

# waste

## MANAGEMENT REVIEW

AUGUST 2018

### Creating new value

Tyre Stewardship Australia's  
Dale Gilson on the future of  
tyre-derived products.

#### FEATURES

Preparing Victoria for an e-waste to landfill ban  
Geological repositories for hazardous waste  
Getting Queensland landfill levy ready  
7-Eleven's coffee cups recycling program

#### PROUDLY SUPPORTED BY:

**NWRIC**  
Essential for community. Essential for environment.





# WE'RE PROUD, TO BE AN AUSTRALIAN MANUFACTURER.

At a time when the car brands have closed local manufacturing facilities and other industries have seen manufacturing go overseas, we are PROUD to still be here. As part of the massive CNH Industrial organisation we have the flexibility to manufacture in numerous plants around the globe, however we're proudly continuing to make certain IVECO Truck models in Australia for several very good reasons.

#### **Creating top trucks for down under**

Australian trucking conditions are among the toughest in the world, so having the ability to test, design and make trucks specifically for local conditions simply makes good sense. IVECO Trucks Australia's Dandenong manufacturing plant is home to a large product engineering department that features a dedicated facility for building and testing prototypes designed for Australian conditions.

#### **Expertise and solutions, right here and right now**

Local research, development and production means the level of local technical expertise is second to none - which also means our dealers and customers get the benefit of the right answers and solutions, right away.

#### **Built local to benefit local**

We are passionate about all the local communities we operate in around the globe and we know that industrial areas of Victoria need manufacturing investment to protect jobs. Through our IVECO plant in Dandenong we not only provide local employment but also provide business for the many component and services providers that we partner with. In our hugely popular Acco, for example, 85% of the components are sourced from local suppliers.

#### **A strong history in Australia**

IVECO Trucks 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 Trucks is proudly and successfully building a good product in Australia for the Australian market - and with production of even more models set to commence in our Dandenong plant throughout 2018, 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.**

[www.iveco.com.au/manufacturing](http://www.iveco.com.au/manufacturing)

# IVECO

Your partner for sustainable transport



*With a new authorisation from the competition regulator, Tyre Stewardship Australia is taking a fresh focus to the application of tyre-derived products.*

"THE RECOGNITION AND ACCEPTANCE FROM THE TYRE INDUSTRY OF THE ROLE TSA PLAYS, AND CONSUMER AWARENESS, HAS CHANGED SIGNIFICANTLY IN MY 17 MONTHS TO NOW AND THAT IS LARGELY THANKS TO OUR INITIATIVES SUCH AS THE GREEN TYRE PROJECT."

-Dale Gilson, Tyre Stewardship Australia Chief Executive Officer

## LISTENING TO LOCALS

Melbourne's City of Monash Mayor Paul Klisaris tells *Waste Management Review* about efforts to keep fees low for ratepayers in the face of China's National Sword.

## In this issue

### Features

- 18 VICTORIAN E-WASTE BAN BREAKDOWN**  
*Waste Management Review* investigates how Victoria's 2019 ban on e-waste to landfill will affect the waste industry.
- 24 PREPARING QLD FOR THE LANDFILL LEVY**  
Mandalay Technologies' Lacey Webb explains five key factors local government and private sector operators should account for when getting themselves 'levy ready' in Queensland.
- 30 DIGGING FOR GOLD**  
Nick Florin from the University of Technology Sydney discusses how to capture the billions of dollars worth of metal in waste.
- 34 NOTHING LEFT TO CHANCE**  
As SUEZ tendered for its major contract with Brisbane City Council, the company sought to improve its safety and security.

- 36 LEVEL CROSSING ALLIANCE**  
With assistance from Repurpose It and Eastern Plant Hire, the North Eastern Program Alliance coordinated a resource recovery program on major Victorian level crossing removal projects.
- 40 CUSTOMISING A SOLUTION**  
Source Separation Systems explains why it is taking on more customised work.
- 44 GOING DYNAMIC**  
Dynamic waste collection responds to the ever-changing amount of refuse by harnessing Internet of Things sensors to provide efficiencies.
- 46 GOLDEN ANNIVERSARY**  
*Waste Management Review* looks at Vaclift's secret to success as it reaches its 50th year in business.

- 48 FIRST-MOVER ADVANTAGE**  
Tellus Holdings discusses its plans for Australia's first commercial geological hazardous waste repository.
- 56 MAKING E-WASTE CIRCULAR**  
Fujitsu's Blaise Porter highlights how the company's ICT Sustainability Benchmark is helping reduce waste across the commercial and industrial sector.
- 60 CUP RECYCLING MADE SIMPLE**  
Recycling company Simply Cups has teamed up with 7-Eleven to help divert coffee cups away from landfill.

### Regulars

- 6 NEWS
- 64 PROMOTIONAL FEATURES
- 69 LAST WORD



From the Editor

# Federal leadership overdue

AFTER HEARINGS IN MELBOURNE, SYDNEY, CANBERRA AND BRISBANE, a federal government senate inquiry committee has made 18 recommendations, which, if implemented, could significantly advance Australia’s waste and resource recovery strategy.

The Environment and Communications References Committee, Never waste a crisis: the waste and recycling industry in Australia, was set up after last year’s contentious *Four Corners* program, with a subsequent report published in June.

This 164-page document highlights some massive recommendations from the senate committee, including a ban on single-use plastics by 2023, mandatory targets for all government departments to use a percentage of recycled material and a national container deposit scheme. But that’s not even the half of it.

The recommendations are now with the federal government to consider, but to quote the report itself: “The Australian Government has a role in providing national leadership and coordination”. That means it can no longer sit idle and defer all major responsibilities to the states and territories, despite states having “primary responsibility for regulating domestic responsibility”.

As stated in the section on waste and recycling by one witness, the “crisis is happening now” and Australia doesn’t “have three years to run through a COAG process to come to a solution”. The impact of low commodity prices and a lack of end markets for recyclables will continue to be felt by a number of materials recovery facilities until the policies, and microeconomic leadership from local governments and private contractors, pave the way for change.

While these issues aren’t new, it’s pleasing to see so much leadership already from industry associations, consultants and Australia’s major waste companies stepping up to canvass these issues to the senate committee. Our elected representatives may not have been aware of the nuances of each policy setting, including recycling yields and the variety of collection methodologies and landfill standards.

Leadership goes beyond the inquiry when we see councils like Lake Macquarie City Council substituting sand with recycled glass in their civil works.

When I attended the public hearings in Melbourne, I noted the diverse range of viewpoints from the waste industry on the policy constraints and opportunities in landfilling, recycling and waste collection. While the broader issues are as clear as day, the pathway to correcting these problems isn’t so clear.

Certainly, there were many consistent themes, but collating all of these viewpoints into a series of recommendations is no easy task. Now that the inquiry is complete, let’s see some concrete policies out of it.

# waste MANAGEMENT REVIEW

## PUBLISHER

*John Murphy*

john.murphy@primecreative.com.au

## MANAGING EDITOR

*Robbie Parkes*

robbie.parkes@primecreative.com.au

## EDITOR

*Toli Papadopoulos*

toli.papadopoulos@primecreative.com.au

## JOURNALIST

*William Arnott*

william.arnott@primecreative.com.au

## ART DIRECTOR

*Michelle Weston*

michelle.weston@primecreative.com.au

## DESIGN

*Blake Storey, James Finlay, Adam Finlay*

## BUSINESS DEVELOPMENT MANAGER

*Chelsea Daniel-Young*

chelsea.daniel@primecreative.com.au

p: +61 425 699 878

## CLIENT SUCCESS MANAGER

*Justine Nardone*

justine.nardone@primecreative.com.au

## COVER PHOTOGRAPHER

*Michael Evans*

## HEAD OFFICE

Prime Creative Pty Ltd

11-15 Buckhurst Street

South Melbourne VIC 3205 Australia

p: +61 3 9690 8766 f: +61 3 9682 0044

enquiries@primecreative.com.au

www.wastemanagementreview.com.au

## SUBSCRIPTIONS

+61 3 9690 8766

subscriptions@primecreative.com.au

Waste Management Review is available by subscription from the publisher. The rights of refusal are reserved by the publisher

## ARTICLES

All articles submitted for publication become the property of the publisher. The Editor reserves the right to adjust any article to conform with the magazine format.

