre WA (TCWA) is there to reduce the number of backup vehicles on standby. TCWA also supports the City of Swan should there be any unforeseen problems out in the field.

“We don’t want to be in an area where we have to rely on someone overseas or on the east coast all the time. Having someone with a local product knowledge when you need them really helps a lot.”

With more than 82 dealerships, service and parts centres and customer service centres across Australia, Volvo is on hand to provide its customers with ongoing support. The company boasts a 96 per cent parts availability across group parts. The parts are supported by a 24-month part warranty of up to 500,000 kilometres on fitted parts when installed by an authorised Volvo workshop.

“Parts availability plays a key role and having suppliers with a good product knowledge is important. One of the things we base our buying criteria on is backup support and product knowledge,” Colin says.

“We service vehicle brakes quite often so the disc brakes on these vehicles provide a nice quick turnaround in the workshop.”

Telematics are also an important aspect of any waste collection business aiming to improve safety.

Rather than relying on external sources, Volvo has taken the initiative to include its own telematics system – Dynafleet – which provides instant access to fleet, fuel and driver information. The opening screen shows fleet performance data, including up to the last 30 days.

As the waste industry undergoes a seismic shift in collection infrastructure, Colin is buoyant about the possibilities.

“Increased use of telematics as well as autonomous features reduces the direct functions required by the driver itself which makes the operation safer and puts less pressure on them,” Colin says.

“Many features are already creeping into this area such as adaptive cruise control, lane departure warning systems and I-shift automated gear boxes. The ultimate change will be a fully or partially electric powered, autonomous waste collection truck.”
There has to be a better way!

There is.

Crumbed rubber asphalt using recycled tyres.

Over 56 million used tyres are generated in Australia, every single year.*

Tyre Stewardship Australia accredited recyclers are committed to supporting sustainable outcomes for the 56 million used tyres generated every year in Australia*. TSA is a Federal and State Government supported industry initiative and is free to join. Reduce your fleet footprint and get behind the drive towards sustainable management of your customer’s waste tyre stream. Make your business part of the solution – not the problem.

To join the drive for change contact:
tyrestewardship.org.au or info@tyrestewardship.org.au

*Volume based on Equivalent Passenger Units (EPUs). An EPU is a standard passenger car tyre. Full EPU Ratio Tables available at www.tyrestewardship.org.au
Q. Sydney’s Inner West Council (IWC) has adopted a zero waste vision. Aside from the implications of waste minimisation, what does this mean to council?
A. A community that is zero waste is one that avoids waste generation where any discarded materials are designed as a resource for other processes and no materials are discharged to land, air or water.

For IWC, it means that we are looking at all waste generated within the Inner West community (including council) and for opportunities to manage our materials as resources. As an amalgamated council, we’re reviewing and rethinking our services to move our spending upwards on the waste hierarchy to focus on avoidance, reuse and recycling and to minimise what we are dealing with at the bottom of the waste hierarchy.

Traditionally, councils have looked at end-of-pipe solutions for managing waste and most funds for waste were spent at the lower end of the hierarchy. Council can influence waste avoidance and reuse in the community by sharing information and skills and community building around waste issues, rather than simply waiting for technology to improve diversion rates.

Q. Tell us about some of the food waste programs council has in place for avoidance?
A. IWC programs have engaged across all levels of the waste hierarchy and engendered responsibility across various sectors.

Council and the community have different spheres of influence which need to be built into projects to increase resource recovery. For example, the community has the greatest influence in waste avoidance with support from council and other organisations and individuals.

When it comes to avoidance, council’s Food Fix program initially targeted families with young children after a successful trial it was extended to all IWC residents. We engaged 260 households through 15 skills-building workshops and 545 residents participated in food waste avoidance activities or demonstrations across 12 local events or festival stalls.

IWC’s evaluations showed an increase in participant’s motivation to avoid food waste, a change in behaviour around food waste and a reduction in food waste.

Q. How do council programs support food waste resource recovery?
A. For reusing, a range of composting programs were offered to empower our diverse community, including trials of the Compost Collective, Compost Huts and the Compost Revolution program.

The Compost Collective provided support for composting on common property within 96 apartment complexes and engaged 399 households. Residents were provided compost bins and turners, on-site training and follow up support and on average diverted 1.8 kilograms of organic waste per household per week.

The Compost Huts Trial engaged 120 households who took their food scraps to a council managed compost hut in one of two council reserves. The trial ran for 23 weeks at one hut and 19 weeks at the other.

Residents were able to participate by subscribing online and were provided with training and an access code to avoid contamination.

Compost Huts had a very positive response from the community, with 2.4 tonnes of food waste diverted over five months and 94 per cent of participants diverting all eligible waste from their red bin during the trial.

Compost Huts had the capacity to accept the waste from 60 households per hut (about 19 tonnes per hut per annum) and were found to work best in well-used multi-functional spaces.

Participants in the trial reported recommending the huts to other neighbours and found the community building aspect of public place composting enjoyable. The community were quick to take ownership of the compost huts as they had been involved in the siting and design of the huts since the project’s inception.

The widely known Compost Revolution program engaged 1350 residents last year by supplying equipment and online tutorials. Residents in IWC are eligible for a 50 per cent discount on composts and worm farms sold through the Compost Revolution. IWC also provided face-
to-face composting workshops and support for schools, residents and community gardens.

For recycling, Food Organics Only and Food Organics and Garden Organics (FOGO) programs offer a centralised solution for processing organic waste to residents who are not interested or able to compost but still wish to dispose of organic waste sustainably.

In the area of recovery, the garbage from most of the local government area is sent to the Veolia mechanical biological treatment facility in Woodlawn to recover food and other organics to produce low grade compost for landfill cover and mine site rehabilitation. This allows significant volumes of organic waste to be diverted from landfill.

In terms of disposal, food waste that isn’t recovered or collected separately via one of our programs ends up in landfill.

Q. What are some of council’s most proudest achievements in waste?
A. As a newly formed council, IWC has many opportunities ahead of us. We are currently reviewing all of our kerbside waste and recycling services. Our proudest achievement is rethinking the way we achieve zero waste collaboratively with our community. By empowering the community we learn from one another through the sharing of knowledge, resources and skills. Community embraced initiatives are often the most accepted as social norms.

Q. What do you look for in a successful tender and how do you go about it?
A. It’s all about the specifications – knowing exactly what you are tendering for and encouraging innovation and sustainability. Writing clear tender specifications for the service or goods required with strategic objectives clearly articulated and repeated throughout usually determines the quality of bids received.

It’s also about having an assessment criteria aligned to the specifications of the tender and weightings aligned to the values of the organisation. Value for money is more than financial comparisons – it incorporates social, environmental, economic and civic leadership.

Q. How is IWC helping to achieve the NSW target of 75 per cent of waste away from landfill by 2021-22?
A. IWC is examining what’s being generated and addressing problem wastes to determine where we can achieve the greatest impact on recovery. For example, audits showed that food makes up 37 per cent of the average garbage bin by weight so this is an obvious opportunity. As part of our integration plan, we’re working on reviewing all organics services, trials and opportunities to determine the future service for Inner West. The resource recovery targets are integral in determining a sustainable solution for the IW community.

Q. What are some of the challenges for resource recovery in NSW into the future and how does IWC hope to address these?
A. Access to transfer stations and facilities is a key challenge in a highly urbanised area as resource recovery is being pushed further out of the Sydney metropolitan area. It’s important to try and close the loop and avoid waste where possible as well as to manage what’s left as close to the point of generation as possible, rather than sending it away to be a burden on other communities.

Significant population growth is predicted within IWC and the urban landscape is changing dramatically with taller apartments across the skyline. We are tackling this issue at the planning stage collaboratively with our planning department to more effectively manage resources through a new development control plan.

The transient nature of communities and the different approaches to collection and processing that exist across the country creates an ongoing challenge to maintain awareness about services and what can and can’t be recycled. Product stewardship across a range of industries and fostering a circular economy through local recycling markets are the highest priorities for Australia at the moment. Local government is ready to move to support take-back programs and material collection but are looking to the states and Federal Government for leadership in setting the policy and national frameworks in these areas.
Harnessing waste as a method of energy generation is not a new practice. European governments and businesses have been active in the sector for decades developing newer versions of the technologies that are more efficient and environmentally friendly.

But waste to energy (WtE) plants often have an image problem. Barry Sullivan, Chairman of the Australian Waste to Energy Forum, says that the Australian public often think of burning waste billowing from smoke stacks when the topic is mentioned.

“None of the WtE technologies are unsafe, otherwise the state environment protection authorities wouldn’t allow them to be built in the first place. There’s a reputation that follows the technology which simply isn’t true,” Barry says.

He says that community education is key as it removes the misinterpretations that surround the technology and informs the community exactly what will occur and what it means for them in the long term. Barry says the last thing a business of government should do is to introduce a project without proper consultation, as it can lead to a knee-jerk rejection from the community.

Barry says that there’s a requirement to educate people on what WtE is.

“There are so many different ways of harnessing waste as a renewable energy source such as anaerobic digestion, pyrolysis, gasification, incineration and plasma gasification. Depending on the chosen technology outputs, this can consist of power or transport or fuels and power,” he says.

According to Barry, with no large scale WtE plants in Australia, certain stigmas make it difficult for investors to get behind the technology. He says it is often required that a site of a similar size using a similar feedstock is used as a reference facility. He says that some WtE technology is often considered a new technology that hasn’t been proven, when it has been around for 30 years and in operation for more than 20 years in other parts of the world. In addition, he says that Australia’s geography and population can present questions for the commercial viability of projects using some of the technologies that require large facilities to be built, resulting in potentially significant transport costs or the lack of potential feedstock that can be captured in a reasonable area.

Barry adds that it can be an uphill battle when trying to implement innovations, as it requires a substantial amount of proof to back up their claims. He says that WtE companies spend a lot of time and money to present very conclusive data on their technology. Barry says that unfortunately, it’s a lot easier for those who oppose the technologies to ignore this and claim otherwise often with no more than hear say, making it difficult for innovative solutions to be implemented. “This is why it is so important to start community education as early as possible into the process,” he says.

“Understand your waste, the amount and composition, and determine what you would like the facility to produce, whether it be just power or transport fuels. Understand the diversion rate you are trying to achieve. Lastly remember that WtE should only use post-recycled waste as a feedstock. The technologies are not trying to negatively impact the recycling program but are trying to keep waste out of the ground.”
There are three simple reasons we believe this is Australia’s best waste truck. The Volvo FE Dual Control is **Safer, Cleaner and Quieter**.

Careful design and clever ergonomics add to the safety dynamic of this world leading waste truck. The FE Euro 6 is built to deliver maximum environmental care and is engineered to be significantly quieter thanks to our unique Volvo Engine Brake system and lower engine noise.

So when you are considering your next waste truck, make sure you choose the safest, cleanest, quietest option available. For more information visit [volvotrucks.com.au](http://volvotrucks.com.au)
Turning the key

OCEANIA CLEAN ENERGY SOLUTIONS IS BRINGING ITS GASIFICATION SYSTEM TO AUSTRALIA EARLIER THAN ANTICIPATED, FOLLOWING SIGNIFICANT INTEREST FROM COUNCILS.

With state, territory and local governments making conscious decisions to close landfills or divert waste away from them, new resource recovery solutions are growing at a rapid rate.

For example, in Victoria, the Statewide Waste and Resource Recovery Plan 2018 highlights a steady decrease in the number of licenced landfills exempt from licensing. One reason cited in the plan is local governments choosing to close landfills after assessing current and long-term costs. Victorian Government Environment Minister Lily D’Ambrosio is quoted in the same report as expecting to see up to 72 per cent of materials recovered for recycling or energy. Coupled with China’s ban on waste imports, the need emerges for new resource recovery solutions in Australia.

About four years ago, Australian turnkey plant provider Oceania Clean Energy Solutions began looking at systems to deal with contamination such as asbestos and other chemicals but found greater demand in the waste to energy (WtE) landscape.

Jayson Maskell-drew, Technical Director at Oceania Clean Energy Solutions says the trigger for this demand was skyrocketing power prices in Australia. “Prior to the deployment of our system we looked at bringing it over and using it as a demonstration with a slow build up, but all of a sudden demand exploded,” Jayson says.

Oceania Clean Energy Solutions found a WtE solution in downdraft gasification, which it saw as having numerous benefits over incineration, including a lower carbon footprint and gasification has a much smaller emissions profile compared to incineration.

“This is because gasification uses much less air in the system when compared to incineration,” he says.

Jayson says that after testing the systems out in US states such as California, Oceania Clean Energy Solutions last year began commercialising a turnkey solution to the Australian market. Manufacturing the systems to custom-fit the local market, Jayson says the key factor in getting the plant ready for Australian councils was ensuring it had up to 60,000 hours commercial run time.

“The key goal was 60,000 our hours of operation so that end users didn’t have a research and development system, but a commercialised international best practice product,” he says.

Jayson says that dwindling landfill space causing some legacy issues and a level playing field on landfill levies in some states such as NSW makes Aries Clean Energy’s Downdraft Gasification System a viable business proposition.

“We are not reinventing the wheel, the only difference now was there was no price point or pinch previously for councils to make the switch, but with China’s ban on waste and rising power prices, they are now looking at alternative solutions,” he says.

He estimates an average payback period return on investment for a 50-tonne a day system of about three to four years with an approximate tipping fee of about $100 a tonne.

Aires Clean Energy’s Downdraft Gasification System is a thermo-chemical system capable of generating baseload power from a combination of feedstocks, including wastewater, wood, non-recyclable paper/cardboard, crop wastes, pre-sorted municipal waste, purpose-built biomass crops, shredded tyres and a range of other wastes.

According to Jeff, the scalable industrial-grade system offers numerous benefits beyond eliminating landfill disposal, including predictable financial returns, hedging against power price...
increases, converting biomass to green energy, reducing greenhouse gases from landfill and producing a valuable by-product with agricultural and industrial uses. “Depending on the scale of pricing we can put power to the grid for as low as six cents a kilowatt,” Jeff says.

He says that one of the benefits of the Downdraft Gasification System is it is small-scale and decentralised which allows it to be closer to waste generation and reduce transportation distances. The systems can also be tailored as required. Jeff says that reducing the transportation distance will reduce the emissions from the trucks that may have to haul waste long distances. “Additionally, our systems do not produce methane that is discharged into the air like a landfill or composting operation which allows our system to have a much smaller emissions profile,” Jeff says.

Jeff explains that the gasification process operates on low oxygen content and at high temperatures that cause the waste fed into the system to go through a phase change from a solid to a gas. “Because the system operates at low oxygen levels the system produces biochar and not fly ash like incinerators. Because of the low oxygen content inside the gasifier no burning takes place,” Jeff says.

Jeff notes that biochar produced from gasification has several benefits to the end user as it is a nonhazardous product that, when applied to soils, will help the soils retain water. He says that adding biochar to the soil is also a form of carbon sequestration.

He says that gasification will achieve better carbon conversion (more energy production) than pyrolysis as pyrolysis operates without oxygen compared to the starved oxygen environment of gasification. “Our gasification systems are a very simple and basic downdraft technology that has a low parasitic load (electrical load). Conversely, a plasma gasification system will have a much higher parasitic load and operate at very high temperatures.”