## COPYRIGHT

Waste Management Review is owned by Prime Creative Media and published by John Murphy. All material in Waste Management Review is copyright and no part may be reproduced or copied in any form or by any means (graphic, electronic or mechanical including information and retrieval systems) without written permission of the publisher. The Editor welcomes contributions but reserves the right to accept or reject any material. While every effort has been made to ensure the accuracy of information, Prime Creative Media will not accept responsibility for errors or omissions or for any consequences arising from reliance on information published. The opinions expressed in Waste Management Review are not necessarily the opinions of, or endorsed by the publisher unless otherwise stated.



**There has to be  
a better way!**

**There is.**



Crumbed rubber asphalt using recycled tyres.

**Over 56 million used tyres are generated in Australia, each 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:

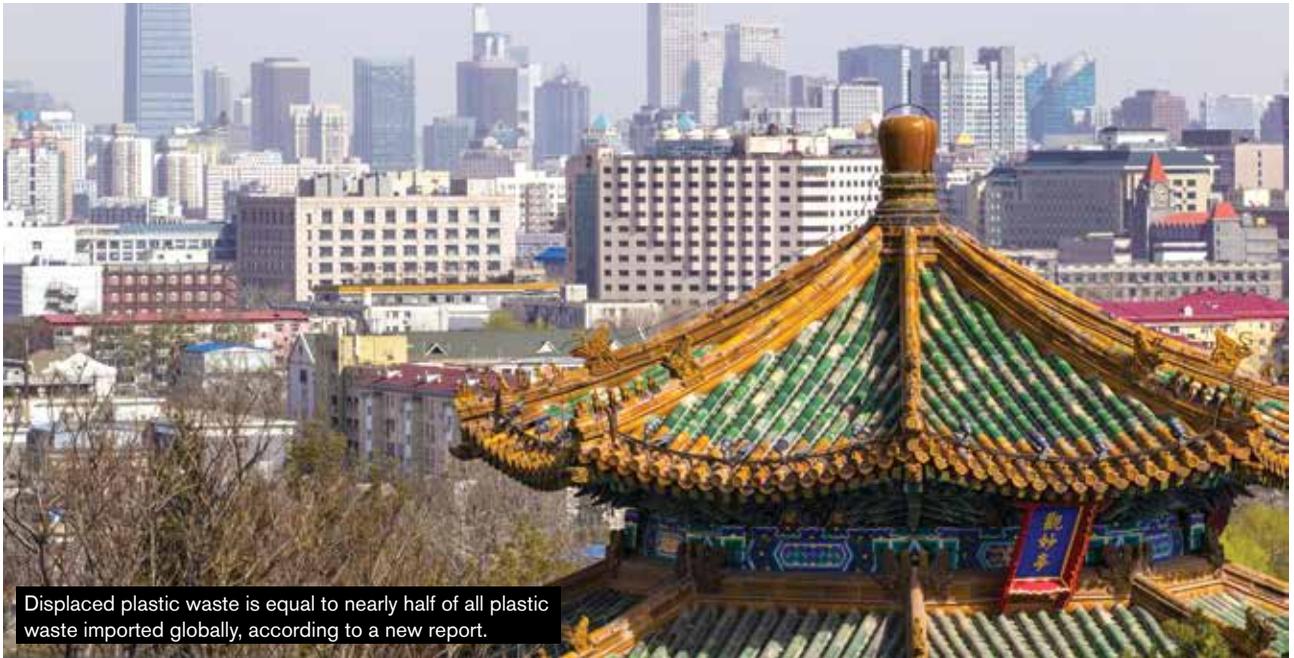
**[tyrestewardship.org.au](http://tyrestewardship.org.au) or [info@tyrestewardship.org.au](mailto:info@tyrestewardship.org.au)**



**TyreStewardship**  
AUSTRALIA

\*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](http://www.tyrestewardship.org.au)

## National Sword could displace 111M tonnes of plastic waste by 2030



Displaced plastic waste is equal to nearly half of all plastic waste imported globally, according to a new report.

An estimated 111 million metric tonnes of plastic waste will be displaced by China's National Sword policy by 2030 around the world, according to new research.

*The Chinese import ban and its impact on global waste trade* research paper published in the journal *Science Advances* reports that new global ideas are needed to reduce the amount of non-recyclable materials, including redesigning products and funding domestic plastic waste management.

The report, authored by researchers at the University of Georgia, said China had imported 106 million tonnes of plastic waste since 1992, which makes up more than 45 per cent of total global plastic imports.

The National Sword Policy has implemented new restrictions on

the contamination rate for imported waste, requiring a cleaner and more processed version of materials such as plastics, metals, paper, cardboard and textiles.

"The displaced plastic waste is equal to nearly half (47 per cent) of all plastic waste that has been imported globally since reporting began in 1988," the report said.

"Only nine per cent of plastic waste has been recycled globally, with the overwhelming majority of global plastic waste being landfilled or ending up contaminating the environment (80 per cent).

"Plastic packaging and single-use items enter the waste stream immediately after use, contributing to a cumulative total of 6.3 billion MT of plastic waste generated worldwide."

The report warns that if no adjustments are made in solid waste management, then much of the waste that would have been diverted from landfill by customers paying for a recycling service will be landfilled.

"Both the displaced plastic waste and future increases in plastic recycling must be addressed immediately. Initially, the countries exporting the most plastic waste can use this as an opportunity to develop and expand internal markets," the report said.

"If domestic recycling of plastic waste is not possible, then this constraint reinforces the motivation to reduce use and redesign plastic packaging and products so that they retain their value and are more recyclable in domestic markets."



Safety | Service | People | Sustainability

Tellus offers **simple, safe** and **cost-effective** storage, treatment, recovery and permanent isolation solutions for hazardous waste in **Geological Repositories**



Suite 2, Level 10  
151 Castlereagh St  
Sydney NSW 2000

+61 2 8257 3395  
[info@tellusholdings.com.au](mailto:info@tellusholdings.com.au)  
[Tellusholdings.com.au](http://Tellusholdings.com.au)



---

## News

---

# Waste and recycling receive \$196M in NSW budget

The NSW Government has received \$162 million more than expected from its waste and environmental levy, while at the same time committing \$196 million to reduce waste, strengthen recycling and protect the health of the environment in its 2018-19 state budget.

According to the budget papers, the government received a revised \$727 million from its waste and environment levy, which it attributes to strong construction sector activity.

The NSW Environment Protection Authority budget for 2018-19 includes \$70 million to improve waste management and resource recovery, \$8 million for the management of contaminated land and \$5 million for asbestos management and emergency clean-up.

NSW Environment Minister Gabrielle Upton said the budget provides support for programs and initiatives to reduce litter and waste, while also strengthening recycling and tackling illegal dumping.

"Diverting waste from landfill is a key priority and the NSW Government has set targets to increase the diversion of waste from landfill from 63 per cent in 2014-15 to 75 per cent by 2021," Ms Upton said.

"The Premier has also made it a priority to reduce the volume of litter in NSW by 40 per cent by 2020, achieved through Return and Earn, Hey Tossler and council and community litter prevention grants."

In March, a \$47 million support package was also announced for the local government and industry to respond to China's National Sword policy. The package contains a range of short, medium and long-term programs to assist kerbside recycling.

"The support package provides a range of short, medium and long-term programs to ensure kerbside recycling continues and to promote industry innovation."



Meet us at Waste Expo  
2018 in Melbourne at  
Stand R35 Oct 3rd and 4th

Our game-changing route planning and optimisation platform for the waste industry, provides you with superior business value and endless benefits:

- ▶ 5-25% reductions in CO2 emissions, mileage and driving time
- ▶ 5-15% reduction in number of vehicles
- ▶ 25-75% decrease in time spend on planning and administration



## The Leader HD Mobile DVR with Self-diagnose Monitoring & Tracking

**FOR WASTE FLEETS**

- Self-diagnose error messages
- Customised output multi-split view
- Event triggered pictures and map by email
- HD cameras with 25 fps supported
- Robust dual storage SSD + SD
- Remote access live feeds and footages
- 360 degree vision coverage



[www.htrv.com.au](http://www.htrv.com.au)



[info@htrv.com.au](mailto:info@htrv.com.au)

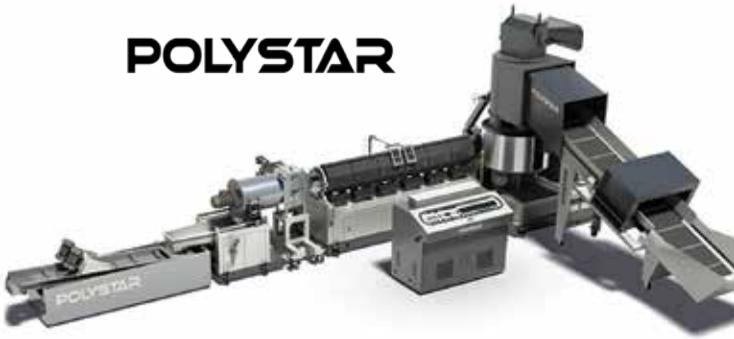
**HTRV**

Polystar unwraps  
the value in film  
recycling.

Now that's  
Applied Thinking.



**POLYSTAR**



- Designed for reprocessing of polyethylene & polypropylene flexible packaging material
- Pelletising system with integrated cutter eliminates need for pre-cutting
- 100% of pellets reusable straight back into your production line
- Minimal material degradation without affecting material properties



**Applied**  
MACHINERY AUSTRALIA PTY LTD

To find out more:

Call: 03 9706 8066, Email: [sales@appliedmachinery.com.au](mailto:sales@appliedmachinery.com.au)  
or visit: [www.appliedmachinery.com.au](http://www.appliedmachinery.com.au)

---

## News

---

# Strong results for Perth's first FOGO trial

The trial of a Perth metro first, three-bin Food Organics Garden Organics (FOGO) system, has yielded higher than anticipated diversion from landfill.

The Southern Metropolitan Regional Council alongside three of its member councils, the Cities of Fremantle and Melville and Town of East Fremantle, have been working towards implementing a three-bin FOGO system.

Commencing in October 2017, the new bin system was rolled out to approximately 7000 households across five areas in the City of Melville.

As part of the rollout, residents received a brand new 240-litre lime-green-topped bin for FOGO material, along with a kitchen caddy to help them separate food waste in the kitchen. The kitchen caddy contained educational materials for the residents, along with a year's supply of compostable liners to line the caddy with.

Residents also received a brand new smaller red-topped 140-litre bin for general waste items that can't be composted or recycled. The red bin is collected fortnightly. Residents kept their existing recycling bins with collections changing from weekly to fortnightly. For households who required more room to recycle, larger 360-litre bins were made available free of charge. The old general waste bins were removed and sent for recycling.

In the first six months of the project, 66.5 per cent of all household waste generated from the trial areas was recovered as compost or recycled into new products, above the state government target of 65 per cent of all household waste diverted from landfill by 2020.

In April, a resident survey was undertaken, with participants asked for feedback on their experiences.

The survey found 79 per cent of respondents wanted the three-bin FOGO system to continue.

A further 94 per cent of respondents rated their weekly FOGO collections positively, while 87 per cent of respondents rated their fortnightly recycling collections positively.

EFFECTIVE RECYCLING SOLUTIONS,  
DESIGNED SPECIFICALLY FOR YOUR  
UNIQUE ENVIRONMENT



Designed and made by  
industry specialists in Australia.



1300 739 913



Dale Gilson joined TSA in 2017 and brought his extensive experience in the automotive industry.

# Breaking new ground

WITH A NEW AUTHORISATION FROM THE COMPETITION REGULATOR, TYRE STEWARDSHIP AUSTRALIA IS TAKING A FRESH FOCUS TO THE APPLICATION OF TYRE-DERIVED PRODUCTS, WHILE INCREASING ITS NETWORKS WITH LOCAL GOVERNMENT, FLEET MANAGERS AND CAR AND TYRE IMPORTERS.

**W**hen Dale Gilson reflects on his role at Tyre Stewardship Australia (TSA), he considers the sense of urgency that surrounds the problem of end-of-life tyres. Dale joined the organisation as Chief Executive Officer at the beginning of 2017 and brought with him an extensive background in the automotive industry,

with CEO positions at the Society of Automotive Engineers – Australasia, Motorcycling Australia, Speedway Australia and Four Wheel Drive Victoria.

“What these experiences have highlighted for me is the need for the Tyre Stewardship Scheme. Because I’ve been involved in motorsport and worked with automotive engineers, I’ve seen

the scale of just how many tyres these industries are using,” Dale says.

He says he was able to see first-hand the challenge the nation faced.

“It’s given me a heightened awareness and understanding that end-of-life tyres are a significant issue and will continue to be. Even with the Teslas of the world creating vehicles with amazing new

technologies such as electric vehicles, there will still be a significant need for tyres. Added to that is continuing population growth, which means one thing – that there will be an increasing number of tyres in use.”

This growth in end-of-life tyre generation is highlighted by the National Market Development Strategy for Used Tyres 2017-2022, which indicates new tyre sales are forecast to exceed 63.3 million equivalent passenger units by 2024, up from the current 56 million tyres in 2015-16.

TSA's goal is to reduce the environmental, health and safety impacts of the currently 56 million equivalent passenger units which reach their end-of-life in Australia each year. The organisation formed in 2014 after the Australian Tyre Industry Council applied to the Australian Competition and Consumer Commission (ACCC) to establish a national Tyre Stewardship Scheme. The ACCC authorised the application in 2013 and agreed that it would be administered by a new organisation, known as Tyre Stewardship Australia. In January 2014, TSA officially formed. When it commenced, a range of major tyre manufacturers backed its establishment, including Michelin, Goodyear & Dunlop, Pirelli, Yokohama, Toyo and Continental. Those brands were later joined by Bridgestone and Kumho.

The scheme is funded through a levy of 25 cents per equivalent passenger unit (standard passenger car tyres, known as EPUs) on the importation of new tyres by voluntary member companies of the scheme.

TSA's key investment mechanism is the Tyre Stewardship Research Fund, which helps fund research and development (R&D) to find end markets for end-of-life tyres. Since 2015, more than \$3 million has been committed to R&D projects across civil engineering, road and rail

construction and thermal applications.

Five years of significant achievements in market development, education and awareness, accreditation and compliance and government stakeholder collaboration has compelled the organisation to re-evaluate its priorities, as it underwent a reauthorisation from the ACCC.

In May, the ACCC announced it will grant TSA's Tyre Stewardship Scheme a new authorisation for a further six years. In reaching its determination, the ACCC considered the progress of the voluntary scheme and the impact TSA has been able to make in educating the tyre industry and consumers on the need to manage the nation's end-of-life tyres.

### GREATER FLEXIBILITY

Dale says the amendments in the reauthorisation, namely increased flexibility to the structure of its funds program, will enable TSA to more effectively realise the desired outcomes of its Tyre Stewardship Scheme.

“Originally, we were only able to fund research and development. This flexibility means the fund can now be used on a larger scale, including the ability to support infrastructure and its commercialisation,” he says.

What that means is TSA can look at a broader picture when considering projects to support.

“It allows us to look at how a project helps to create opportunities for more sustainable management of end-of-life tyres. In effect, we can look to assist numerous levels of the disposal to final use of tyre-derived product chain. What will remain the same is that each project is carefully considered on its merits,” Dale adds.

### ACCOUNTABILITY

Increased capabilities for managing non-compliance is also a key facet of the reauthorisation. Dale says the ability

to suspend those not fulfilling their obligations to the scheme will ensure every participant of TSA is able to make a significant contribution to the Tyre Stewardship Scheme in the long run. He adds that TSA is about promoting inclusion, but this does come with expectations of maintaining compliance with the scheme.