Once the syngas is produced, it is combusted in a process heater that generates thermal energy at 1800 Fahrenheit. The hot air is then sent through a heat exchanger to heat a thermal fluid. The thermal fluid system is a closed loop system that drives electricity generation through Aries Clean Energy’s Organic Rankine Cycle equipment. Jeff says that the system uses best available control technologies to ensure it meets local or federal emissions standards.
When the first iPhone was released in 2007, it started an innovation race in the smartphone industry to create multifunctional products.

Since then, 18 models of iPhone have been released, each with new features to allow Apple to continue playing a role as a market leader in the industry.

Waste to energy (WtE) companies like Hitachi Zosen Inova (HZI) also engage in the cycle of innovation, and are constantly researching, upgrading and retrofitting new technologies to keep their competitive edge.

Dr. Marc Stammbach, Managing Director at Hitachi Zosen Inova Australia (HZIA), says that because of the costs involved in building and running a plant over its long lifespan, it is important to find innovations that boost their efficiencies even by a small percentage.

“While one or two per cent may not sound like much, it adds up to tens of thousands of extra tonnes of waste processed per year,” Marc says.

“If we were to compare this with Formula 1, a vehicle which has an engine that is two per cent more powerful can mean the difference between first and second place.”

Once an innovation has been designed, built and tested at scale in a plant, it’s rolled out to early adopters and later becomes a standard offering for all future plants.

An example of this is HZI’s Low Excess Air Combustion Process (LEAP), which was first introduced at an industrial scale in Switzerland in 2015 at the Renergia Perlen facility.

A typical LEAP setup contains two phases, the mixed and partial combustion and the full combustion stage.

In the first stage, the primary gas from the grate is mixed and partially combusted with recirculated flue gas (RFG).

This gas contains no residual oxygen but is rich in carbon dioxide, hydrocarbons, hydrogen and nitrous oxides.

On the bottom ash discharge side, secondary air is used and mixed with the partially combusted RFG. This second stage oxidises the homogenised gas from stage one and helps increase the electricity production by 2.6 per cent and reduce the amount of ammonium hydroxide needed for the removal of nitrous oxide by 30 per cent.

This process increases the plant’s energy efficiency, as less thermal energy is lost in the process while also reducing the amount of nitrous oxides that are emitted.

HZI estimates that based on €50 per megawatt hour and €0.2 per kilogram of ammonium hydroxide, a plant with LEAP would save €215,000 (AUD 341,000) per line annually.

Marc says that low excess air combustion is used in combustion processes in all sorts of formats, whether it’s a jet engine or a family car, but for plants which cost millions of dollars, the implementation of the new technology must be done correctly.

“If you can increase the energy output of a facility by even a couple of per cent, that’s of great interest to us and our clients,” he says.

“Once we have proven the system, we introduce it quickly across our new
plant offerings, as it gives us a major cost advantage and lower operational costs.

“Because of the increased efficiency of the system, plants can operate longer, which allows more waste to be burnt and ensures a facility’s profitability,” he adds.

The LEAP technology will be rolled out in HZI’s upcoming WtE facility set to be built in East Rockingham in Western Australia.

The plant will aim to convert around 300,000 tonnes of residual waste per year into baseload energy, producing 29 megawatts of electricity at full capacity, which is enough to power 36,000 homes. The Rockingham Resource Recovery Facility is the first project of its kind for HZI in Australia and will divert 96 per cent of the Eastern Metropolitan Regional Council’s waste from landfill.

**TREASURE FROM TRASH**

Marc explains that HZI strongly believes in source separation of recyclables, organics and extracting the value from residual waste in Australia by turning it into energy instead of burying it in a landfill.

To harness the remaining valuable resources in the residual waste stream, the company has developed a patented recycling process which can extract valuable metals and minerals from the bottom ash. This method takes advantage of the increasing amount of electronic waste in feedstock.

Two of the methods that HZI have implemented are HZI Grate for Riddlings and HZI DryMining, both of which focus on the fine fractions smaller than 10 millimetres that are conventionally difficult to extract. There is value in this fraction as around 70 per cent of metals such as gold, aluminium, copper and zinc are found as fine fragments in the bottom ash.

The HZI Grate for Riddlings process separates the fine fractions directly from the grate and gives the smaller valuable particles access to fall through narrow gaps where they are sorted and removed.

HZI DryMining uses an automated treatment tower for the dry fine bottom ash, which can be managed directly from the control room.

The towers can process 10 tonnes per hour, with ferrous metals being separated before non-ferrous metals are sieved and sorted by density.

Marc says he is excited for the future of the waste industry and is eager to see how HZI’s innovations will contribute to it.

“It’s also exciting to see the interest in WtE increasing, especially as awareness around landfill issues grows.”
WITH FIVE YEARS OF RESEARCH AND DEVELOPMENT UNDERTAKEN, TYRE STEWARDSHIP AUSTRALIA IS NOW TURNING ITS FOCUS TO THE LATEST ITERATION OF ITS MARKET DEVELOPMENT FUND – DEMONSTRATION AND INFRASTRUCTURE.

In one of his former roles at Sustainability Victoria, environmental planning expert Liam O’Keefe recalls a workshop five years ago.

The workshop was held with the Australian Asphalt Pavement Association (AAPA), the Australian Road Research Board (ARRB), Department of Environment & Heritage Protection (EHP) and Transport and Main Roads (TMR) Queensland, VicRoads and other related authorities. Although it was early days for tyre-derived product commercialisation, Liam says it was one of the preliminary conversations for what came to be the National Market Development Strategy for Used Tyres.

“We did some research with Transport and Main Roads, EHP, ARRB, AAPA and Sustainability Victoria in the original collaborative works and we asked ourselves: what do we need to do to make this work?” Liam says.

He says a leading member of that project stated that a key factor for driving positive change in the roads sector was creating the political will to do so.

Over time, this created a shared awareness of the issues and a mutual understanding of the positive role each stakeholder group could play in providing positive outcomes for the resource recovery and road construction industries.

He says the hard work of agencies like AAPA, VicRoads, Sustainability Victoria, EHP, TMR and the tyre industry-backed Tyre Stewardship Australia (TSA) has seen the landscape change dramatically since then.

Since commencing its market development fund in late 2015, TSA has committed to funding more than $3 million in research and development across civil engineering, road and rail construction and thermal applications. Additionally, stakeholders such as AAPA, TMR, ARRB and VicRoads have facilitated the trials of the various rubber binder types within the respective sectors.

TSA has committed more than $3 million in research and development since 2015.

“The next step is servicing the market so that they can consume TDP on an ongoing basis and the simplest example is looking at rubberised roads as we know there is demand.”

Liam O’Keefe, Tyre Stewardship Australia Market Development Manager
“A lot of foundation work has gone into creating the conditions we have now,” Liam says.

“It really is about cohesion. Market development takes time. We are talking at least five years and it’s now just starting to come to fruition.”

According to the strategy, in 2009-10 about 66 per cent of end-of-life tyres went to landfill or an unknown fate. By 2015-16, the figure had reduced to 63 per cent. The efforts of government agencies have helped mitigate our ongoing tyre challenge, particularly when you consider end-of-life tyre generation increased by 16 per cent to 56.3 million equivalent passenger units over the same period.

**STRUCTURAL CHANGE**

In May this year, the ACCC announced it would grant the Tyre Stewardship Scheme a new authorisation for a further six years. The Tyre Stewardship Scheme’s reauthorisation comes with increased flexibility to its fund structure, allowing it to move beyond R&D with the release of its new Demonstration and Infrastructure fund portfolio.

“The initial fund was fairly narrow as there was a reluctance to negatively disrupt existing businesses within the sector. The R&D framework was then developed as a way of initiating new and emerging markets and potentially expanding on existing ones to support such players,” Liam explains.

“That’s worked well so far to create a portfolio of initiatives that demonstrate the value from a research perspective, but there’s a real demand to capitalise on the benefits of that research.”

He says demonstration and infrastructure will drive a harder and more immediate anticipated consumption of TDP.

“We want to support infrastructure that exists for a period of time and demonstrates capacity in the market to consume TDP on an ongoing basis,” Liam says.

He says a good example of demonstration and infrastructure was a University of Melbourne trial with Merlin Site Services to develop an optimum blend of permeable paving from used tyres on campus. The trial found a way to incorporate recycled tyres and use them to create urban paving that can provide water to nearby trees. A 2018 trial of the system involved four different pavement mixes for different uses, including footpaths, bike paths, car parks and low-volume traffic roads.

Liam says that numerous councils, in addition to a large urban infrastructure company, have already expressed interest in pursuing the paving option – which would be used in local government bike tracks and car parks very soon.

He says the next stage for the fund is to support end use consumption of more TDP to create further demand for recycled tyre product that TSA recyclers’ produce. For example, Liam says Victoria uses about 800,000 equivalent passenger units in its spray seals annually – a practice that TSA...
hopes to replicate in other states across Australia.

“The next step is servicing the market so that they can consume TDP on an ongoing basis and the simplest example is looking at rubberised roads as we know there is demand,” Liam says.

**TIME TO HIT THE ROAD**

One example of the collaborative effort of roads and government agencies is the development of new national specifications for crumb rubber modified asphalt by AAPA, TSA, TMR, Main Roads WA, Sustainability Victoria and the ARRB.

The specifications would see increased use of domestic crumb rubber modified open graded and gap graded asphalt. Crumb rubber modified binder has not been widely deployed in asphalt applications in Australia, rather historically it has primarily been used for spray sealing roads.

“There might be some companies which produce binders, but they have conventional set-ups and they might need to augment their manufacturing or production processes to be able to handle the rubberised content to ensure they don’t undermine the existing product use,” Liam says.

“If you want to put a separate production line, or dispersion equipment for new spray seal capacity, then we will support that type of tooling up to provide that service.”

Liam adds that it’s also about minimising the risk for producers.

“With spray seal, there’s not a lot of technical barriers anymore, it’s just about uptake and normalisation.”

**TYRE-DERIVED VALUE**

He says he has had consistent feedback from recyclers who have indicated to him that demand for TDP, in particular crumb for roads, is rising exponentially.

“The feedback we are receiving is that end-users such as binder makers are requesting more product earlier in the season, indicating a likely increase in market consumption. The tyre recycling industry is now assessing options for further investment to meet the potential increase in demand. If the trend continues, we are going to have the great problem in Australia that we can’t produce enough crumb, which creates a whole new set of challenges.”

He adds that as TSA focuses on greater outcomes in infrastructure, it will also address other elements that are required to support a strong market development program and market.

“What we need to get better at is data capture – monitoring the trends and identifying those shifts in consumption.”

And although TSA is evolving, Liam says that at the core, its role will stay the same.

“Although it sounds like a shift, it really doesn’t change the fundamentals of the process of the fund in terms of accepting applications, processing them and supporting different projects,” he says.

“We will still invest in the building blocks of development. We’ve still got R&D if people want to go that way, but what we really want to deliver is a strong and immediate impact to the sector. If you or your business have been considering up scaling and you need to de-risk the investment or demonstrate what you’re doing empirically, then come and talk to us. The funding round will be open until the end of November.”
Lighting
Australasia’s only end of life recycler for all types of lighting waste – (inc: Fluorescent Tubes and Globes/Lamps).

Fluoro Tubes
Domestic Globes/Lamps
Commercial Globes/Lamps

Batteries
Recycling solutions for all types and quantities of batteries in world class plant. From dry cell to the latest in electric powered car ev-batteries.

Mixed Domestic Batteries
Lead Acid Batteries
Commercial & EV-Batteries

E-Waste
Advanced sorting and separation systems for the recycling of all types and quantities of e-waste.

All types of Monitors, TVs, Displays
PCs, Laptops, Tablets
All other E-Waste

1300 32 62 92
www.cmaecocycle.net
AUSTRALIAN TYRE RECYCLER TYRECYLE IS HOPING TO PLAY AN EXPANDED ROLE IN THE CLEAN-UP OF LEGACY END-OF-LIFE TYRE STOCKPILES ACROSS AUSTRALIA THROUGH THE EXPANSION OF ITS COLLECTION AND PROCESSING CAPABILITIES.

With a national footprint of tyre-derived shredding and chipping plants across the country, Tyrecycle is the only EPA licenced tyre recycler in Victoria. Australia currently produces around 56 million tyres each year, with Tyrecycle playing a pivotal role in reducing the environmental, economic and social impact of those end-of-life tyres.

In 2017, the company worked with EPA Victoria to clean up a stockpile in excess of a million tyres on the outskirts of Victoria in Stawell. The operation saw the collection of 1.1 million equivalent passenger units.

Since then, the company has further enhanced its collection and processing capacity at its Somerton site and is looking further afield in taking on clean-up jobs across the country, with all materials processed within 24 hours of reaching Tyrecycle’s plant.

Clinton Habner, Tyrecycle National Sales Manager, says a recent project in Wedderburn in Victoria’s north saw the collection of 860 tonnes of tyres in under a month – equating to 100,000 equivalent passenger units.

Since then, the company has further enhanced its collection and processing capacity at its Somerton site and is looking further afield in taking on clean-up jobs across the country, with all materials processed within 24 hours of reaching Tyrecycle’s plant.

Clinton Habner, Tyrecycle National Sales Manager, says a recent project in Wedderburn in Victoria’s north saw the collection of 860 tonnes of tyres in under a month – equating to 100,000 equivalent passenger units.

The tyres were then processed immediately upon arrival at Tyrecycle’s Somerton site, including cleaning and shredding and/or crumbing. The shredded passenger tyres will be exported as tyre-derived fuel for use in cement kilns or in purpose-built power generation plants.

Clinton says Tyrecycle is continuing to invest in improved infrastructure and capital projects, looking to broaden its capability so it can tackle even more challenging remediation projects in an increasingly efficient way.

He says Tyrecycle is committed to doing what it can help reduce the impact of stockpiled end-of-life tyres.

“We’re focused on working in partnership with government and the community to identify and enact solutions to these legacy stockpiles through an end-to-end chain of responsibility.”

“We can tell customers how many tonnes were taken, what they paid and how they met their obligations in line with ethical use,” Clinton says.

Tyrecycle is also working to developing new end markets for the tyres, not just at an international level but also within the domestic sphere.

As well as producing tyre-derived fuel from passenger tyres, the company also recycles truck tyres into rubber crumb and granules for use in roads, playgrounds, sporting fields and civil engineering applications.

What Tyrecycle would like to see is an end to tyres being whole-baled for export – a position supported by the Australian Tyre Recyclers Association due to the biosecurity and safety risks.

Clinton says that by relying on a commoditised price, it only leaves these rogue operators vulnerable to stockpiling once the prices falls.

“What we really hope is we get the market structure and regulatory frameworks right. This will create an even playing field in the market and force rogue operators to comply with environmental and safety controls.

“In turn, this will give consumers peace of mind that when they leave their scrap tyres with a retailer they will be handled appropriately, not end up in a pyrolysis kiln in an ill-fated Asian country with poor emission controls. Currently, that is not always the case.”
Let Scania Finance put you behind the wheel of a brand new 8x4 Rigid.

For a limited time only Scania Finance is offering 3.99% finance on selected run-out model P, G and R-Series 8x4 Rigid*. The range comes equipped with all the extras that made them the most reliable and fuel efficient trucks in their class.

Add to this Scania’s reputation for driver comfort and safety and you’ve got a flexible vehicle ideally configured to suit a range of applications.

To take advantage of this limited offer contact Scania Finance Australia

1300 695 226
or your nearest Scania branch.