“Previously, we only had a 12-month revocation option for those not fulfilling their obligations,” he says.

He says the issue with the limited scope of the compliance measures was that participants could rectify their obligations in a shorter period than the revocation measures afforded to TSA. For example, retailers are asked to report monthly on the number of tyres recycled and collected, in addition to reviewing their arrangements regularly with a TSA-accredited stakeholder, according to a voluntary action plan sample.

“We can now suspend those not complying for a shorter period and once they're complying we can bring them back into the scheme,” Dale says.

In addition to its strong member base of tyre importers, TSA is also backed by the Australian Tyre Recyclers Association, the Motor Trades Association of Australia and Tyrepower.

As it moves towards the next phase of its reauthorisation, a key focus will be to broaden the scope of its participants to include more car and truck importers, vehicle service centres and fleets.

“We're getting a number of car dealerships approaching us and wanting to be part of the Tyre Stewardship Scheme, so we're hoping that interest will go up the chain to a point where organisations such as Toyota or Ford will join the scheme,” Dale says.

“The levy measure is still effective in providing a financial commitment from members, without substantially affecting consumers. Our focus is to increase

the membership base of car and tyre importers within the scheme to help support the R&D and infrastructure market development fund.”

Dale says major fleet operators such as the Department of Defence and Australia Post have already joined the scheme, with more major corporations expected.

### HIGH ON THE UPTAKE

The progress in research and development leads Dale into a discussion of TSA's next phase, supported by five strategic objectives from the National Market Development Strategy for Used Tyres 2017-2022. To implement the strategy, TSA recently appointed experienced product stewardship manager Jan van de Graaff as its Business Relationship Manager.

The first objective is to support the development of the Australian end-of-life tyre sector through a focus on products rather than considering the materials as waste.

The second is to address the barriers in key tyre-derived products (TDP), comprising early stage research for projects with national reach, support for emerging markets such as crumb

rubber mining explosives and greater links to sustainable procurement and rating tools.

Likewise, the third objective, to develop the markets for TDP in road construction, will focus on increased uptake of spray seals in Queensland, South Australia and Western Australia and a national program to address barriers impacting crumb rubber asphalt.

The fourth object highlights a plan to research the long-term markets for TDP in rail construction through an ongoing market entry program with key industry and government programs and a focus on rail maintenance and new rail construction.

The final objective sees new markets being developed for TDP in civil construction, with a plan to establish a national steering committee with a focus on tyre-derived aggregate, early stage research and lab testing for this and the development of national specifications for key markets.

Overall, it supports a goal for consistent growth across the domestic recovery of end-of-life tyres and contributing to a future where stockpiling of these tyres does not occur.

### R&D GROWTH CONTINUES

TSA is working with the Australian Asphalt Pavement Association (AAPA), which provides research and training to support innovation in the road sector – ensuring recycled tyres can be used to increase the flexibility and durability of Australian roads. This aims to provide local and state government with long-term cost benefits.

“The City of Mitcham in South Australia is currently undertaking laboratory and field testing to further validate the measurable benefits in performance and asset life for crumb rubber asphalt in highly expansive soils compared to conventional mixes. The data we gain from this research will help us broaden the use of this material for other local government regions,” Dale says.

AAPA recently undertook a joint trial with TSA of crumb rubber modified binder in asphalt, which is made using scrap tyres to boost the properties of bitumen. Crumb rubber modified binder has not been widely deployed in asphalt applications and historically has primarily been used for sealing roads.

Crumb rubber modified binder aims to increase the elastic properties of asphalt and spray sealed road surfacing and boost its durability. A crumb rubber binder trial took place in 2017 to study its durability on the roads and whether there were more emissions emerging during installation than conventional polymer modified binders. The trial investigated the use of crumb rubber modified binder in open graded asphalt in Queensland and found that the emissions from crumb rubber were similar to asphalt used with conventional binders. It also showed that producing the product at a low temperature could help lower carbon dioxide emissions.

TSA is working with the Australian Road Research Board Queensland, Transport and Main Roads Queensland



TSA has funded a range of R&D projects, including crumb rubber mining explosives.

and the Department of Environment and Heritage Queensland to update the specifications to include open graded asphalt, with a plan to apply this nationwide via AustRoads.

Liam O’Keefe, Market Development Manager at TSA, says the organisation is also looking at gap graded, along with open graded specifications, which can account for about 10 per cent of the available feedstock of tyres being used productively in roads.

Liam also cites Geelong-based manufacturer Polymeric Powders and Austeng as an example of innovation in the space of using TDP in civil engineering.

The company was initially provided with funding in 2016 to develop and test a new injection moulded tyre rubber and plastics composite pellet product for oil and gas, irrigation



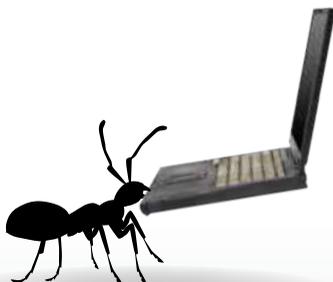
and sewerage pipes. The technology converts rubber into an activated powder that can be chemically bonded with polyolefin plastic and successfully passed stringent standard performance tests.

“Once we proved conceptually it could work through initial funding,

we then co-funded them for more than \$200,000 for the setup to manufacture that as a product in Geelong with co-funding from Sustainability Victoria,” Liam says.

Sustainability Victoria, through its Resource Recovery Infrastructure Fund, provided \$121,000 for the

## AUSTRALIA'S LARGEST FREE NATIONAL E-WASTE RECYCLING PROGRAM.



TechCollect is Australia’s only industry-funded, not-for-profit, free e-waste recycling and collection program. We are committed to the highest standards of recycling and are a trusted partner of many local governments and communities across the nation. We can help you with your e-waste recycling needs.

Call **1300 229 837** or visit

**[techcollect.com.au](http://techcollect.com.au)** to learn more.





11 - 13 OCT 2018

THE WORKSHOPS RAIL  
MUSEUM, IPSWICH, QLD

**Future Waste Resources 2018 - Queensland's Innovation in Recycling Secondary Resources Convention** will provide key information about how with the right policy settings, Queensland can achieve these targets aspired to by all stakeholders.

This international event will feature an impressive line-up of local and international keynote speakers and industry experts, presenting practical insights and outcomes that articulate how Queensland can deliver a new business environment focused on secondary resource and recycling management.

FWR 2018 will showcase and share ideas that demonstrate more sustainable ways of managing our waste and of achieving more in terms of the sectors resource recovery and in using these streams locally and future investment opportunities.

**Earlybird registration ends 31 August 2018**

HOSTED BY:



SUPPORTED BY:



## COVER STORY

project, with Polymeric Powders now looking at the production of tyre crumb derived composite material from end-of-life tyres for use in the large volume irrigation and sewerage pipe markets.

### LOCAL GOVERNMENT NETWORKS

As the new Business Relationship Manager, Jan will also play a key role in TSA's increasing role with local government. He will work with councils to help them in the procurement of recycled end-of-life tyres in roads and permeable paving as examples, and assist them in their tenders.

Jade Barnaby, TSA's Accreditation and Compliance Manager, will also do more work with downstream vendors to ensure the end destination of exported tyres is going to an environmentally sound use.

Overall, Dale is inspired by the growth in the organisation, with participants in the Tyre Stewardship Scheme rising by more than 500 over the past two years to more than 1500.

"The recognition and acceptance from the tyre industry of the role TSA plays, and consumer awareness, has changed significantly in my 17 months to now and that is largely thanks to our initiatives such as the Green Tyre Project," Dale says.

"Seeing us go from a fund basically at commencement a couple of years ago to now have \$3 million worth of R&D shows we've come a long way." ■



TSA is moving into working with fleet managers, as they drive on Australian roads that are increasingly made from tyre-derived products.



# RELIABLE & ROBUST

BoB Hooklifts have been designed to be easily serviced and maintained.