DISCLAIMER: This offer is available to approved business customers only (excluding fleet, government or rental buyers) on new PGR 8x4 vehicles purchased between July 1 2018 to October 31 2018 and paid by 31st December 2018, unless offer extended and whilst stocks last. Available on a Chattel Mortgage for 24, 36, 48 and 60 month terms. Not available in conjunction with any other offer. Finance available to approved business customers of Scania Finance Australia Pty Ltd ABN 32 609 637 596 only, standard credit assessment, lending criteria and fees apply.
DEALING WITH LARGE-SCALE INFRASTRUCTURE PROJECTS IN MELBOURNE HAS LED TO A NEED TO MINIMISE DISRUPTION BY USING NON-DESTRUCTIVE DIGGING, BUT THIS APPROACH IS PROMPTING NEW AND INNOVATIVE SOLUTIONS TO CLEAN UP THE RESULTING WASTE.

From Melbourne’s M80 Ring Road Upgrade to the Metro Tunnel project and the Hoddle Street widening – the prosperous growth of the city is effervescent.

While initial works mean more truck movements, excavations and disposals and minor disruptions, in the case of the Metro Tunnel, the end result is freed up space on the city loop, more trains across the state and a less crowded and more reliable train network.

Ensuring all of these works are completed in a timely manner rests with the hard working construction companies and their various contractors. To reduce disruption to amenities, many of these companies are turning to less invasive methods of construction and disposal, including non-destructive digging (NDD).

NDD is a way of safely excavating underground utilities such as pipes and cables to minimise damage and disruption. It is also used for service locating, water, gas electrical infrastructure renewal and soil investigations. However, despite the benefits over traditional excavation, NDD presents a new set of challenges in dealing with the waste as it arises in liquid/slurry form.

That’s according to Repurpose It’s George Hatzimanolis, who says that dealing with a liquid waste such as muds or slurries from hydro excavation waste is a very different proposition than dealing with excavation waste that is spadeable and dry.

“There are numerous challenges when handling hydro excavation waste, such as appropriate containment and water run off management, as well as ensuring that fit-for-purpose plant and equipment and trade waste agreements are in place to dewater the material prior to processing,” George says.

The EPA’s regulations around NDD are covered by its Industrial Waste - Classification for drilling mud. According to the document, drilling mud may comprise a mixture of naturally occurring rock and soil, organic matter and water and drilling fluid.

It notes that prior to commencing drilling or excavation activities, the waste producer must undertake a document assessment to demonstrate whether contamination could be present, and if so, then the site is to be managed as contaminated.

To process the hydro excavation waste and solve the challenges of tomorrow, Repurpose It is building a construction and demolition washing plant in Epping in Melbourne’s north. The plant will include an advanced water treatment system with a triple interceptor system and trade waste licence with Yarra Valley Water. The facility will be purpose-built to handle hydro excavation waste, with the materials delivered in sealed vessels and dewatered prior to the sludges being processed. In the washing plant, valuable resources such as sand and grit will be removed and converted to materials to onsell to the construction industry.

“The plant will deal with this growing waste stream in a best practice environment that manages the environmental risk, while obtaining the highest amount of resource recovery rates as possible to convert the material back to a resource for the construction industry,” George says.

As part of this, Repurpose It has partnered with Rangedale Drainage and Civil Services who work with various contractors around Melbourne. With more than 100 staff working 24 hours a day, seven days a week, the family-owned business has 24 non-destructive digging trucks working day and night on Melbourne projects. Rangedale is working on projects such as the M80 Ring Road Widening, Metro Tunnel and West Gate Tunnel projects.

Neil Kermeen, Managing Director of Rangedale Drainage Services, explains that its 24 trucks could produce up to 400 cubic metres of non-destructive digging slurry each day. In addition to the trucks, Rangedale also has five semi-vacuum tankers with a capacity of about 25 cubic metres per truck performing three to four loads per day – generating a significant amount of
NDD slurry.

“About 50 per cent of this is prescribed slurry. This is a categorised product that has to be transported and disposed of so we needed a licenced EPA facility,” Neil says.

“We currently have a lot of difficulty in finding licenced disposal sites that can handle the capacity and therefore for us to team up with Repurpose It is a given to fix this problem.”

Neil adds that this includes Category A, B and C prescribed industrial waste while Rangedale Drainage Services has its own recycling plant north-west of Melbourne’s CBD in Keilor East for clean slurry. He says that all of its prescribed industrial waste will go to Repurpose It at its Epping site.

Neil says that having a resource recovery strategy is of particular importance for Rangedale as it forms part of their tendering process.

“For example, with the West Gate Tunnel Project, it’s of major benefit for our clients to know that the material is going to a major resource recovery project.”

He says that because its vehicles are vacuum trucks, Rangedale is able to prevent any water run-off and dispose of the materials safely.

George adds that Repurpose It’s washing plant will be particularly crucial as new waste streams come online into the future. The washing plant will wash materials which include rail ballast, glass, excavation materials and demolition waste fines.

“New waste streams present challenges, but also opportunities as businesses invest in technologies to deal with the waste of tomorrow,” George says.

“If this waste doesn’t go to a facility to be dewatered it’s either landfilled or going to a paddock. That’s partly because of the volume of material and the lack of infrastructure to deal with it, which is why we’re investing in capacity not just in Melbourne’s north but across the city.”

George notes the EPA is updating its regulations around NDD with new waste streams being generated.

He says Repurpose It is following this closely to ensure the material is classified and disposed of according to current regulations.

NDD waste arises in liquid form, presenting a host of new challenges.
Validating vouchers

TO HELP COUNCILS REDUCE RISKS AND SAVE FUNDS, MANDALAY TECHNOLOGIES IS EDUCATING LOCAL GOVERNMENT AUTHORITIES ON MANAGING COMMUNITY WASTE COLLECTION VOUCHERS.

As part of their waste collection services, many councils provide residents with vouchers for annual self-haul disposal in addition to kerbside collection services.

Traditionally, these vouchers are printed on paper and mailed out to homeowners or available on request. Often it can cost thousands of dollars to ensure these vouchers are only used by the intended recipient and not copied or forged. To help local governments handle potential risks involved with this process, Mandalay Technologies is helping councils increase transparency, reduce the risk of fraud and provide valuable data on current waste collection systems.

Simon Kalinowski, Chief Executive Officer of Mandalay Technologies, says that one of the issues local governments face is the lack of consistency between them.

If a voucher system isn’t managed properly, potential costly risks can become apparent. One example is when vouchers are not protected from methods of copying or duplication, which can lead to a black market developing, where vouchers are sold unofficially to a small business or others to avoid paying commercial fees.

“Primarily, we want to help councils find a system that works for the specific needs of their communities and waste collection practices. This means taking approaches that don’t completely exclude paper, but instead allow for people to digitally self-serve for the type of voucher that is easiest for them,” Simon says.

Waste collection services are a valuable resource to the community and have a cost to provide. Simon says that in cases like the Queensland waste levy which will impact the cost of disposal, it is important to ensure the services are handled properly to manage funds.

Understanding which best practice approach to use will allow a council to make the most of their valuable services, which is why Mandalay Technologies has released a series of webinars.

This webinar series aims to educate local governments about four key areas of voucher management: accuracy, liability, program control and examples of systems that have worked well.

In one of the webinars, Simon says that while researching a case study, he had found an example of one council that had saved a potential quarter of a million dollars by identifying a liability in their system.

“The ability to properly audit the voucher system and work closely with the council’s property and rates team allowed them to stop instances of misuse,” Simon adds.

Analysing the efficiency of different methods of voucher issue and management is another topic that
the webinars tackle, looking at how changing methods of community communication have affected the systems.

“Mailouts of vouchers often accompany mailouts of rates notices. However, as more councils adopt digital rates systems, mailing costs lead to a substantial increase in costs for waste departments,” Simon says.

“Mandalay’s webinars will educate councils on potential business cases that are fit for purpose and get vouchers in the hands of waste generators, especially as multi-unit dwellings and renting becomes more common.”

According to the Australian Bureau of Statistics, 30.9 per cent of Australians are currently renting. However, vouchers will often be sent to the land or home owners instead of the residents themselves.

The webinars also aim to educate councils on how behavioural data and analytics can be used to improve management systems digitally and assist them to rethink how they can be applied. An example of that might be using a digital voucher to target a specific area in response to a storm event. Using technology like this can be achieved efficiently and cost effectively.

Simon says the experience is an eye opener for local government, with the additional information from digital systems providing extra tools and services for the community.

“A digital system provides valuable data to a council. It’s possible to learn more about who is redeeming the vouchers, when they’re being redeemed, how the system is used and a number of other auditable measures to target entitlements,” he says.

“Sending out a leaflet with a $50 dollar voucher doesn’t provide you with any of that data. It’s difficult to tell whether the person redeeming a voucher is the same person who received it. All you can really tell is the redemption rate, which may be quite small as it is not a targeted move.”

“Because councils are often on the front lines when it comes to educating and changing resident behaviours, having access to the hundreds of data points available through the use of digital systems means they’re able to design effective campaigns to manage waste.”

To participate in Mandalay’s Voucher Management webinar series, register your details at www.naus.com/voucher-webinars.
What is a geological repository?

TELLUS HOLDINGS LTD’S RICHARD MCAREE EXPLAINS HOW THE COMPANY IS CONTRIBUTING TOWARDS A CLEANER AUSTRALIA BY DEVELOPING A PORTFOLIO OF GEOLOGICAL REPOSITORIES.

An intergenerational opportunity to manage Australia’s hazardous waste has been making significant progress in the last few months.

In June 2018, the WA Government Environment Minister approved the Sandy Ridge Facility, Australia’s first commercial geological repository. The facility will be built by infrastructure project development company Tellus Holdings (Tellus). In July/August the company’s mining lease was granted and early works commenced.

Geological repositories are facilities that provide a high level of containment for hazardous waste from the biosphere over geological time over hundreds of thousands to millions of years. This is achieved through a combination of carefully selected active and passive control measures — known as a multi-barrier system. The multi-barrier system can permanently isolate waste from the biosphere and protect the environment and human health.

A geological repository and safety case relies on multiple fail-safe mechanisms underpinned by man-made barriers (active controls) and natural barriers (passive controls). Geological repositories rely mostly on passive controls which do not require ongoing monitoring as they can be quantified as being passively safe through geological time.

Geological repositories have been operating in Europe since the 1970s and more recently in the UK, North and South America and Africa. According to Tellus, they are recognised globally as world’s best practice for the storage and/or permanent isolation of hazardous (chemical) waste and low-level radioactive waste.

The Sandy Ridge Facility, located 240 kilometres by road north-west of Kalgoorlie, will handle most solid and liquid wastes under the NEPM 75 categories, including contaminated soils from site remediation projects, PFAS, acids and alkaline wastes from industry. It will also handle arsenic and cyanide from the gold industry, hydrocarbon from the oil and gas industry and mercury and wastes generated by man-made or natural disasters. Sandy Ridge will also accept low level radioactive wastes such as naturally occurring radioactive materials from the oil and gas industry or disused sealed radioactive sources from diverse industries, including the health industry. Tellus will not be taking nuclear waste or intermediate or high-activity wastes.

Located in a semi-arid environment, Tellus’ Sandy Ridge Facility is a near surface geological repository in a 70-million-year-old weathered granite kaolin clay bed. Sandy Ridge has been granted a 25-year license to mine 290,000 tonnes per annum (tpa) of kaolin clay and accept 100,000 tpa of capacity from around Australia and the Australian Exclusive Economic Zone.

A second deep salt geological repository is also being developed 120 kilometres south of Alice Springs, NT. The Chandler Facility Project will involve the construction and operation of an underground salt mine in a 250-300-metre-thick, 500-million-year-old salt bed.

One of the key drivers for Tellus in pursuing its geological repository business is filling a gap in the national hazardous waste market where there is currently insufficient infrastructure that deals with the problem permanently.

Geological repositories typically have wide waste acceptance criteria and Tellus’ facilities can manage most hazardous waste types (NEPM 75) in different forms such as liquid, sludge or solid.

Licenced facilities need to have adequate assurance, including bonds and bank guarantees and insurance, in
place for not only the operation phase, but also the closure and institutional control period phase. This is to ensure that the state government is not out of pocket and the assurance needs to be fully costed, independently and regularly reviewed so there are no surprises.

Tellus’ repositories will be able to support Environmentally Sound Management (ESM) principles for medium to high hazard/risk wastes but can also present economies of scale to recycle and recover valuable materials that can support the circular economy.

The waste operational procedures aligned with government-approved multi-barrier safety case allows Tellus to issue valuable Permanent Isolation Certificates (PIC’s).

PIC’s can certify critical facts that may provide a basis for derecognising a liability provision on the financial statements under accounting standard AASB 137. PIC’s can also be used as evidence in compliance with regulations involved in environmental protection, product stewardship, occupational, health and safety and dangerous goods transport.

Tellus has engaged independent financial and legal advice to undertake the development of this process in line with its site selection, safety case design, operational procedures, insurance and assurance criteria associated with the facilities.

According to Blue Environment’s Hazardous Waste in Australia 2017 report, hazardous waste increased at a rate of nine per cent per year trending upwards in the years 2014-15. Hazardous waste encompasses nine per cent of all waste generated at about 64 million tonnes, according to data from the same period.

Regulators and the community are demanding higher environmental, social and corporate government practices. Coupled with increasing personal liability for directors and senior employees and tightening Australian and international regulation and legislation, Tellus believes the current environmental climate requires a fresh and innovative approach.

Richard McAree, General Manager – Business Development at Tellus, says the facilities will help solve the increasing financial, legal and technical issues surrounding Australia’s significant commercial and industrial hazardous waste problem.

“Tellus is offering cost-effective solutions for the long-term storage, recovery and permanent isolation of hazardous waste, supported by environmentally sound management and a best practice safety case,” Richard says.

“Our core reliance is on the geology, which has a very low permeability. We are working in large geological resources, in the form of an extensive, stable, flat, thick kaolin clay formation or a salt bed of the same characteristics,” Richard says.

“Critically, our Sandy Ridge geological repository does not have any exposure to groundwater aquifers or systems, so the risk of leakage or a pollution event to the broader environment is negligible.”

Richard adds that operating in a remote location, far from any human populations, also adds a layer of security to the operation.

The Tellus team travelled internationally to undertake extensive studies into geological repositories and supporting infrastructure and have had the proposed Sandy Ridge and Chandler facilities extensively peer reviewed using local, national and international expertise.

“We’ve looked at and studied facilities in Germany, France, Canada, UK, USA and South Africa considering geology and hydrology, operational procedures and regulatory framework, including waste acceptance, cost base and service offering. Also of key interest is how they’ve managed to support the development of ancillary economic benefits such as a potential resource recovery options to support the circular economy.”

“We have also learnt how geological repositories play their part in the waste hierarchy and have adapted to support international conventions such as the Stockholm, Minamata and Basel Conventions – three critical international legislative processes. Our safety case and operational procedures have been developed based on international best practice techniques to present Australia as a world leader for this type of infrastructure.”

Tellus’ Sandy Ridge Facility will handle most solid and liquid wastes under the NEPM 75 categories.
WHEN REGIONAL WASTE CQ NEEDED TO EXPAND ITS WASTE MANAGEMENT FLEET TO SERVICE A GROWING RANGE OF CUSTOMERS, THE COMPANY TURNED TO PALFINGER TO PROVIDE A SOLUTION.

Regional Waste CQ fulfils a vital role in the local towns and cities of central Queensland such as Duaringa, Dingo, Bluff, Blackwater, Emerald, Moranbah, Rockhampton, Yeppoon and everywhere in between. Not only that, waste is collected from a wide range of locations, including various shopping centres, mine sites, camp sites, building sites and properties.

Waste management is a diverse and growing business with a continued emphasis on safer operation. It’s this focus on safety that led Regional Waste CQ Managing Director Leigh Williams to invest in a new Palfinger Hookloader fitted to an Isuzu 8x4 truck.

To make it happen, Leigh reached out to his local Palfinger sub dealer, Mick Butler, at DC Equipment Sales in Townsville. DC Equipment Sales is a company that aims to provide quality, long-lasting machinery and equipment which enables its clients to maximise efficiencies.

While Regional Waste CQ has some smaller 6x4 Hookloaders in its fleet, Mick readily identified that a larger Palfinger T22A Hookloader mounted on an 8x4 truck would be the best solution for the company’s needs.

DC Equipment Sales and Gough Palfinger Australia collaborated to create a functional and stylish design that offers a high degree of safety while maximising waste collection efficiency.

Gough Palfinger Australia has a 38-strong network of service partners and sub dealer agents throughout Australia, working to make sourcing and selecting waste equipment and vehicle loading cranes easy for local businesses.

Mark Gardner, Marketing and Business Development Manager at Palfinger Australia, says the benefits of having a comprehensive sub agent and service partner network means businesses are never far from local servicing, support or spare parts.

“In the waste industry, hours and even minutes count, downtime equals lost revenue and a potential loss of business. Many waste operators double shift their hookloaders with some units working 24-7. If a hookloader unit was to break down without local support, it could result in a damage of reputation or there could be a loss of business,” Mark says.

The 5975-millimetre-long T22A Palfinger Hookloader and the 5975 millimetre-long T22A DINO Palfinger Hookloader are the most popular models in the line-up and the ideal size for a range of 8x4 trucks.
Both units are readily available and supplied from Brisbane meaning they can be ready to be fitted within weeks. While the T22A units have a safe working load limit of 22 tonnes, the average usable payload is between 13 and 15 tonnes, depending upon truck selection and fitout.

The Palfinger T22A and T22A DINO units come standard with an articulated arm allowing for transport of shorter containers and flexibility in loading and unloading. Gough Palfinger Australia supplies mounting kits specifically designed to fit each brand of truck, making the fitting process fast and easy and ensuring durability and reliability.

Mark explains that buying a hookloader is not just about selecting the right model, it’s also about ensuring the truck fit-out and setup meets the day-to-day requirements of the customer. For this reason, he says, Palfinger and their service partners offer a wide range of additional fit-out options and equipment.

One of the most commonly selected options is a tarping system, which allows companies to safely cover bins while in transit. Another feature that is available is a four-camera system with a microphone, allowing safer operation on busy sites.

“Things like tarping systems, front bin locking, toolboxes, hand washing units, working lights, camera systems, scales and tow hitches are some of the optional extras available to meet our clients’ needs,” Mark says.

With its hookloaders, Palfinger offers three main designs. The telescopic range is available from three to 30 tonnes. Additionally, the Australian-designed T22A DINO unit offers internal and external rear container locking, complemented with zero tunnel clearance for the older cable truck containers while maintaining the abilities of the telescopic range. Gough Palfinger Australia also offers the G30 triaxle trailer-mounted Hookloader for heavy-duty work with a prime mover, often used by waste transfer stations.

---

**Fast Fact**

An important part of the Hookloader package, the PAD controller offers multi-speed movement. Its magnetic mounting design means it can be ergonomically positioned to suit multiple drivers in the one truck. The PAD controller offers a high level of safety, increased operator feedback and reliability.

---

**Type-approved OBM Systems now available**

The first type-approved On-Board Mass (OBM) Systems are now available.

Type-approved OBM Systems have been assessed by TCA for:
- Accuracy
- Reliability
- Robustness

Manage your commercial, contractual and regulatory needs across surface transport modes by using type-approved OBM Systems.

Visit TCA's website for further information:


Or contact TCA directly on (03) 8601 4600
Albury City Council teams with the best

NSW’S ALBURY CITY COUNCIL CONTINUES ON ITS TRAJECTORY TO BEING A LEADER IN WASTE PROCESSING AND MINIMISATION THANKS TO SEVERAL MAJOR INVESTMENTS IN INFRASTRUCTURE, INCLUDING THE RECENT INSTALLATION OF A TARPOMATIC ALTERNATE DAILY COVER SYSTEM.

The Albury Waste Management Centre (AWMC) – managed by the Albury City Council – is the region’s major waste disposal facility servicing Albury, Wodonga, Towong Shire, Greater Hume, Federation and Indigo Shire councils.

With increasingly environmentally conscious ratepayers demanding improved and greener returns on their dollar, and a landfill with a life expectancy of approximately 18 years, Albury City Council has worked vigorously to position itself at the forefront of progressive and long-lasting waste management practices.

As part of this, Albury and the five surrounding councils formed a consortium in 2010 setting an ambitious goal to improve operations at the AWMC facility and halve waste going to landfill by 2020.

Initiatives such as ‘Halve Waste’, a new three-bin system, Albury Recycling Centre and major improvements at the AWMC are contributing to a significant reduction in the amount of waste buried at the landfill. The facility has been recognised nationally as having the lowest contamination rates for the Food and Garden Organics (FOGO) kerbside collection service at one per cent.

Rohan Smith, Supervisor Waste Management Albury Waste Management Centre says that the facility is proving to be a best practice facility.

“Council has made some major investments in infrastructure and development of the waste handling at the site,” Rohan explains.

“We wanted to further enhance this by investing in an alternate daily cover system.”

“This allows the operation to move away from using clean fill or other material for daily cover, as this type of material takes up considerable volume in the cell area, which can’t always be successfully reclaimed.”

In Australia, most non-waste alternate daily covers (ADC) usually come in the form of geosynthetic materials (tarpaulin), spray on foam or rigid covers.

The council’s final purchase decision was determined by the efficiency, long-term costs and quality of the materials and systems, the benefits that each system offered and feedback from industry personnel.

“The council’s final purchase decision was determined by the efficiency, long-term costs and quality of the materials and systems, the benefits that each system offered and feedback from industry personnel.”

According to Rohan, the new Tarpomatic system was commissioned at the site with little interruption to operations and was followed by high-level technical support. “All staff have been inducted onsite by Tarpomatic personnel and have had ample opportunity to practice the deployment and retrieval of the tarps.”

Tarpomatic’s reputation in Australia and internationally has always been underscored by our guarantee to deliver a quality product that has been tried, tested and trusted,” says Steve Brooks, Managing Director of Tarpomatic Australia.

“We pride ourselves on a quality product with exceptional backup and customer support to ensure ongoing client satisfaction.”

According to Rohan, the new Tarpomatic system was commissioned at the site with little interruption to operations and was followed by high-level technical support. “All staff have been inducted onsite by Tarpomatic personnel and have had ample opportunity to practice the deployment and retrieval of the tarps.”

Tarpomatic’s automatic tarping...
machine uses a hydraulic drive motor and engaging system to unwind and rewind the tarpaulin with a variable speed control. Each spool can cover up to 870 square metres, with spools able to be connected and disconnected to cover a wide variety of active face areas.

“With a tarp-type daily cover system, the tarp is laid out at the end of each day, then removed each morning, which means that no additional material is placed into the cell taking up precious air space,” says Rohan.

The Tarpomatic system is controlled from the cabin, with the equipment operator able to manage the engine, height of spool, an optional deodorising system and forward or reverse rolling with a remote control. The equipment is also designed to be able to vary height and tilt for even tracking when winding or unwinding a tarp over uneven terrain.

Tarpomatic estimates that each 292 square metre chain tarpaulin, can be deployed by one operator in less than five minutes, with an even faster retrieval.

It uses a self-contained unit that is attached to the blade of a dozer or compactor to unroll and retrieve heavy duty tarpaulin. By remaining in the cabin during this process, the operator can avoid hazardous areas.

“The benefits to our ratepayers are shown across a number of areas, including the reduced airspace, but the small amount of time to deploy and recover the tarps is a valuable saving compared to the time and cost in man hours and plant hours taken to spread and recover clean fill cover,” says Rohan.

Another benefit the council saw as a plus was the minimisation of stormwater runoff into waste, helping in the reduction of leachate generation and treatment.

Tarpomatic’s waterproof tarpaulins sit directly on the waste, which restricts airflow, in turn reducing odour emissions, dust and the risk of fire.

Rohan explains that the benefits of odour control for the site were also an important consideration.

“In late 2016, AlburyCity commenced an Air Quality Impact Assessment at the AWMC and the surrounding precinct. With all this in mind, council investigated a number of different options. Sites were visited to witness the cover use in action and to seek feedback on the various options utilised. The Tarpomatic Cover System was the perfect candidate for an additional odour mitigation measure implemented at the AWMC.”

Each tarpaulin is manufactured from a dual-layer 340 grams per square metre woven polyethylene fabric, laminated and treated with an antibacterial, UV resistant and fire-retardant coating and weighted with chains to withstand winds of up to 100 kilometres an hour.

“The tarps are visibly much stronger and are able to withstand tears,” Rohan says.

“We looked at other tarps on the market, finding that they frayed easily, with the tears getting bigger. Tarpomatic’s “tuff tarps” did not fray. So, if a tear did happen, it was easier to repair.”

Tarpomatic’s webbing and stitching has also been specifically designed to maximise the strength of the tarpaulins to alleviate any potential damage daily rolling and unrolling may cause.

The first machine in Australia was installed in 2000 and is still operating today, with tarps estimated to last for at least three to five years.
Keeping it green

WASTE MANAGEMENT REVIEW SPEAKS TO GREEN INDUSTRIES SA’S VAUGHAN LEVITZKE ABOUT THE WORK THAT HAS GONE INTO ACHIEVING THE HIGHEST DIVERSION RATE OUT OF EVERY STATE AND THE CHALLENGES THAT LIE AHEAD.

With a clean and green reputation cemented in the minds of many Australians, South Australia is well regarded for having the best diversion rate of any state in the country at 83.4 per cent.

But the process didn’t happen overnight, as successive governments and industry spent decades implementing policies to change the way the community views, and disposes of, its waste.

The three-decade sustainability journey was spearheaded by South Australian governments, the Waste Management Commission, the South Australian EPA, Zero Waste SA and the community. Within this environmentally-conscious landscape experts such as Vaughan Levitzke, Chief Executive of Green Industries SA, have made a significant contribution to the bigger picture. This track record of reform and achievement is also recognised internationally with the United Nations Centre for Regional Development endorsing the agency’s development of an experiential training program targeting decision-makers and executives.

Having worked in various government roles, from the SA Department for the Environment to the South Australian EPA, Vaughan speaks of a time when organisations such as Keep Australia Beautiful began in 1966, in addition to the state’s first container deposit scheme in 1977.

He says much of the success behind South Australia’s environmental success is its smaller population size and lack of resources, which meant preserving existing resources such as water is crucial.

“Back in the 70s after the Vietnam War we saw completely new arrangements for drink packaging that went from refillable glass into steel cans and smaller one-trip bottles. We had protests on the steps of Parliament House over the change in packaging and how it was ending up in the environment and so the government brought in container deposit legislation,” Vaughan says.

POLICY CHANGE
As reforms were made, decades were spent carefully analysing and ironing out issues within the legislation, including the container deposit scheme.

“When they configured the container deposit legislation in 1977, they didn’t really think that anyone would be buying water in plastic bottles and sports drinks hadn’t even entered into the minds of the producers of these products, let alone the public,” Vaughan says.

“As a result of the litter strategy, we

Fast Fact

The total resource recovery for SA in 2016-17 was 4.4 million tonnes.
This comprised:
• 2.88 million tonnes of standard reporting materials, including metals, organics, cardboard and paper, glass and plastics.
• 1.52 million tonnes of separately reported materials and clean fill, including soil, sand and rubble.

About 15 per cent of waste to landfill was contaminated soil from construction activities. SA achieved a total diversion rate of 83.4 per cent of waste material diverted to resource recovery.

Source: South Australia’s Recycling Activity Survey 2016-17 Financial Year Report
expanded container deposit legislation onto a range of products which weren’t previously captured by that legislation.

“After the first litter strategy in 1997, we worked on the metropolitan waste strategy and then soon realised that we should be doing something bigger across the whole state.”

Following this, Vaughan was motivated to lead the establishment of Zero Waste SA in 2004 – a statutory authority tasked with promoting waste minimisation in the state through a zero waste agenda. The statutory authority also had a requirement to develop the state’s first waste strategy under the Zero Waste SA Act (2004). The authority transitioned to Green Industries SA in 2015 following a proclamation under the Public Sector Act (2009) and its own Green Industries Act in 2017.

Vaughan says that when the first waste strategy was released in 2005, most in the community recognised the need for it which helped to get local government engaged and encourage effective use of the landfill levy across infrastructure investments, including the establishment of the Waste to Resources Fund (now the Green Industry Fund).

He says that many have cited the single-use plastic bag ban in 2009 as an ‘epiphany moment’, but he believes there were more substantial matters that left a lasting impact on the industry. These included the largest ever food waste trial in Australia and a steady rollout of a three-bin system (recyclables, organic waste and residual) and food waste collection, in addition to working with the SA EPA on the Environment Protection (Waste to Resources) Policy (2010) which led to a range of bans to landfill, including e-waste, which he says has inspired others around the country to also take action.

“What followed from that was the National Television and Computer Recycling Scheme nationally, so I think it fitted in rather well with a national scheme. The national scheme could be improved by taking everything with a cord, not just computers and TVs, so hopefully that will come to pass, but it has stimulated business activity here locally.”

He cites the Nyrstar polymetallic processing and recovery facility at Port Pirie as an example of local innovation, enhancing the industry’s ability to recover metals in Australia and the only facility of its kind in the southern hemisphere.

**A NEW LANDSCAPE**

Despite SA’s triumphs, national challenges remain the same, with the impact of China’s strict contamination rules (commonly referred to as National Sword), effectively a ban on 24 categories of waste – being felt around the country. Earlier this year, a $12.4 million support package was introduced to develop the state’s infrastructure. Separately, Green Industries SA had programs to commercialise research and provide seed funding for new technologies and build markets such as its partnership with Innovyz which runs a unique fast-track business development and mentoring program for early stage innovative ideas.

“We have to clean up our waste streams and the product so we can not only put it into other markets but also use it locally here in Australia, developing our own circular economy” Vaughan says.

“This is all part of a bigger picture here. To the Chinese Government’s credit they’re addressing it in a pretty straightforward and quite formidable way to address the impacts that this is having on their people and environment to build their circular economy. The repercussions are being felt everywhere else.”

In the face of China’s National Sword policy, Vaughan says it’s crucial we continue to invest in grants and loans that support improvements in the industry.

The next step for Green Industries SA is to ramp up government procurement of recycled materials and Vaughan says significant time and effort will need to be taken to frame these policies at a state and local government level.

He says he hopes the South Australian Government can learn from procurement trials in states such as Victoria and WA and apply its learning without having to undergo new trials in the state. Likewise, Vaughan says analysing international guidelines within a local context.
planning and design code policies that protect buffer distances, duplication requirements and strategic infrastructure for major waste management facilities.

“It’s going to be really interesting for those types of technologies because we’re still unclear on how our waste stream is going to change over time with the new efforts by Australian Packaging Covenant and the ministers looking towards packaging and what needs to change to absorb this material locally,” Vaughan says.