P. 03 9339 9999

E. [sales@vaclift.com.au](mailto:sales@vaclift.com.au)

W. <http://www.vaclift.com.au>

A. 39 Tullamarine Park Rd, Tullamarine VIC 3043



# E-waste ban breakdown

THE VICTORIAN GOVERNMENT HAS ANNOUNCED IT WILL BAN E-WASTE TO LANDFILL ON 1 JULY, 2019. WILLIAM ARNOTT INVESTIGATES HOW THE BAN WILL AFFECT THE STATE AND WHAT IT MEANS FOR THE INDUSTRY AND LOCAL GOVERNMENT.

**A**s technology advances, so too does our hunger to upgrade. New phones, computers, televisions and all manner of gadgets and gizmos are released every year.

E-waste is one of the fastest growing waste streams in Australia, growing three times faster than general municipal waste, according to the *2017 Managing e-waste in Victoria Policy Impact Assessment*. It's estimated that television and computer waste alone

will grow by more than 60 per cent – 85,000 tonnes – over the decade to 2024.

When sent to landfill, e-waste can be dangerous to the environment and human health due to the chemicals and materials inside. To pave the way for increased recovery of these products, the Victorian Government announced a ban on e-waste to landfill.

The ban aims to increase the amount of resources recovered and support jobs

in the recycling industry, while keeping volatile chemicals out of landfill.

The state government categorises e-waste as any device with a power cord or battery that is no longer wanted or useful, although this definition may change at a later date. This definition includes more than just phones and televisions, but also products like microwaves, toasters, lawn mowers or lighting equipment.

In order to support the ban, the

E-waste is growing three times faster than municipal waste in Australia.

Victorian Government announced a \$16.5 million investment into the sector to improve the infrastructure necessary for the ban.

Sustainability Victoria is rolling out the funding, spending \$15 million of the package on supporting the upgrade of more than 130 collection and storage sites across Victoria, with the remaining \$1.5 million going towards an awareness and education campaign.

### THE LIFE CYCLE OF E-WASTE

The Victorian Policy Impact Assessment estimates 109,000 tonnes of e-waste was generated in Victoria in 2015, with the assessment citing studies in the UK suggesting around 75 per cent of e-waste is generated by households.

The market value for the recycled components, the cost of reprocessing, fluctuating commodity prices and the regulatory framework that affect e-waste streams are hurdles for re-processors to overcome while the landfilling of e-waste is still legal.

To encourage higher rates of recycling of e-waste, the National Television and Computer Recycling Scheme (NTCRS) was introduced in 2011. This mandatory product stewardship scheme requires manufacturers or importers of television and computer products over a certain threshold to pay for a proportion of the recycling.

The funding comes from some of the largest IT companies in the world, including Dell, Apple and Toshiba and goes towards schemes like TechCollect – a free recycling service part of Australia and New Zealand Recycling Platform.

Warren Overton, Australia and New Zealand Recycling Platform Limited Chief Executive Officer, says the Victorian Government's broader definition of e-waste will require

the infrastructure to account for the wider scope.

"TechCollect currently provides collection for products under the NTCRS for free. However, it would be possible to expand our collections to cover the updated definition of e-waste," he says.

"We would be able to collect e-waste and send it to our recyclers who would separate it out and be able to charge different amounts for quantities of products. After the material has been determined, anything that would fall under our program would be covered, though councils and businesses would need to pay for any residual collected."

Warren says that moving to a broader definition of e-waste when compared with what is covered in the NTCRS would help limit confusion from the public about what exactly can be recycled.

"This will ultimately lead to a better outcome and keeps recycling e-waste simple. By keeping the separation at the recycler, it means the waste industry can piggyback on the program's already established logistics," Warren says.

"The infrastructure is there, but it needs to be improved on and consumers need to be made aware how important it is to recycle their old electronics. The ban will certainly drive more e-waste recycling and it will be important to make sure it integrates with, and takes advantage of, existing programs."

### BATTERY POSITIVES

The banning of e-waste also brings the issue of batteries to the forefront.

Daryl Moyle from mercury recovery and recycling company CMA Ecocycle warns of the dangerous chemicals within batteries that can seep into landfills from e-waste.

"Mercury is a potent neurotoxin that

can affect the brain, liver and kidneys and cause development disorders in children.

"Once buried, inorganic mercury is converted by bacteria into a more toxic form known as organic or methylated mercury," he says.

"The resultant leachate can seep slowly out of the landfill into the soil and groundwater and can then bioconcentrate up the food chain."

Daryl also says there is a significant fire and explosion risk for e-waste once it is sent to landfill.

"There have been many cases of fires in landfills across the world directly attributed to batteries. The key is in the safe collection, sorting, storage and processing by professional recyclers," he says.

The Australian Battery Recycling Initiative (ABRI) was developed to ensure batteries are kept out of landfills and advocate for the creation of a voluntary product stewardship scheme.

Libby Chaplin, ABRI CEO, says the timing of the ban is excellent given the exponential increase in generation of waste batteries across Australia.

"It is very pleasing to see batteries given prominence in the Victorian



### Fast Fact

The Victorian Government announced in April that the collection site infrastructure upgrades would ensure 98 per cent of Victorians in a metropolitan area would be within a 20-minute drive of an e-waste disposal point, and that 98 per cent of Victorians in a regional area would be within a 30-minute drive of a disposal point.

e-waste landfill ban,” Libby says.

“Given the toxicity of some materials contained in batteries, the fire risk associated with them and the valuable resources they contain, there is a clear imperative to divert them from landfill to a safe and responsible recycling scheme.”

Libby says banning batteries from landfill is one essential part of the solution and has called for a national battery stewardship scheme that sees industry and government working together.

“Such a scheme would see a national network of battery drop-off points, collection of waste batteries and support for expansion of local recycling operations,” she says.

“To enable rapid expansion of services, the key will be to leverage existing infrastructure and build on collection services offered in related areas such as for the NTCRS or used lead acid battery collections.

“This scheme is needed to ensure emerging state-based approaches, such as the Victorian landfill ban, are viable and reduce the burden on local councils that remain responsible for managing environmental impacts and

fires of the inappropriate disposal of batteries to landfill.”

### GETTING READY FOR THE BAN

Mark Smith, Chief Executive Officer of the Victorian Waste Management Association, says one of the challenges the global waste management industry faces is the exponential growth of e-waste.

“It would be logical for any switched on government planning for the future to look to examples like Japan who have systems in place to extract materials and put them back into the system,” he says.

Mark says while the plans are still being finalised, it is likely that the infrastructure that will need to be upgraded will be the state’s transfer station network.

“One of the requirements of the e-waste ban is ensuring the infrastructure is within a close proximity to the community,” he explains.

“The challenge then becomes getting the public to start engaging in practices they’re not already doing.”

Mark says education is vital to ensuring the public is ready for the ban.

He points to research performed by BehaviourWorks Australia for the state government that shows many people aren’t aware of what e-waste is.

“The term e-waste has the potential to create a large disconnect across the community as there is a whole spectrum of understanding the problem. While the industry is switched on and aware of the problems, there are still some people that think e-waste is the contents of their junk email folder,” he says.

“Sustainability Victoria helps with comprehensive behaviour change and market testing. I would encourage local councils and businesses to adopt the statewide message to limit mixed messaging and decrease confusion.”

“One of the advantages of pushing the ban back a year is the public campaign will have time to simmer and filter through.