“There’s obviously a range of technologies coming to the fore because the cost of waste disposal is going up. I think we’re going to have to review this plan quite regularly going forward because of the changing nature of the waste stream, but also the change in technologies.”

Vaughan says the South Australian EPA has received significant consultation on a WtE policy and a policy is expected soon.

“This isn’t easy territory for WtE providers because they need to shore up not only the waste supply, but also comply with emissions standards and public perceptions. As we’ve seen in NSW it’s not an easy road to hoe, particularly at scale.”

With some facilities in QLD and Victoria reporting issues of residential encroachment, as reported in Waste Management Review’s July issue, Vaughan notes this has happened in the past in South Australia but the state government has responded.

“For example, in Wingfield (located on Adelaide’s northern fringe) we made that a zone for waste management activities and ‘eco-industrial precinct’. But composting was moved further out in the north and south of the city. The risk is always that through poor management or other issues they have an odour problem and the locals get upset.”

“You can put in all the management systems you like, but I think it comes down to the operators of these facilities as well in making sure that they do everything properly and they do it according to the requirements under the law.”

**STRATEGISING**

South Australia set a target for a 35 per cent reduction in landfill disposal from 2002-03 levels by 2020 and is expected to hit the target shortly, well ahead of schedule. South Australia’s Waste Strategy 2015-20 identified priorities, actions and objectives for each waste stream, including municipal solid waste, commercial and industrial and construction and demolition waste.

Having made significant progress in construction and demolition and organics, Vaughan says the next step is to target mixed plastics and other materials such as fibre.

“We’re starting to work on the next waste strategy now and will be putting together a discussion paper for the next strategy, which is for 2020-25, and get feedback and work out what the new targets might look like,” he says.

“For some of the more problematic waste streams, the landscape may change with new technology, increased public expectations, including dealing with some of the more difficult plastics as well as mattresses and tyres. It’s also about making sure we have robust standards in place for recycling materials, from roads to remanufacturing.”

Green Industries SA is also doing market research to look at re-evaluating statewide household kerbside education programs.

“This journey that we’ve been on and continue to drive towards is one that you’re always having to innovate and learn and I can’t stress that enough.”
Your One Stop Shop
For Wheel Loader Attachments

+ 4 in 1 Buckets
+ High Dump Buckets
+ Grabs & Grapples
+ Stick Rakes & Blades
+ Pallet forks
+ Lifting Jibs
The battle continues

WASTE MANAGEMENT REVIEW EDITOR TOLI PAPADOPOULOS SPEAKS TO THE WAR ON WASTE’S CRAIG REUCASSEL ABOUT THE SHOW’S SUCCESS AND PORTRAYAL OF ISSUES SUCH AS COFFEE CUP WASTE.

The name Craig Reucassel was once synonymous with droll satire. Many viewers would recall the *Chaser’s War on Everything* in the mid noughties – a satirical comedy known for taking the mickey out of political and social issues with hilarious stunts.

From chasing former Prime Minister John Howard down on his morning stroll for a hug to visiting a local shopping centre in a bid to raise money for the “Kerry Packer Memorial Fund” – Craig’s comedic stylings left a lasting impact on viewers.

In 2017, Craig became recognised for an issue still, at times, as politically motivated as his stunts – waste. The *War on Waste* last year garnered 4.3 million viewers across its three episodes, tackling issues such as single-use plastic bags, the lack of recyclability of coffee cups, supermarket fruit and vegetable cosmetic standards and consumers’ penchant for fast fashion.

The popularity of the program inspired a second season which aired earlier this year, this time looking at onshore processing of e-waste, the scale of food waste going to landfill and the impact of single-use plastics in the litter stream. A separate episode of *Foreign Correspondent*, hosted by Craig, also tackled Sweden’s use of waste to energy (WtE), questioning whether its local waste industry was indeed recycling most of Sweden’s waste or incinerating it.

*Waste Management Review* received the opportunity to speak with Craig Reucassel in September about the success of the *War on Waste* and its portrayal of issues such as coffee cups, food waste and the ABC’s *Foreign Correspondent* on WtE.

When Craig talks about the success of the *War on Waste*, he cites the style of the series as a key factor. “I think maybe doing a show that had a different tone about it probably got it to a different audience. It got it to younger people and became more of a family viewing show so that helped make it a topic of conversation,” Craig says.

Craig says that having a national broadcaster on the series helped its success. The program was based on a British program – *Hugh’s War on Waste*. He says that he has learnt a lot on the journey since then and it is “surprisingly a fascinating area”.

In season two, Craig says China’s ban on waste imports also made the series topical. In season one, Craig caught the attention of onlookers when he rolled a giant ball of plastic bags up the stairs of the Victorian Parliament House in order to get the attention of the premier. Months later, we saw the Victorian Government move to ban single-use plastic bags.

To draw attention to the lack of recyclable coffee cups, Craig rode around on the streets of Melbourne on a decorated coffee cup tram filled with 50,000 disposable coffee cups echoing “BYO coffee cup”. Months after the program, the not-for-profit program Responsible Cafes went from 400 sign...
ups to 1400 and reusable cup brand Keep Cup doubled its sales.

“I think stunts help a little bit, they help getting attention to the show. For instance, the coffee cup stunt, I know that was seen by a lot of people on Facebook who didn’t necessarily see the rest of the show, so there is that element to it,” Craig says.

“I think one of the things we really tried to do is focus not just on the problem and not just on the policy response, which is important, but also on what you could do yourself. I think that helps, because the reality is if you just rely on the policy response it tends to be very slow and frustrating.”

One of the things Craig says was most surprising in doing the show was the scale of waste on his visit to a banana farm, which revealed that millions of edible bananas were thrown away by farmers for not fitting the standards set by the supermarkets.

After piling up 6000 kilograms of fashion waste in Sydney’s Martin Place to show this is thrown out in Australia in ten minutes, Craig says that this was quite surprising to him, but concedes it is probably because he is “less engaged” with fashion generally.

COFFEE CUP RECYCLING
Craig says that in terms of individual action, the coffee cup portrayal on the show saw a lot of change. However, he says there was likely a bigger change on the plastic bag end due to the corporate decision making of supermarket giants Coles and Woolworths.

On the program, one guest explained that a coffee cup was not recyclable due to the polyethylene lining which prevents it from being recycled and explained that compostable cups also faced the same problem. Unless taken to a composting facility, the guest said they ended up in landfill. Speaking to Waste Management Review, Craig was asked why he chose to take the angle that coffee cups were not recyclable and explained his perspective in further detail.

“The problem is that you need a separate stream of compostable-only cups and they have to be not going to backyard composting they have to be going to commercial composting sites,” Craig says.

“That wasn’t happen [sic] and it’s still not happening to a large extent now. I’ve been at places where you have commercial composting and they don’t want that stuff to end up [there]. Some will accept it, some won’t. So to say that that was being recycled was not true at all.”

According to Biopak Managing Director Gary Smith, recycling coffee cups is “almost impossible” currently.

“New recycling systems can possibly be introduced. However, this is unlikely as milk, sugar and coffee contamination will always contaminate paper recycling. This is in addition to the problems a traditional PE lining poses to recyclers.

“What we need is a system that government, business and the home consumer can rely on where the products follow their normal waste passage and join a recycling system. My opinion is that this can only be composting,” Gary tells Waste Management Review.

“Our form of recycling is composting, it’s nature’s way of recycling.”

He says that Biopak’s collection service currently reaches 1300 post codes in seven cities across Australia. To participate, cafes and restaurants can place their cups and food waste into their green bins by purchasing BioCup compostable cups from BioPak and using its compost collection service.

Brooke Donnelly, CEO of the Australian Packaging Covenant Organisation (APCO) says the recyclability of coffee cups is an issue APCO is working through in its working groups and Technical Advisory Committee.

“It’s certainly an evolving space, as there are currently two initiatives in development – the Detmold RecycleMe program and the 7-Eleven Simply Cups programs – that are for the first time offering

Food waste being buried in landfill was a key issue in season two of the War on Waste.
a real opportunity for a scalable, viable solution.

“These schemes are in the early stages of development and/or implementation and we are excited to see how they will emerge in terms of long-term recycling outcomes and economic viability. It’s wonderful to see these great APCO Member initiatives out in the market place,” Brooke says.

With many opinions on the matter, Waste Management Review will continue to investigate this topic further in an upcoming issue.

INCINERATION

Turning to WtE, a Foreign Correspondent episode hosted by Craig Reucassel looked at whether Sweden was recycling most of its waste or instead opting for incineration. While there was a specific focus on incineration, the program did not touch upon the other forms of WtE in great detail and how they form part of a waste hierarchy, including refuse-derived fuel and anaerobic digestion.

The program comes amid discussion as to whether WtE could form part of the solution to the issues facing Australia’s recycling market post-National Sword. Following a meeting of environment ministers in April, then Environment Minister Josh Frydenberg said he had asked the Clean Energy Finance Corporation to prioritise WtE, building on the $200 million already invested in this area.

“Generating energy from waste that is unable to be recycled is common in other countries, particularly in Europe,” Mr Frydenberg said in April.

Craig notes that while he was not against WtE, he cautioned against it without investing further in recycling. He says that if all steps have been taken to capture value out of the materials than WtE could be better than landfill.

When asked about WtE being part of the solution for residual waste, Craig questioned what the definition of residual waste is.

“If you were to say OK currently in Australia the market because of China the market for paper has fallen over and a lot of plastics other than PET has fallen over, does that mean you’re saying residual waste means we should burn all polypropylene products, all paper that there’s not a current market? Or does it mean you need to invest in improving your recycling industry?”

Similarly on questions of whether there should be more investment in recycling, Craig said:

“What I am saying is if you’re only going to pump money into WtE and not put money into fixing the recycling thing then, by a [sic] very nature, what is defined as residual waste is going to be a lot of plastic, which is essentially a fossil fuel.”

Federal Government Environment Minister Melissa Price was contacted for comment on this issue but did not respond on deadline.

However, despite many of the issues left hanging in the balance, Craig is hopeful more action will emerge out of season two. The second season had an entire episode dedicated to the impact of single-use plastics in the litter stream, including straws.

He cites the decision by Sydney Opera House on-site restaurants owned by Solotel to ban plastic straws by August 1 as a step in the right direction, with an announcement made in the same week as the episode. McDonald’s Australia also announced this year it will phase out existing plastics straws from its 970 restaurants around the country by 2020.

It is currently working with local suppliers to find viable alternatives and started a trial of paper straws in two restaurants in August, but Craig says he will “await cautiously and see what happens there”.

So what specific action does Craig hope War on Waste season two gets the most movement on? Craig says he hopes to see Australia moves towards not burying food waste.

“There are certainly a number of councils looking at it (food and garden organics collection) and I think the other thing we really need to do is lead to a better economy for recycled products in Australia.”

On questions of whether a season three is planned, Craig says at the moment it’s “just processes”, leaving mystery in the air on the potential topics he’d like to tackle next.

“There are topics that we haven’t got to yet. The team will sit down together and try and work out if there’s enough good stories to tell.”

“We might get another War on Waste, we’ll see.”
Tellus offers **simple, safe and cost-effective** storage, treatment, recovery and permanent isolation solutions for hazardous waste in **Geological Repositories**.
As one of the many companies moving towards circular outcomes for its waste, Australia Post is increasing seeing the issue of sustainability cropping up in the agendas of policy makers and corporate strategists.

Its focus on delivering better social and commercial results for its customers led to the development of a 2017 report, Transitioning to a Circular Economy Insights from the Frontline.

With more than 11.9 million delivery points and 4000 post offices – emissions reduction, reuse and recycling and sustainable procurement are all crucial priorities for the company. Its robust logistics network covers 11.7 million addresses and almost 20,000 collection points, making Australia Post the country’s largest delivery network.

A sustainability plan is therefore integral to reducing its carbon footprint. Earlier this year, the company released its first Environmental Action Plan 2018-20, which sets lofty goals to reduce greenhouse gas emissions by 25 per cent by 2020 and enable the reuse and recycling of 100,000 tonnes of material.

According to the plan, Australia Post has reduced its waste to landfill by more than 1000 tonnes to 9285 in 2017. In 2017, 4156 of its customer’s waste was recycled. To achieve its targets, the plan sets out 34 actions to ensure stakeholders are doing their part.

For example, enabling its customers to reduce, reuse and recycle products and materials will involve reporting on the number of customers/markplaces and tonnes of products and materials the company ships.

Australia Post also plans to monitor, measure and audit its sustainability programs to drive continued improvement in waste management and support cost efficiencies.

Another notable plan within the broader picture is the need to collaborate with government agencies, business and the community to progress climate, circular and sustainability outcomes.

Andrew Sellick, Head of Environmental Sustainability at Australia Post, says the push to a circular economy requires active participation from consumers and businesses.

“But both parties have to take the lead. However, the onus should be on the business to do so. Companies should be focusing on making it easy for consumers to participate in ways that don’t compromise on their experience,” Andrew says.

Andrew says that for example, Australia Post is part of Revamp, a collaborative forum established in 2016 to allow stakeholders to share ideas and participate in opportunities that help drive better circular outcomes. He says that to achieve the 2020 target, Australia Post will focus on the management of its own operational impacts.

Andrew says that most importantly, the focus will be on supporting its customers through partnerships which enable the reuse and recycling of products and materials, including eBay, Nespresso and Mobile Muster. Since 2016, the company has supported the diversion of more than 26,000 tonnes of material reuse.

When it comes with dealing with problem wastes, Andrew says the biggest challenge is navigating local regulations for how materials are dealt with at their end of life.

“For example, some states have pallet recycling solutions in place and other states don’t,” he says.

Because of the company’s scale, Andrew says there is no one single solution for it to manage its waste.

He notes that packaging is a good example of one area where the company can make a difference.

“We’re also working to create packaging that is not only 100 per cent recyclable but packaging that is eventually 100 per cent reusable.”
FIRE PREVENTION IN WASTE FACILITIES USING FLIR A65 or FLIR A615

The FLIR A65 and FLIR A615 offer comprehensive radiometric temperature monitoring for waste recycling facilities, solid fuel storage facilities, incineration plants or for any other area or asset that need to be monitored closely. Advanced thermal alarming for FIRE prevention is possible with temperature values for every pixel in the thermal image available for analysis.

FLIR A615
Thermal Imaging Camera
- Equipped with an uncooled Vanadium Oxide (VoX) detector to produce crisp thermal images of 640 x 480 pixels
- Multiple lens angles available, with built in autofocus
- ±2°C/±2% radiometric temperature accuracy
- Hardware and software from different vendors can interoperates seamlessly with GigE Vision™

FLIR A65
Compact Thermal Imaging Camera for Machine Vision
- Simple, single cable installation with Power over Ethernet
- Compact size produces crisp thermal images with 640 x 512 pixels VOX detector
- Multiple lens angles available with fixed focus configuration
- ±5°C/±5% radiometric temperature accuracy
- Operate in temperatures up to 60°C
- Hardware and software from different vendors can interoperates seamlessly with GigE Vision™

A new way forward

THIS YEAR’S AUSTRALIAN PACKAGING COVENANT AWARDS (APCO) DEMONSTRATED THE CONVERSATION IS SHIFTING TO TAKING A WHOLE-OF-LIFE CYCLE FOCUS FOR PACKAGING, INCLUDING ONSHORE SOLUTIONS, WRITES APCO CEO BROOKE DONNELLY.