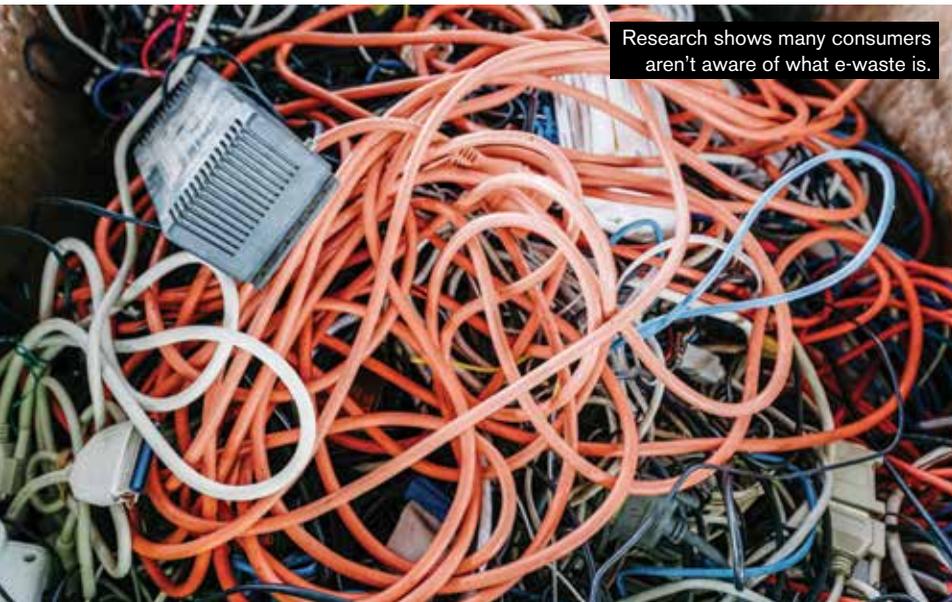
“The \$1.5 million support package for the awareness campaign allows Sustainability Victoria to put together material and can be rolled out at a local level.”

A Sustainability Victoria spokesperson in July said the funding is also being used to design the campaign through its website, video and collateral and to provide a range of communications to councils.

“The first part of the campaign will build this knowledge by focusing on what e-waste is and why we need to manage it differently.

“The second part of the campaign in 2019 will be supported with statewide advertising and focus on where to take e-waste for recycling,” the spokesperson said.

“The campaign will also be available for councils to use locally and a range of campaign resources will be available based on input provided by councils during the campaign design consultation in 2017.”



### WHAT IT MEANS FOR COUNCILS

Marks says that for most people, their first point of contact will be their local councils. He says that Sustainability Victoria will likely have a contingency plan in place for when people begin contacting their local government for more information.

“Because of the fragmented nature of waste management across local government, there will be a number of different approaches,” he says.

“One council’s operation could be different to the one next door. A number of options can be entertained, but each will have a price tag attached.”

“Some may go down the path of just ensuring that transfer stations are established within 20 minutes of urban centres, while others may also offer e-waste collection alongside hard waste collection.”

Mark says local councils and some industry operations have felt slightly out of the loop on what the ban will mean for day-to-day operations.

“My understanding is that a lack of information and a certain amount of ambiguity about how the ban will be rolled out has contributed to the state government’s decision to push the ban back to 2019.

“If councils decide to go above and beyond the infrastructure package, any cost associated with it would have to be picked up by someone, most likely through rates.”

Mary Lalios, President of the Municipal Association of Victoria (MAV), the advocacy group for local government in Victoria, says councils have welcomed the goal of reducing the amount of waste sent to landfill and would like to see the principle

of product stewardship underpin any e-waste landfill ban.

She explains that as landfill operators, councils face additional costs as a result of the e-waste ban, with no support from the state government currently being offered.

“Councils will need to update waste management plans, renegotiate and enter into new contracts, upgrade waste infrastructure, increase staffing at transfer station collection points and rework council waste information and education materials,” Mary explains.

“For councils without transfer stations, or with populations that cannot easily access transfer stations, they may need to establish and manage additional collection points at a cost to ratepayers.”

Mary says the MAV has requested the state government allocate funding

Systems and equipment from leading global manufacturers including:



Density Separators



Multi Stream Fingerscreens



Dosing Hoppers



Ballistic Separators



Turn-Key Systems



WtE Biogas Plants





**Fast Fact**

Sustainability Victoria's E-waste Infrastructure Grants package will fund fixed collection and storage infrastructure to primary and secondary sites identified in the Victorian e-waste Infrastructure Network Assessment Report.

Primary and secondary sites are the most significant sites in terms of populations services and the amount of e-wastes that need to be collected and sorted before processing.

Sites identified in the Victorian e-waste collection network can apply for funding of up to \$100,000 in accordance with the funding criteria. Grant proposals close 3pm, 14 September 2018. For more information, visit: [www.bit.ly/2tUkH6i](http://www.bit.ly/2tUkH6i)

from its Sustainability Fund to support and compensate councils for increased costs from the ban over the first 24 months.

“A network of convenient and accessible e-waste collection points will be essential to encourage community compliance with an e-waste to landfill ban,” Mary says.

“More collection points are needed than can reasonably be provided by councils. We have called on the state to work with retailers to establish collection points at outlets that sell electronic goods.”

“We believe an expansion of e-waste product stewardship programs is also vital to improve e-waste recycling rates.

“We want the state to strengthen its advocacy to the federal government to expand existing product stewardship

schemes and establish new schemes so that the costs associated with recycling e-waste are borne by those producing, selling and purchasing the products,” she says.

The MAV has also called upon the state government to double the \$1.5 million which had been allocated for the education campaign. Mary says the current amount is inadequate when most Victorians don't know what e-waste is, let alone how to properly dispose of it.

“Given the volatility of the recycling market, we also remain concerned about the risks to councils as the collectors of e-waste if they are unable to pass on collected e-waste to reprocessors at a reasonable cost. Significant state investment in market development is essential.” ■



# A LOAD OFF YOUR MIND

How efficiently do you handle your waste? Whatever you dispose of — building rubble, gravel, scrap metal, containerised equipment — you will stay competitive with MULTILIFT hooklifts and skiploaders, and Moffett truckmounted forklifts. Our reliable hooklifts, skiploaders and forklifts provide market-leading productivity to keep you on top of any challenge in load handling. Take a moment to discover how Multilift and Moffett products can lift your performance.



1300 HIAB AU 1300 442 228 [hiab.com.au](http://hiab.com.au)



**MULTILIFT**



**MOFFETT**



## 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

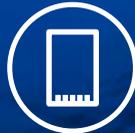
Recycling solutions for all types and quantities of batteries in world class plant. From dry cell to the latest in electric powered car ev-batteries.



**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**

# Preparing for the QLD landfill levy

MANDALAY TECHNOLOGIES' LACEY WEBB EXPLAINS FIVE KEY FACTORS LOCAL GOVERNMENT AND PRIVATE SECTOR OPERATORS SHOULD ACCOUNT FOR WHEN GETTING THEMSELVES 'LEVY READY' IN QUEENSLAND.

It's now clear that a landfill levy is on its way in Queensland.

Set to commence in the first quarter of 2019, the levy will begin at a price of \$70 a tonne on general waste to landfill and increase by \$5 each year for the first four years.

But what is somewhat murky to some industry stalwarts are the risks and concerns stakeholders should be worried about in managing their data requirements. Likewise, the question to then ask is: how can these challenges be alleviated before the levy goes live in the first quarter of 2019?

Previously, the levy zone comprised 34 local government areas. Public and private sector landfills within this levy zone had to report on the

waste received for disposal and remit payments to the department.

One of the key changes this time round is that the waste disposal levy will apply to all general waste streams, notably municipal solid waste, while affecting 38 local government areas out of 77 – more than 90 per cent of the state's population. Operators will be required to similarly submit data to the Department of Environment and Science on the waste received at the site for disposal, as well as that which was received and segregated for recovery.

Lacey Webb, Senior Consultant at waste data consultancy firm Mandalay Technologies, says that the wide scope of the levy means it's important that every stakeholder is "levy ready" when

it kicks in next year.