In August the APCO community came together again for our annual awards ceremony, a celebration of our members’ sustainable packaging achievements in the last 12 months.

Located in the picturesque Dockside venue in Cockle Bay Sydney, we welcomed more than 150 industry colleagues and experts to celebrate the sustainability achievements of a diverse range of Australian organisations.

We used the opportunity to host a series of workshops throughout the day. The first session with Helen Lewis from Helen Lewis Research and Lara Barclay from Adaptation Environmental Support included a review of APCO’s Sustainable Packaging Guidelines, and it was fantastic to hear feedback and insights from so many on the ground teams.

The session also featured discussion from Stan Krpan, CEO of Sustainability Victoria and Tony Roberts from the Department of Environment and Science, providing a government perspective on the Sustainable Packaging Guidelines. It was fantastic to hear feedback and insights from so many on the ground teams.

The second session of the day, a consumer education and behaviour change workshop, brought together Stefan Kaufman, Senior Research Fellow at Behaviour Works Australia and Paul Klymenko, CEO of Planet Ark, to explore how we can build a consistent and powerful national recycling message. It was fantastic to receive so much creative feedback from participants on how we can continue to build on the success of the Australasian Recycling Label in the region, which we are delighted to report is currently being used by more than 40 Australian businesses.

The Sustainable Packaging Guidelines review is very timely and can facilitate that.

“There is some fantastic leadership being shown in FMCG (fast-moving consumer goods) and retail, aligning strategies to the UNSDGs (United Nations Sustainable Development Goals) and innovation around sustainable production and consumption. We are looking forward to working with APCO on a strategy and the tools needed to deliver on the proposed 2025 targets.”

The winners are...

THE WINNERS ARE ...

SUSTAINABLE PACKAGING EXCELLENCE - Detmold Packaging
OUTSTANDING ACHIEVEMENT IN INDUSTRY LEADERSHIP - Australian Postal Organisation
OUTSTANDING ACHIEVEMENT IN SUSTAINABLE PACKAGING OPERATIONS - CHEP Australia
OUTSTANDING ACHIEVEMENT IN PACKAGING DESIGN - Campbell Arnott’s Australia
CLOTHING, FOOTWEAR AND FASHION - Redback Boot Company
ELECTRONICS - Kyocera Document Solutions Australia
FOOD AND BEVERAGE - Campbell Arnott’s Australia
PACKAGING MANUFACTURER - Detmold Packaging
PHARMACEUTICAL - Amgen Australia
HOMEWARES - ACCO Brands Australia
TRANSPORT & AIRLINE - Qantas Airways
CHEMICALS AND AGRICULTURE - LyondellBasell Australia
TELECOMMUNICATIONS (Joint) - Telstra Corporation & SingTel Optus
LARGE RETAILER - Super Retail Group
MACHINERY AND HARDWARE - Tasman Sinkware
PERSONAL CARE - Integria Healthcare (Australia)
LOGISTICS - CHEP Australia
uptake of the PREP design tool also now exceeds 100 organisations.

This year’s awards recognised achievements from a wide range of industries, with 13 sector categories, including manufacturing, retail, transport, technology, hospitality and pharmaceutical, and four excellence in packaging in awards.

I’d like to extend a huge congratulations to packaging manufacturer Detmold Packaging, which took out the coveted Sustainable Packaging Excellence Award, commended for its collaboration with customers and researchers to work towards sustainable packaging. A huge congratulations to Tom Lunn and his team, the Recycle Me project is a truly fantastic example of what can be achieved with a closed loop, collaborative approach to sustainable recycling solutions.

Other standout award recipients on the night included Campbell Arnott’s Australia (Outstanding Achievement in Packaging Design Award), who in 2017 implemented mandatory sustainability training for its internal packaging team and the Australian Postal Organisation (winner of the Outstanding Achievement in Industry Leadership Award), which now has a 100 per cent recyclable packaging range, following the introduction of a take-back scheme and the adoption of the Australasian Recycling Label. Finally, congratulations to CHEP Australia (Outstanding Achievement in Sustainable Packaging Operations Award) whose share and reuse model maximises the use of pallets, crates and containers and enabling its customers unique access to a circular economy.

A huge congratulations also to our sector award winners. This year’s finalists all implemented an incredible range of sustainability projects, ranging from staff training, take-back and repair schemes, voluntary single-use plastic replacements, and some very admirable internal recycling and waste reduction company targets. What they all had in common was a demonstration of the incredible power of collaboration, partnership and leadership.

As organisations they are all making real strides in helping Australia to reach the national target of 100 per cent reusable, recyclable or compostable packaging by 2025.

A big thank you to our special guest Kim Farrant, Assistant Secretary, Assessments and Waste Branch, Department of Environment and Energy for delivering the evening’s keynote address.

Collaboration between industry and government is the only way we can create a new conversation around waste and recycling in Australia. This is a conversation that takes a whole-of-lifecycle focus for packaging, includes in-country solutions that support our local industry and takes accountability for managing our resources right through to end of life.

Congratulations again to all of our finalists and winners. We look forward to seeing you all again in 2019.
Sydney’s innovation

WASTE MANAGEMENT REVIEW TOUCHED DOWN IN SYDNEY IN AUGUST TO ATTEND THE AUSTRALASIAN WASTE & RECYCLING EXPO AND VISIT NUMEROUS RESOURCE RECOVERY SITES. TOLI PAPADOPOULOS REPORTS.

Sydney’s only waste and recycling event offered an opportunity to meet leading industry suppliers, product manufacturers, distributors and solutions providers.

With a speech from the NSW EPA on research into developing a circular economy approach through innovation, procurement, organics and other key areas, the future of Australia’s resource recovery took centre stage in more than 10 hours of expert speaker sessions at the Australasian Waste & Recycling Expo.

One of the interesting points of discussion – innovation in waste – challenge and opportunity, covered the topic of what it means to be truly innovative. Solar Bins Australia, Sitech Solutions and Toxfree Solutions formed a panel to discuss topical questions such as: what are the barriers to market? Do statutory acts act as barriers and how do these businesses stay abreast of industry trends that can change regularly?

When it comes to addressing the barriers to market, Leon Hayes, Managing Director and Founder of Solar Bins Australia and SmartSensor Australia, drew comparison in the panel to Facebook’s growth, noting it did not happen overnight. Mr Hayes told the panel that community constituents loved the smart bins. He argued that progress is occurring and that the company had invested heavily in smart sensors with this knowledge in mind.

Dr Karl Baltpurvins, General Manager of Technical and Environmental Services at Toxfree, discussed innovations in the Toxfree business and how it translated to customers, including its Swiss-made BluBox e-waste recycling technology.

Nicholas Pryke, Sales for Mining, Aggregates and Waste at Sitech Solutions, highlighted how positioning technology and scanning equipment provided valuable information such as understanding material size.

On the show floor, product demonstrations from leading equipment suppliers and technology providers highlighted the latest in machinery, software and vehicles.

Kurt Palmer, Business Development Manager – Environmental at sensor-based sorting company STEINERT, on day one told Waste Management Review he was pleased with the amount of exhibitors and vibrant feel on the show floor. He said that STEINERT was not looking to solely promote one product, as improving efficiency in the recycling sector was important.

“It’s about handling all the material and recovering as much as we can from the waste streams. Anything from a magnet through to optical sorters is key. There’s a lot of plants in Australia that don’t even have a simple magnet,” Mr Palmer said.

Paul Rees, Technical Sales Manager at Applied Machinery, told Waste Management Review the company had received inquiries for products that support the mobile shredding of tyres, washing and repelletising for film, high-density PET and polyethylene bottles. “Washing is definitely the biggest interest purely because of China’s National Sword. People are looking at what’s in their product, and reprocessing that back into a pellet that they can either export, or supply to local markets,” Mr Rees said.

Waste Management Review also attended this year’s Australian Packaging Covenant Organisation Awards which celebrated sustainability excellence in some of Australia’s major brands, including Qantas, Campbell Arnott’s Australia, Telstra and Optus. Packaging manufacturer Detmold Packaging took out the Sustainable Packaging Excellence Award. More on this on page 50. Waste Management Review also had the pleasure of visiting numerous resource recovery sites around Sydney, including the Clyde Transfer Station, Earthpower Technologies and the Wetherill Park Processed Engineered Facility.

Organised by the Victorian Waste Management Association, Waste Management Review explored the sites, gaining insights into the facility’s operations, the capabilities of each system and how they support diversion.
Veolia’s Clyde Transfer Station is a key hub for its Mechanical Biological Treatment facility, and receives, compacts and transfers waste into a shipping container at a rate of 31.5 tonnes per container before being taken to its Woodlawn Eco-precinct by rail, located 30 kilometres south of Goulburn and 240 kilometres southwest of Sydney.

Earthpower Technologies in Camellia processes food waste into green electricity and nutrient-rich by-product fertiliser. Owned by Cleanaway and Veolia, the site processes food waste as well as grease trap, liquid sludges and packaging waste.

The site has a limit of five per cent contamination for its solid and packaged waste and a zero tolerance contamination policy for liquids and sludges. As explained by the tour guide, it has a processing capability of 52,000 tonnes of food waste per annum, with peak periods unsurprisingly taking place over the busy Christmas period.

The tour was completed with Cleanaway ResourceCo’s resource recovery facility – owned in a joint venture between the two companies. The facility was opened earlier this year and is licensed to receive up to 250,000 tonnes a year of dry commercial and industrial and mixed construction and demolition waste to recover commodities including metal, clean timber and inert materials, with the balance converted into PEF.

PEF is used as a substitute for fossil fuels in domestic and offshore markets in the production of cement – with one tonne of PEF able to replace 700 kilograms of coal.

Visiting the site, I observed the excellent management of the site and streamlined process at which the waste moved from one conveyor to another in order to be shredded, screened and separated by magnets and air before being shredded into a 50-millimetre (or smaller) piece of fuel.
The future of waste

The Waste Recycling Industry Queensland’s Rick Ralph tells WASTE MANAGEMENT REVIEW about how the Future Waste Resources 2018 event will explore practical solutions for the industry.

The Waste Recycling Industry Queensland (WRIQ) is hosting the Future Waste Resources Convention 2018 (FWR 2018) to facilitate discussions on practical ideas that tackle the challenges facing the waste, secondary resources and recycling industry.

It aims to showcase the achievements of the Queensland waste and recycling industry and will bring state and local governments, waste and recycling companies, and the public together under one roof.

Rick Ralph, CEO of WRIQ, says it is critical to realign broader community confidence and understanding in the industry in an effort to help educate them on the achievements and possibilities that the sector can deliver.

“For the first time that we know of at an industry convention we’re opening the doors to the public so they’re able to engage and see the professionalism and expertise on display,” Rick says.

“The public needs to be able to see the innovation in action. That’s why the event will have educational information for both the public and all our stakeholders about future technologies, such as the different forms of waste to energy options, better utilisation of surplus produce and showcasing Queensland electric battery-operated waste vehicles.

“The convention will take place in The Workshops Rail Museum in Ipswich, specifically to rebuild trust and re-establish the conversation and transition from the old thinking to new futures,” he says.

Six key topics will be explored at the convention, including presentations on material quality, bio economy, production and packaging, waste to energy and construction. The event has been structured around the individuals, governments and businesses that are currently delivering real solutions needed for the future and demonstrating what can and is being achieved.

FWR 2018 has partnered with the Queensland Government and the City of Ipswich to strengthen relationships and encourage collaboration between the industry and all levels of state and local government bodies.

Rick says by doing so, it has the potential to be a catalyst for change to the state’s policy and regulatory frameworks.

“Currently, Queensland’s planning and other regulations are complex and fractured when it comes to waste, meaning you can’t physically build anything without arduous timelines. The process is not conducive to fast tracking smart technologies and other simple and sound investment decisions,” he says.

“Government at all levels are central to this complex decision-making process. If our governments and elected representatives are able to achieve a more harmonious relationship with the sector and understand how it operates – this can lead to more macro reforms being achieved.

“We will even be announcing a major shift in how the state government will change the landscape of the local waste and secondary resources industry at the event,” Rick adds.

The exhibition will have equipment offerings on display and the latest industry innovations and technology being developed in Australia.

“Queensland’s waste and recycling industry has the solutions. The industry is doing some very clever stuff and it is a keen collaborator.

“You don’t need to go halfway across the world to see learn about the future of the industry, it’s right here in Australia and importantly exists in Queensland.”
Almost 700 members of the Australian freight, logistics and waste industry gathered in Melbourne to celebrate excellence in the Victorian Transport Association’s (VTA) Australian Freight Industry Awards (AFIA).

The annual awards recognise excellence from transport operators, supplier companies and individuals across a range of categories to showcase the enormous contribution the industry makes to the Australian economy.

Seven awards were presented on the night, with a brand new award to celebrate the efforts of the waste and recycling sector through the Waste and Recycling Award.

Peter Anderson, Chief Executive Officer of the VTA announced the winners who were presented with their award by VTA President Cameron Dunn and Victorian Roads Minister Luke Donnellan, representing the Victorian Government and Transport for Victoria.

“The Australian Freight Industry Awards showcase the very best our industry has to offer and with dozens of high-quality applications received across the various categories, it’s clear the transport industry is committed to innovation, improvement and best practice,” Peter said on the night.

One of the finalists announced for the waste award was the Melbourne International RoRo Automotive Terminal. The site was recognised by a range of accreditation schemes, including the Infrastructure Sustainability Council of Australia and the Green Building Council of Australia.

Cleanaway was also nominated for the company’s South East Melbourne Transfer Station. As landfills begin to close, the station is set to handle the 450,000 tonnes of waste per annum that Melbourne’s south eastern corridor produces. It operates on more than 4600 square kilometres and will be run around the clock with a fully maintained site managing rainwater runoff, leachate tanks and filtrations systems.

Recycling company Close the Loop’s innovative recycling processes saw it nominated as a finalist. The business’ strong partnership with construction company Downer has led to the development of a range of products, such as TonerPlas and Plastiphalt, that have seen recycled materials being used to create roads in Sydney and Melbourne.

The winner of the evening was Alex Fraser Group which had been recognised for its efforts to turn waste into valuable infrastructure building material. With the Victorian Government requiring hundreds of thousands of tonnes in material, Alex Fraser’s recycling initiative has diverted more than 850,000 tonnes of waste glass from landfill to be used in the construction of new roads and infrastructure projects.

One example of these materials being put to use in Victorian projects is the CityLink Tulla Widening project. The road carries approximately 210,000 vehicles per day which is estimated to increase to 235,000 by 2031.

Alex Fraser was selected as the primary supplier of roadbase materials for the Bulla Road to Power Street section of the project and supplied 50,000 tonnes of class two, three and four crushed concrete, 40,000 tonnes of class three cement treated concrete and 60,000 tonnes of recycled capping.

By using the recycled construction materials, the carbon footprint of building the road was reduced by 1000 tonnes.
Are you ready for the 2020 shift?

As Australia transitions to a new coordinate system, there are a few key considerations for the landfilling industry to ensure it is prepared for change, writes Ray Cox of Landair Surveys.

There are many instances in the modern world where foundational elements of a system are taken for granted. For example, most end users overlook the background coding necessary to view a website or use software. However, coding is what the system is built on and is necessary for user interaction. Similarly, coordinate systems are the foundation for most landfill operators. So what happens when the foundation needs to shift?

The Federal Government agency – Geoscience Australia is in the process of transitioning the nation to new coordinate systems with compliance required by the year 2020. The new framework, known as Geocentric Datum of Australia 2020 (GDA2020), has the corresponding map grid coordinates listed as Map Grid of Australia 2020 (MGA2020).