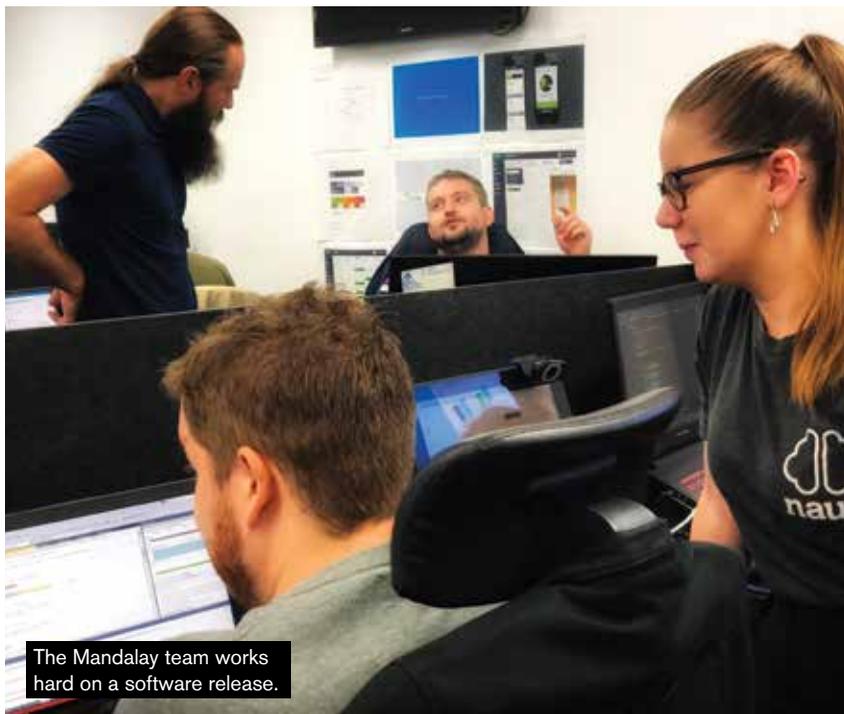
She says that similar to the last time the levy was introduced in Queensland, there will likely be last minute changes and questions that can't be answered once the levy has gone live.

"This makes it imperative that facilities focus on a broad range of preparation areas now," Lacey explains.

It's why waste data consultants Mandalay Technologies are hosting a series of industry webinars to dissect the key operational priorities for local government and private sector operators to become levy ready. The first webinar was held in June and comprised a range of commercial operators and local government representatives.



Queensland's directions paper highlights that landfill infrastructure, such as weighbridges and security fencing, will need to be made levy ready.



The Mandalay team works hard on a software release.

?

### Fast Fact

Mandalay levy ready focus – the top five issues:

- Who has access to your data and how do they manage it?
- Is your data centralised?
- Pricing and change mechanisms – how will you price, how will you communicate that with your customers?
- Multi-site environments – how will you manage the different data requirements of weighed and non-weighed sites?
- Validate core processes now that may impact levy calculation – stockpiling methods, capturing of residuals/operational use products, and free or charitable transactions.

Lacey says the feedback that emerged from the webinars was that each council or operator had their own focus and concerns, rather than everyone sharing the same problems, with some consistent themes emerging.

Mandalay's levy ready focus led them to five initial focuses. These were: who has access to your data and how do they manage it? Is your data centralised? How will you price and communicate that with your customers? How will you manage multi-site environments? Finally, how will you validate core processes that may impact levy calculation, including stockpiling and the capturing of residuals or exempt waste streams?

Lacey points out that the question of who is assessing and managing data has implications for understanding the integrity of information. She asks how reliable are the data and are there too many staff members overseeing it, leading to unnecessary risks and complexity of audit? She says this will be a key priority for Mandalay in its assistance to local government and

private sector stakeholders.

The second question about centralised and standardised data, provides opportunities to better align existing systems.

“If you’ve got seven facilities, you need to ask: are they all using the same data set? Because if they’re not, then you may have to administer levy changes for those seven different facilities separately, which can be time consuming and increase the risk of error,” Lacey says.

“A single location to update your data with levy requirements would be a much more manageable update by your software provider, than if all seven locations have to be administered.”

The third consideration, pricing and change mechanisms, highlights the importance of both communicating these changes to customers prior to the new levy and also understanding your own internal price change mechanism. At the webinar, council operators asked: how will they communicate this to their customers, what’s the language and rhetoric that needs to be used and what

is their timeline for communication?

Lacey says these are important considerations, particularly since the launch date is at this stage indicative.

“The more prepared we can make our frontline staff for the levy go live, with knowledge, verbal scripts, or in some cases handouts and escalation points, the better positioned they will be to deal with challenging customers,” Lacey says.

She says that promotion of the levy isn’t the only focus when it comes to pricing, which is especially the case for local government areas, who may have already gazetted their pricing for the financial year.

“It’s imperative that we understand how to change pricing. Do we have mechanisms in place to add a levy, or amend pricing that’s already promoted and where will the changes need to be actioned visibly?”

Lacey says the management of sites without weighbridges raises several issues around infrastructure and staffing requirements. She notes sites may have no weighbridge, or they

At this stage in the process, the directions paper indicates levy funding will be available to local government for infrastructure upgrades.



may have multiple weighing points and infrastructure requirements may lead to further administration from staff.

She says the question of standardisation also arises when you start to look at whether operators are charging by tonne or by volume.

“If you have a facility that charges by tonne, with an inbound and outbound weigh point, it’s pretty straightforward that your pricing will now be \$70 per tonne on top of your operational price, but what does that mean per metre?”

“Is the Department of Environment and Science going to give us a framework of determined or deemed weights such as the NSW Environment Protection Authority does? Are they going to give us conversion factors for volumetric pricing?”

Lacey says these considerations can lead to a change in training requirements for your administrative and operational staff.

With many councils now looking at their infrastructure, Kerry Dalton, Coordinator Waste and Recycling Environmental Compliance at Bundaberg Regional Council, notes the inclusion of municipal solid waste will affect its weighing systems.

“At the moment, we don’t weigh our domestic vehicles. They’re just charged

based on whether it’s a ute or a car. Under the new legislation, we will have to weigh every single domestic vehicle going to the landfill, which means we will have all these vehicles going over the weighbridge,” Kerry explains.

Kerry says as weights aren’t stored for domestic vehicles, they will have to now tip their waste and return for reweighing, adding that the council is now exploring other methods of tackling this.

Bundaberg Regional Council operates seven landfills out of 12 sites and notes that it will have to install weighbridges at all of its landfill sites by 2024.

“There’s a tonnage-based system applied so your allowable tonnages at a landfill will determine when you need to install the weighbridge,” she says.

“What we’ll have to do is look at those facilities, particularly those under 2000 tonnes and consider other operational alternatives. Turning them into transfer stations can create a financial impact.”

Kerry says getting councils levy ready will require significant training on how to record waste movement from site to site, which may involve using digital devices such as tablets to communicate this or bringing in additional staff.

Mandalay’s final consideration, validating your core processes in preparation for the Queensland levy, focuses on stockpile management, capturing residuals on site and anything that may need to be recorded as operational use.

Lacey notes that if operators are pulling residuals out of the waste stream, but don’t have a method of capturing that data, then they could end up with unnecessary landfill levy costs. She says that now is a good time to look at tightening up your stockpile processes and considering how you can track the materials that don’t go to landfill with internal transactions.

“Past levy experience and our experience in other states tells us that the more information that a facility has to support recovered items, or those used for operational purposes, the more confident they can be in not paying levy unnecessarily.”

Lacey says that aside from the importance of understanding vehicle numbers across a facility for operational decision making, capturing free loads or charity/donation loads is also something that facilities should focus on. She notes that often these may not be captured in a transactional system.

“As we move into a leviable model in Queensland, these transactions will be reportable for levy or exemption calculation, so it is imperative that we start the process of changing habits now,” Lacey says. ■

*Mandalay Technologies will host a series of webinars available for all Queensland waste managers to attend. Their next webinar will focus on a comprehensive levy ready checklist and will be held at 10-11am on 28 August, 2018.*

*To register, head to [www.qld-waste-levy-webinar.eventbrite.com.au](http://www.qld-waste-levy-webinar.eventbrite.com.au) or email: [alogovik@mandalaytech.com](mailto:alogovik@mandalaytech.com)*

## WASTE COLLECTION TRUCKS

From dual control vehicles to rear and side loaders, *Waste Management Review's* October issue highlights how the next generation of refuse trucks are embracing innovations in safety and a low carbon footprint.



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](http://www.wastemanagementreview.com.au) – with free open access

The article distributed in the industry-specific e-newsletter – *Waste Management Review* eNews Weekly

**BOOKING DEADLINE: WEDNESDAY 29 AUGUST 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](mailto:chelsea.daniel@primecreative.com.au)

[www.wastemanagementreview.com.au](http://www.wastemanagementreview.com.au)

# LISTENING TO LOCALS

MELBOURNE'S CITY OF MONASH MAYOR PAUL KLISARIS TELLS WASTE MANAGEMENT REVIEW ABOUT THE COUNCIL'S EFFORTS TO KEEP FEES LOW FOR ITS RATEPAYERS IN THE FACE OF CHINA'S NATIONAL SWORD.