So why are we shifting to new coordinates? There are two key reasons – continental drift and improved satellite-based positional accuracy.

Australia is situated on one of the world’s fastest moving tectonic plates. The Intergovernmental Committee on Surveying and Mapping (ICSM) has measured this drift as seven centimetres per year towards the north-east on the world map. Seven centimetres seems minimal but the cumulative effect adds up. By the year 2020, coordinates will be 1.8 metres different from their original position set in 1994. GDA2020 recalibrates coordinates to their true position as at 1 January, 2020.

The second reason for change is improved accuracies available from Global Navigation Satellite Systems such as GPS. In the late 1990s, the rise of satellite technology required Australia to update its mapping framework from a local to global scale. Instituted in January 2000, GDA94 and the corresponding MGA94 coordinates aligned Australia with international standards.

Since 1994, additional countries have launched satellite systems that are also used to increase positional accuracy. When GDA94 was instituted, ‘uncorrected’ GPS positions had a relative accuracy of around 10 metres which made edits for continental drift meaningless.

Imagine a future scenario where an autonomous vehicle using sub 10 centimetre true satellite positioning travels down the footpath instead of the road because boundary linework is referenced to a 1994 position. That’s what GDA2020 is trying to avoid.

But what do the geographical changes mean for landfill operators?

Firstly, the changes are already underway. GDA2020 was formally gazetted by the Federal Government in October 2017 as the official mapping datum. Government departments and legal frameworks will transition to GDA2020 within two years. All ongoing landfill operators will also need to comply and it’s a case of when – not if.

Secondly, operators will need to know their coordinate systems. It will be common for many landfills to have data on three differing coordinate systems. Pre-2000 data will be aligned to AMG66 or AMG84 coordinates and differ approximately 200 metres to MGA2020.

Data post-2000 up to 2020 will usually be aligned to MGA94 coordinates and differ 1.8 metres from MGA2020. This small difference will catch a lot of people out because it is small enough to pass undetected and could result in construction and infrastructure being incorrectly positioned.

Thirdly, it is important to proactively set up or outsource an effective spatial data management system. All the necessary pre-2020 data will need to be calibrated to GDA2020 for future use. Having a single, point of reference file – as Landair provides its clients – aligns all of a site’s spatial data to a common coordinate system. This file then becomes a very important decision making and reference tool.

The transition to GDA2020 will present challenges to landfill operations, but with the right tools in place, the foundation shift can be effectively managed.

Contact: Ray Cox
Phone: 1300 130 158
Email: ray@landair.com.au
Website: www.landair.com.au
Position Partners offers a unique machine guidance technology and services package specifically designed to increase productivity in landfill applications. It stands apart in two important ways. Firstly, the machine guidance technology has been specifically designed for the waste management sector, not the construction industry, and secondly, the company can assist with a complete support, reporting and data management package to optimise return on investment.

Carlson LandfillGrade combines hardware for the compactor, namely a precision Global Positioning Systems unit for the roof of the machine, a control box for the operator in the cab and a range of sensors, along with software that delivers a wide range of reporting capabilities.

To eliminate the need to upskill or hire additional staff, Position Partners now offers comprehensive data management, reporting and remote troubleshooting services. This managed service is designed to save time and maximise productivity by maintaining data integrity, generating and distributing reports and hosting the data on a client’s behalf.

“Our landfill solutions aim to help operators manage their sites more efficiently by delivering relevant information on their site operations without any additional workload for them or their team,” said Andrew Granger, Position Partners Business Development Manager. “If operators experience any technical problems or the system needs new software, we can handle this remotely via our support hubs throughout Australia, without the customer having to wait for support to arrive on site.”

FLIR’s thermal imaging cameras were developed to produce clearer images with greater accuracy over long distances. The FLIR A615 is a compact thermal imaging camera that is fully controlled by a PC. Due to its compliance standards, the FLIR A615 offers plug and play with third-party Machine Vision software such as National Instruments, Cognex, Matrox, MVtec and Stemmer all facilitated by GeniCam protocol compatibility.

FLIR’s A615 camera is equipped with an uncooled vanadium oxide (VoX) detector that aims to produce a crisp thermal image of 640 by 480 pixels. In addition to a high-speed infrared windowing option, the thermal image produces a clearer image than standard models.

Operators that do not require as high an image quality can opt for the A315, which produces thermal images of 320 by 240 pixels.

Both models make temperature differences as small as 50 millikelvin clearly visible, while including a built in 25-degree lens with motorised focus and autofocus. The A315 offers a field of view and minimum focus distance of 25 by 18.8 degrees over 0.4 metres, in addition to a focal length of 18 millimetres. For those that require a greater scope of vision, the A615 conversely uses a range of field of views and focal lengths.
In 1989, the Heart Foundation introduced its Tick Program to guide shoppers towards healthier food choices. The simple, easy to recognise logo saw collaboration from food manufacturers and according to the Heart Foundation, drove manufacturers to change their products to meet consumer expectations for healthier food. The sweeping changes over the years included encouraging companies to introduce margarines with less than one per cent fat, removing 235 tonnes of salt annually from Australian cereal and reducing salt in up to 92 per cent of ALDI breads, rolls and English muffins.

Gavin Hill, Transport Certification Australia (TCA) General Manager Strategic Development, says TCA performs a similar role in validating in-vehicle telematics and related intelligent technologies used in vehicles.

In August of this year, TCA announced the first type-approved on-board mass (OBM) systems from Loadmass and Tramanco. Often referred to as on-board weigh scales or electronic weighing systems, OBM Systems are widely used across the surface transport sector for commercial, contractual and regulatory purposes. OBM Systems are able to measure the mass of axle groups and calculate the gross vehicle mass of a vehicle – important considerations for operators monitoring safe loads, productivity and holding themselves accountable against legal requirements – be they in contract or legislation.

“The feedback from Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.

As a national government body, TCA provides advice, accreditation and administration services in the use of telematics and intelligent technologies, spanning hardware, services, providers, applications and programs.

There are three categories of OBM Systems (Categories A, B and C) which meet the needs of stakeholders and display mass information to drivers and/or loaders. Category A covers systems which electronically display mass information to drivers and/or loaders, while Category B collects and transmits mass information and Category C does the same but allows for plug and play with telematics devices.

The type-approval of Tramanco and Loadmass has been that a number of customers have been waiting for the announcement of type-approval and they’ve been awash with requests for orders for type-approved equipment,” Gavin says.

“For the first time it gives them independent validation that their gear is up to the mark. If you’re a supplier in any market, you can say anything to your customers, but unless it has an independent tick of approval, how can you prove you have met the grade?”

He adds that type-approved systems also add a layer of certainty for consumers to know their purchasing accredited products.
Loadmass systems comes after TCA released its OBM System Functional and Technical Specification last year which incorporated requirements for a range of areas such as data collection, security and transfer and storage, functionality, and environmental and physical characteristics.

OBM Systems aim to ensure improve performance-based outcomes, as opposed to a prescribed technological approach. Gavin says the new type-approved systems are particularly relevant given the changes to Chain of Responsibility laws. As of October 1, everyone in the heavy vehicle transport supply chain has a duty to ensure the safety of their transport activities and can be held liable for this.

According to the National Heavy Vehicle Regulator (NHVR), Australia’s independent regulator for all vehicles over 4.5 tonnes’ gross vehicle mass, the aim of the new CoR laws is to ensure everyone in the supply chain shares responsibility for ensuring Heavy Vehicle National Law breaches do not occur. 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.

“OBM systems have been around for a decade and are nothing new, but what is new is the type-approved performance required,” Gavin says.

“We often hear from the waste sector they have issues with overloading and it’s often refuse vehicles out in the suburbs determining when they need to go back and offload. Sometimes this is hit and miss and is based on averages or local knowledge and doesn’t stand up to scrutiny if you’re challenged in the law.”

He adds that knowing correct weights is important if operators are audited or involved in a legal case. He says that surprisingly, there isn’t much disparity between government and waste fleet managers, with both on the same page.

Aside from the benefits in safety, Gavin says that interoperability is also a modern consideration. OBM systems form part of the National Telematics Framework, which sees the integration of common infrastructure rules through a government endorsed digital business platform.

“Telematics has traditionally been about asset management – knowing where your mobile asset is.

“In that context, it doesn’t need to be interoperable because the information is only going to you as a business operator. But as we move to an increasingly connected world, where telematics are moving into OBM and vehicle infrastructure communications, you have to be part of an interoperable ecosystem.”

He predicts that over the next few years, type-approved systems will be a necessity for safety and compliance. Gavin adds that other safety leaders such as bridge engineers also require information on vehicle loads to assess the amount of payloads that can be carried from one location to another.

“Bridge engineers have to make certain assumptions about the loads of vehicles when their doing assessments for higher productivity vehicles. The assumptions they make are inherently conservative and is one of the sources of frustration about some of the decisions made by road agencies,”

Gavin says.

He notes that last year the Australian Standard for bridge assessment (AS 5100.7:2017) – which was developed in conjunction with Austroads – incorporates reduced traffic load factors for vehicles monitored with TCA certified telematics applications – namely, the Intelligent Access Program and On-Board Mass – which provides renewed opportunities to improve access to the road network for higher productivity vehicles.

“What on-board mass gives you is some visibility in the number of vehicles using a bridge or set of bridges and more importantly, the loads being carried. Like everything in life, if you know what you’re managing you can make better and more defined decisions.”

“That means there’s a higher probability across the network in getting a yes to a productivity reform, rather than a no.”

Gavin says that what it means is that type-approved OBM systems not only need multiple regulations, across a diverse range of industry sectors, but these can be used to unlock productivity reforms which would not previously have been on the table.

“Although we’ve announced the first two type-approved OBM systems, others are currently being progressed through the type-approval process,” he says.

Contact: TCA
Phone: (03) 8601 4600
Email: tca@tca.gov.au
Website: tca.gov.au
When transport business Spectran Group decided to upgrade its fleet of trucks, it discovered an integrated solution to support its drivers’ training.

Aftersales support wasn’t an afterthought for the Tasmania-based Spectran Group, which recently re-evaluated its suppliers amid an expansion.

As it expanded its operations across the state, the family-owned Spectran Group has developed a broad approach to business expansion based on five diverse, but interlinked divisions. As an integrated business, Spectran Group focuses on waste management services, including remediation and contaminated material storage; specialised transport and equipment hire, traffic management, civil construction and asbestos management.

The company has evolved over 16 years since being established by its Business Development Manager Christopher Hazell. His son, Andrew, is the General Manager of Spectran Environmental Management, one of the group’s divisions. Andrew says the company has evolved over time from a small team to having 80 full-time staff based at its head office in Hobart and operating statewide. To meet its customers’ requirements, the business this year expanded in Tasmania’s north.

It’s an expansion that has required investing in facilities, licences and new equipment, particularly as Spectran Group grows its environmental remediation footprint.

“We have all the appropriate EPA licences to transport and store these materials. We manage and remediate the materials using third party specialists for National Association of Testing Authorities certified testing and providing technology to ensure we can achieve positive remediation outcomes,” Andrew explains.

“So we are moving fairly large amounts of materials around.”

Diversifying its business required a broad range of expertise across each division. So when it came to selecting a transport industry partner, after sales support was critical to ensuring the company could stay focused on its core divisions. As such, the company turned to Scania in the middle of last year to provide a solution – delivering three P 440 8x4 ready-built Hyva hooklifts and one P360 Hyva hooklift. The order supports Spectran’s skip bin and tank waste removal services and complements its fleet of eight hooklift and compactor trucks.

In addition, Scania also provided two G 480 6x4 prime movers tasked with hauling a single tanker around the Apple Isle to collect liquid waste, grease trap cleaning and waste oil removal.

Andrew says that Spectran Group previously had a variety of suppliers, including from Japan and the US. After seeing some growth in the environmental waste arm of the business, it needed a new supplier to provide a broader offering.

“Scania gave us the overall package for support for servicing and reporting on the vehicle each week,” Andrew says.
He says that Scania went above and beyond in its service offering.

“Having one point of call for everything has been fantastic. We’re not out to buy on price, we’re after the whole solution,” he says.

Andrew says that it’s important Spectran Group look after its drivers and Scania has been able to provide driver trainings on maximising efficiencies and driveability. He says that often the drivers are on farms, working nights and driving in all weather and road conditions so they need to know how to control the vehicle safely.

“One driver was having difficulties when driving off road. After a visit with the Scania Driver Trainer he has worked out how to best use the truck’s features and the retarder. He now has better control and more confidence,” Andrew says.

By briefing its in-house workshop team, Andrew says the Scania service team has been very helpful and informative.

While the hooklift is mainly being used in metro areas, the Scania G 480 prime movers have explored the entire state handling liquids via its tanker bodies. The G 480 is used for tanker transported waste on a line-haul statewide running six days a week. Andrew says this replaced an older American bonneted truck.

“Our drivers are behind the wheel for up to 12 hours a day, so they need to be comfortable, safe and happy,” he says.

“We haven’t really been into line-haul in the past, with our customer focus on metro and local activities, but with our specialised services we are now undertaking statewide transport. Over the next two years we’ll be looking to grow the fleet with additional units, some to retire older fleet vehicles and some will be for growth.”

He says that another benefit from Scania is that unlike most other brands, Scania does not only use kilometres travelled as the indicator for servicing intervals. He says it is more sophisticated and bases the intervals on actual usage.

“The monitoring system is good because it tells us more than where the truck is, but how it is performing and how the driver is managing it. Fuel, acceleration and braking are all covered,” Andrew says.

“With our older trucks we really don’t have much of an idea of how they are being driven. But with the new trucks we can expect lower wear and tear because we can identify any problems early on.”

Spectran’s environment services hasn’t developed by being just a waste transport company, but by looking to provide beneficial outlets and reuse for its customers’ waste materials.

“This is a diverse business. We can be a one-stop-shop for a lot of customers, performing many services with just one invoice to process. We are not big in terms of size in some areas of the group operations, but we’re not out to be the biggest, just to deliver outcomes that benefit our customers,” Andrew explains.

“Fundamentally the motivation to go with Scania came down to the overall package.

“It was more than the metal, the driver trainers and the after sales. Scania made us feel like part of the team, and we’ve not had any problems.”

Contact: Scania
Phone: (03) 9217 3300
Website: www.scania.com.au
Email: Marketing@scania.com.au
IVECO has offered a factory dual control system since 1992, providing refuse collection companies with an Australian-developed and factory-supported dual control steering set-up.

According to IVECO, unlike some manufacturers who retrofit their vehicles with products from after-market suppliers, the IVECO dual control system as fitted to the ACCO was developed in Australia to suit local conditions and extensively tried and tested in the field to ensure safety and reliability.

The IVECO-engineered dual control system offers a functional design, featuring a cross shaft and mitre box arrangement that does not require an additional steering box. The cabin dash is also duplicated with all the main controls conveniently located in the centre console.

Ease of operation is another key feature of the IVECO system with right-hand-side to left-hand-side drive actuated with the flick of a control switch and a pivoting ‘flip over’ transmission console.

As it’s developed in-house and installed along IVECO’s own local production line, the IVECO dual control system offers significant cost benefits compared to retrofitted systems. Other notable efficiencies arise at the time of maintenance or repair, with faster and more affordable access to parts and servicing via the IVECO dealer network.

Contact
Contact: IVECO
Phone: 1800 448 326
Website: www.iveco.com.au
Email: ivecocare@au.iveco.com
Gasification for a cleaner Earth

Oceania Clean Energy Solutions in alliance with Aries Clean Energy, delivers patented gasification technologies to address municipal and industrial waste streams keeping them out of our landfills, creating reliable base load power and Biochar as our by product.

Find out more by emailing Jayson@ocomsa.com.au
Or by calling 0409 985 201
Around six years ago, manufacturing materials handling company Kerfab began working with the growing waste industry. To prepare for the expansion, the company underwent multiple site visits to learn more about the industry as part of the design process behind the company’s wheel loader attachments. What the company found was an industry that was a buzz of activity, requiring equipment that was able to stand up to the tough requirements of the job.

Jay Chirnside, General Manager at Kerfab, says the waste and recycling industry is a demanding one that requires a lot from the people and machinery that work in it. “When we visit sites, you can see the energy and movement in the air. Trucks are dropping off a steady flow of waste that need to be processed. With mountains of materials requiring movement, Kerfab needs to be at the top of its game to provide attachments and materials handling solutions to match the growing needs of the industry,” he says.

The industry continues to present Kerfab with challenges, which the company endeavours to solve by working with the original equipment manufacturers (OEM) and the waste industry to meet the demands. This process involved visiting client’s sites to ensure Kerfab could design a customised attachment that fit the site’s individual needs. Extensive research and development is part of this process, with concept drawings and conference calls to foster as much communication between all parties to present the best solution.

Kerfab then applies a finite element analysis process to stress test the attachments to make sure it can handle everything the waste industry can throw at it. The result is a bespoke design that has been created with a mix of industry knowledge and the details of how the machine will be used on site.

Jay describes a product that was created for a large waste client to help it compact as much waste as quickly as possible into waiting trucks. “With a standard bucket, waste would be scooped up and be then dumped into a truck. To ensure the client was able to get the right axle loading and weights required into the trucks, they sometimes had to compact it in,” he says.

“We designed a protrusion on the front tip of the bucket lip that was shaped like a penguin’s beak, so the operator could compact the material into the truck correctly. Without this, a large standard shape bucket would not be able to do so. “Once we designed the attachment, it was then used in sites across the country.

“The size, weight and shape of the bucket all contribute to how much a design will provide a return on investment or savings to the client.”

Jay Chirnside, Kerfab General Manager
in Melbourne, Sydney and Perth,” Jay says.

Another large Australian recycling company was also able to custom design a bucket attachment. Kerfab created a special design of bucket with the client’s full specification which provides extra capacity and volume without sacrificing visibility.

Jay says that meeting the demands of the waste and recycling industry is a challenge as there is always a need for more efficient use of machines and attachment combinations.

“With the growth in the industry, there is a need for bigger buckets and handling attachments, but this is easier said than done. We often need to find the balance between machine and attachment size, taking into consideration fuel efficiency, space, loader capacity and volume of product to be moved in the allotted time frame,” he says.

“The size, weight and shape of the bucket all contribute to how much a design will provide a return on investment or savings to the client.

There’s quite a science to the process about matching the right attachment with a machine.

“It is critical to have open communication between all three parties involved: Kerfab, the client and the OEM. Harmony between the three ensures a solution that satisfies the client’s needs,” Jay says.

One aspect Kerfab prides itself on is the company’s after-sales support network to make sure work can continue in the event of a failure or breakdown.

“When a machine breaks down, it needs to be fixed as soon as possible because the trucks won’t stop coming,” Jay says.

“That’s why we design our attachments to be durable enough to withstand the pressures of the industry but are also quick to support our clients if there are any issues.”

Contact: Karl Chirnside
Phone: 0354503092
Email: karl@kerfab.com
Website: www.kerfab.com.au
PRODUCT SPOTLIGHT – WHEEL LOADERS

HITACHI ZW-5 WHEEL LOADERS

Since the release of Hitachi’s ZW-5 wheel loaders, customers are experiencing the significance of an increase in capacity, efficiency and reliability of Hitachi wheel loaders within the waste and recycling industry. The biggest model in the range is the 397 kilowatt ZW550-5 with an operating weight of more than 47 tonnes and bucket capacity of up to 7.2 cubic metres. Other new models in the range are the ZW370-5 (289 kilowatts, 34 tonnes and up to 6.2 cubic metres) and ZW330-5 (213 kilowatts, 27 tonnes and up to 5.0 cubic metres).

The wheel loaders use an automotive-style planetary automatic transmission that allows for smooth shifting. Standard traction control and torque proportioning differentials work to reduce wheel spin and extend tyre life. Notable features in the ZW-5 range include a new hydraulic circuit that allows for combined lift arm and bucket operation during unloading, while prioritising bucket use for dumping. An anti-drift valve prevents internal leakage that can cause creeping of the lift arm.

Operator comfort and safety is a key design consideration across the range, including a sloped ladder with wide steps for ease of access, double-filtered air conditioning and a high level of sound insulation.

Hitachi wheel loaders are suitable for a wide range of applications across various industries due to their dynamic design, advanced technological features and myriad optional attachments.

L958F WHEEL LOADER

High torque, performance and fuel efficiency are all hallmark qualities of SDLG’s L958F Wheel Loader. Available through Australian distributor CJD Equipment, the company is able to offer nationwide sales and support with 17 branches and a network of 20 service agents and dealers.

Used in quarries, feedlots, material handling, waste and recycling and general construction, the machine is considered an all-round loader. L958F’s heavy-duty transmission incorporates a kick-down function ensuring a versatile machine.

From easy-to-access service checkpoints to an ergonomic and spacious cab – the machine aims to offer a high level of operator comfort.

A fully certified ROPS/FOPS air conditioned cab in addition to wrap around pillarless front and rear windscreens works to offer a high level of vision and safety. The machine offers full hydraulic wet disc brakes with an electro-hydraulic external disc park brake.

Productivity in the machine is bolstered by axles designed and built at the factory, which ensures an ideal driveline match. A standard Volvo compatible quick hitch and general purpose bucket also offers operators efficiencies.

Its high torque and fuel-efficient engine is connected to a tropical cooling package which allows it to work at full capacity in the toughest of conditions. The 217 horsepower and 162 kilowatt engine works at 2200 revolutions per minute and a maximum torque of 980 newton metres. Minimum fuel consumption is 15 litres per hour.
Contact the team to find out more:
(07) 3271 5811  |  PALFINGER.COM.AU
Gough Palfinger Australia - Head Office: 66 Industrial Avenue, Wacol, Queensland 4076

Articulating Arm The Essentials Optional Adjustable Hook
Tarp Systems In Cab Control Optional Front Bin Locking

Gough Palfinger Australia delivers and supports the world-leading Palfinger range of innovative lifting, loading and materials handling solutions for land and marine applications.

WE PROVIDE HIGHLY TRANSPORTABLE AND AGILE LOGISTIC SOLUTIONS FOR THE WASTE INDUSTRY.

PALFINGER T22A DINO HOOKLOADER
WITH AN ARTICULATED ARM
WORLD CLASS
MATERIALS HANDLING
SOLUTION
LIFETIME EXCELLENCE

FEATURES
- War on Waste exclusive
- Green Industries SA profile
- New waste to energy system
- Inner West Council’s organics programs

PROUDLY SUPPORTED BY:

- Waste Management Review
  www.wastemanagementreview.com.au
  OCTOBER 2018

The City of Swan’s Colin Pumphrey on the benefits of the FE Euro 6 Dual Control.
Operator efficiency

2018 | OCTOBER | ISSUE 24

Waste Management Review provides a window on the continual developments within the waste, recycling and resource recovery sectors.

Published monthly, the magazine includes in-depth interviews with prominent industry figures, and profiles on people and companies innovating new technology or trialling new solutions. The publication features the latest products to hit the market and showcases successful collaborations between equipment suppliers and service providers.

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

AUSTRALIA’S SPECIALIST WASTE MANAGEMENT MAGAZINE
TURNKEY SOLUTIONS

From waste to energy plants to transfer stations, Waste Management Review’s December issue talks to the providers of turnkey solutions in Australia, highlighting how they construct their systems and the innovations they offer.

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.

PARTICIPATION IN THE PROMOTIONAL FEATURE INCLUDES:

- A full page advert
- A feature professionally written by a Waste Management Review Journalist
- The article posted on the magazine’s website – www.wastemanagementreview.com.au – with free open access
- The article distributed in the industry-specific e-newsletter – Waste Management Review eNews Weekly

BOOKING DEADLINE: TUESDAY 30 OCTOBER 2018

For more information about taking part in this promotional opportunity, contact:
Chelsea Daniel-Young on 0425 699 878 or email chelsea.daniel@primecreative.com.au

www.wastemanagementreview.com.au
BY LEARNING FROM THE POLICIES OF THE EUROPEAN UNION, THE FEDERAL GOVERNMENT COULD SHIFT AUSTRALIA TO A CIRCULAR ECONOMY WITH ITS NEXT NATIONAL WASTE POLICY, WRITES GAYLE SLOAN, CHIEF EXECUTIVE OFFICER OF THE WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA.

The Federal Government has been receiving a lot of attention recently and not always for the right reasons.

As of August, we have a new Environment Minister – Melissa Price MP!

The Waste Management Association of Australia (WMAA) actively participated in a working group during August to update the National Waste Policy 2009 which went on public exhibition in September 2018 for comment. This has made me think a bit more about what the role of the Federal Government is, or should be, in our essential industry in 2018 and beyond.

In November 2009, the Federal Government issued the National Waste Policy. This should have been a defining moment for our industry but we all agree that it did not deliver what we’d hoped. Why? Due to it lacking vision as to where the industry needed to head and having no common direction for governments to aim for. Add to that, we continue to see different levers, for example levies and diversion targets, being pulled in different directions creating an uneven playing field with limited market development.

To understand what the Federal Government role could look like, we need to look at the steps, actions, and role the European Union (EU) has played in recent years – driving away from a linear approach to waste to a circular economy.

The EU recognised that waste could not be managed under one portfolio (environment), rather it took a whole-of-government approach, utilising energy, climate, agriculture, consumer protection, regional development and research departments. The resulting policy was, and remains, one of the largest in the EU’s history, with more than 54 clearly defined measures, all with responsibilities allocated.

Just some of the measures of EU policy over the last few years are:

• Targets of 450-600 million tonnes less carbon emissions/year.
• A plan that by 2030, €1 trillion worth of recyclables not be sent abroad and a seven per cent increase in gross domestic product.
• Target of 170,000 direct jobs in waste management sectors by 2035 and potentially three million extra jobs across sectors by 2035.
• Targets of 50 per cent reuse/recycling for household and 70 per cent for construction waste by 2020.
• Household waste and recycling targets of 55 per cent by 2025, 60 per cent by 2030 and 65 per cent by 2035.
• Landfill phase-out: by 2035 no more of 10 per cent of municipal waste.

The EU has mandated a clear objective of adhering to the waste management hierarchy. One of the first steps in this is to introduce a polluter-pays system that ensures manufacturers and waste generators handle their waste correctly and have clear financial obligations for not doing so.
THE INTERSTATE WASTE TRADE
The EU also strongly advocates and enforces proximity principles to ensure that waste generated is handled as close to the source as possible. Transferring waste from a country where environmental standards are high and treatment is expensive to one where standards and costs are lower is not a sustainable option.

Much the same has recently been highlighted with the interstate transportation of waste around Australia, an issue that not only occurs between NSW and Queensland, but we also see medical waste move from WA to Victoria and hazardous waste from Victoria to SA. The Federal Government has the ability (and only it can do this) to clarify the issues surrounding the NSW proximity principle and find a solution to proximity nationally, so that waste does not move unnecessarily and we have certainty of volumes to build necessary infrastructure and the jobs that come with this.

AFFECT LANDFILL STANDARDS
The EU has a commitment to reduce the volume of waste sent to landfill each year as well as the number of operating landfills as they become more reliant on the circular economy. Thousands of sub-standard landfill sites have been closed across Europe and the amount of municipal waste put into landfills in the EU has fallen by more than 25 per cent since 1995.

A common approach to diversion targets nationally in Australia, including landfill management, would arguably address the very different diversion rates we currently see across the country.

It is a matter for the states how they achieve these targets as each state (and arguably – region) is unique. However, we need a vision as to where we are heading.

Will Australia, for example, establish a zero waste to landfill target, and if so, does that mean that there needs to be more active uptake of waste to energy (WtE)? The Federal Government recently made investments towards WtE, and the EU has already made great strides in this regard, with primary energy production from municipal waste incineration more than doubling since 1995. It is true that sometimes you need to “be careful what you wish for”, and the current federal interest in our sector is a good thing. However, the current exercise of reviewing the National Waste Strategy in one month after effectively being ignored for years is challenging at best.

Australia is a long way behind the rest of the world in transitioning to the circular economy and recognising that waste is in fact a resource. The current attempt to update the document in a month does not enable both local and overseas learnings to be properly considered and incorporated. We cannot sufficiently capture the paradigm that there is more to our industry than regulating and arguably a different set of skills are required to develop markets and industries that go well beyond respective departments of environment.

AGREE ON A SHARED VISION
So, what should the Federal Government be doing? First, it needs to listen to industry and all who are working on the review of the policy and slow the process down to get it right – with 50,000 employees and a $15 billion turnover each year, we are way more than a tick the box exercise!

Second, we need to agree on the vision for Australia, for example, mandate the ‘waste management hierarchy’, agree on national diversion targets (increasing towards zero waste in 2050 perhaps) and agree to transition nationally to a circular economy.

Third, identify the tools in their kit that are unique to them. For example constitutional issues around proximity, tax powers that incentivise research and development, recycled material uptake, consumer protection aligning lifecycle with warranty period, importation and exportation that can incentivise buying recycled Australian products.

Fourth, identify the common levers and drivers for successful market development and coordinate with the states on the delivery of these as well as best efforts in resolving some of these challenges. For instance, there is no point in three states working to solve the recycled glass challenge when one can do this with the others turning to other market issues.

Finally, given so many companies operate nationally (for example Wesfarmers, Woolworths and Aldi), there is value in bringing these companies to the table with industry at a national level to discuss the circular economy. At present, it feels like a semi-circular conversation with industry, local councils, state government and parts of the community. We need to elevate these conversations and have the entire supply chain at the table and the Federal Government can play a very key role in this.

We need to stop and breathe, start doing things differently and get this right, otherwise we will keep doing what we have always done and we know that does not work! ■
Save time, money and valuable airspace with **Tarpomatic’s alternate daily cover system**. Tarpomatic’s heavy duty construction and interchangeable spools make it the only long-term solution for landfills large or small.

With machines installed in 2000 still operating, it’s no wonder more landfills prefer the reliability that Tarpomatic provides. With it’s rugged construction and ease of operation, Tarpomatic provide’s landfill operators with the only long-term solution to cover waste on a daily basis.

“**I used to think all ADC’s were the same. Now I know better**”

**Contact us today on 1300 TARPED (1300 827 733) sales@tarpomatic.com.au www.tarpomatic.com.au**
Gough Palfinger Australia delivers and supports the world-leading Palfinger range of innovative lifting, loading and materials handling solutions for land and marine applications. We provide highly transportable and agile logistic solutions for the waste industry.

Contact the team to find out more:

(07) 3271 5811  |  PALFINGER.COM.AU
Gough Palfinger Australia - Head Office: 66 Industrial Avenue, Wacol, Queensland 4076