**Q. What are some of the challenges for Monash surrounding collection and recycling and how is council tackling those challenges?**

Increasing density of housing in our municipality causes more on-street parking and that can impact collections. We have a customer-focused approach: we're not just picking up bins – we're looking after our customers' most important service. Our customers rank our waste services higher than any other service and place it above all others in terms of importance. We're fortunate to have a collection contractor in Solo Resource Recovery that supports our customer service principles and contributes to a partnership approach to waste collection.



Mayor Paul Klisaris.

The recent ban by China on accepting recycled product from Australia has had a significant impact. We secured our household recycling service with Visy, despite the volatility of the recycling industry in the wake of the global crisis. Monash Council was previously receiving a rebate each year from our contractor for household recycling. From March 2018, we now pay to maintain the collection service. This is an unexpected net cost to council of \$1.5 million per year.

As the council with the lowest rates in Victoria, we have only limited choices in how we can fund such an unexpected shortfall. We applied to the Essential Services Commission (ESC) for an increase in the Victorian State Government's rate cap of 2.25 per cent to 3.53 per cent and in June we were told the ESC had increased it to 2.57 per cent for 2018-19. This was not the ideal decision for us and still leaves a shortfall of funds.

We are one of the few Victorian councils without a separate waste charge, so we are not able to recoup the deficit in money by raising that charge like other councils have been able to do.

**Q. What do you look for in a successful tender and how do you go about it?**

Unquestionably we look for value. Monash Council has the lowest rates in Victoria on a per capita basis and you can't do that if you don't achieve value in the provision of waste services. The other key elements are dedication to the service delivery and an alignment of values to customer service excellence.

**Q. Which bin system do you use and why?**

We have the standard three bin system with the garbage bin at 120 litres. We are introducing a Food Organics in Green Organics (FOGO) service around 2021, which will be a great way to divert food scraps and waste away from landfill. It's estimated that we could divert about 9000 tonnes of waste from landfill each year by introducing FOGO and educating our community about its benefits.

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

Our best opportunity is coming in the next few years as we adopt FOGO, where our garden waste bins will also become receptacles for food waste. Currently up to half of waste in garbage bins is food waste that can be converted into compost instead of buried in landfills creating methane.

Our waste management team are also supporting the Metropolitan Waste and Resource Recovery Group (MWRRG) by assisting in the development of a business plan and contract specifications for an advanced waste and resource recovery treatment facility for the south eastern region of Melbourne.

**Q. What has been working particularly well over recent years for the council in terms of waste management/recycling services?**

We've been really encouraged by the feedback from our community that our

package of waste services delivery is working effectively. We recently had an overwhelming survey response on our hard rubbish collections. The community strongly supported the existing annual collection and has endorsed an additional booked collection service (full fee user pays).

Most recently, during the contract upheaval within the recycling industry, Monash was able to secure the fulfilment of the remainder of our contract without any disruption to our kerbside collection service.

Community education is vital for us. In particular, we have reached out to our Monash University student population with a dedicated free hard waste collection. This project was jointly funded by council and Sustainability Victoria and took place over three weeks in June and July at the end of this semester.

This hard waste collection is a great community education tool and helps to keep the streets clean, which is something highly valued by many residents. We have a fairly transient population of students, particularly from overseas who live in our municipality and attend the university, and we found that when they moved from their accommodation there was a lot of rubbish dumped in streets, and at properties.

The student precinct was becoming unsightly and it was a source of complaints from the community. We needed to do some additional education about the use of our kerbside collection services that had proved underutilised around the student precinct.

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

Engaging our community in the correct use of the three-bin system is a challenge. Our community is diverse and City of Monash has the fifth highest net overseas migration of any other local government authority in Australia. We

provide a range of education materials on our website and updates on our social media platforms as well as printed media and flyers in English and several other languages, including Chinese and Greek.

Our Bin Audit Program provides immediate feedback to residents about their recycling performance. While traditional printed methods still resonate with some members of our community, it's also important to personally engage with residents.

We do so via our social media and our communications team monitors these accounts after hours and on weekends, so we are often providing customer service to people based on requests/queries from social media, especially during the period of our hard waste collection. We also hold regular listening posts where people can come and talk to us about any issue and waste, particularly hard waste, if regularly raised.

We're certainly seeing great results from streetside conversations with residents that we have been unable to achieve with auditing and correspondence. That is where our greatest opportunity for improving our community engagement and education is.

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

To be fair to the waste collection industry, standard systems are very efficient. From a council perspective, route service validation is the key to service efficiency through the elimination of missed bins.

Software that supports the driver to ensure a street or a section is not missed is very important. Our drivers are contending with much higher traffic volumes and more on street parking than ever before, making the job of seeing every bin a challenge. Unplanned route changes due to obstructions from cars

increase the risk of missed bins. Also, validating the service provided so we are not returning to clear bins twice means we can complete the service more efficiently. It's possible that up to half of the bins reported as missed are actually late or refills, but it is difficult to prove so currently we return each time.

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

We have a small team dedicated to sustainability and waste management. This team handles the customer service, contract management, project delivery and the operation and management of a waste transfer station receiving more than 80,000 customers per year.

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

The waste management landscape has changed dramatically. Individually, councils have lost some of their independence as they become participants in contracts with regional facilities. The recent recycling industry upheaval and diminishing access to local landfills have highlighted that councils are vulnerable to the market forces of recycling, and the failure to protect landfills with buffers. The increased cost of these issues to our communities is enormous with recycling gate fees and high transport costs to distant landfills.

Local governments need to be more powerful as a collective – we don't run the waste and recycling industries. We are a customer of these industries and provide a vehicle for our communities to have their waste collected. The local government sector would benefit from more support at state and federal government levels to support the management and development of the recycling and waste industries. ■

# Digging for GOLD

WASTE MANAGEMENT REVIEW TALKS TO NICK FLORIN FROM THE UNIVERSITY OF TECHNOLOGY SYDNEY ABOUT THE BILLIONS OF DOLLARS' WORTH OF METAL TRAPPED IN THE WASTE STREAM AND WHAT NEEDS TO BE DONE IN ORDER TO CAPTURE THEM.

Australia has been blessed with bountiful resources which are one of the country's primary exports.

According to Austrade's 2017 export performance report, minerals dominated the lion's share of export values. Australia is also one of the largest producers of aluminium, nickel, copper, iron ore and zinc.

These metals are used in an array of different products, from soft drink cans, to mobile phones to washing machines. These products are often made up of a mixture of valuable metals and minerals.

In an effort to better understand the complex landscape of recapturing this value, five universities came together to research the topic in the Wealth from Waste project.

According to the report, domestic processing of metal scrap only occurs to 15 per cent of metal consumed in Australia, even though it is possible to see numbers as high as 50 per cent. This kind of processing would be worth around \$6 billion to the Australian economy per year.

Similarly, research from the Modelling Metal Flows in the Australian Economy estimates there is the potential to recover 27 per cent of steel from the waste stream and 33 per cent of aluminium, which could be reformed into new shapes and products with higher market demand.

Nick Florin, Research Director at University Technology Sydney Institute for Sustainable Futures, was one of the researchers in the Wealth from Waste project.

The research analysed groups of metals to determine how much value could be extracted from the waste stream. Consumer electronics can contain up to 80 different materials, including gold, which Nick says could make up almost 25 per cent of the value in the electronic waste stream.

"Metallic elements are inherently recyclable as they retain their physical properties and can be reused multiple times. However, in certain combinations, where metals have been mixed together, they cannot be easily unmixed and this puts a limitation on the potential to

reuse and recycle them," Nick says.

"As products become more complex, we have found the reprocessing capabilities are not keeping pace with technological development, highlighting a need to redesign for reuse and recycling."

Nick says Australian society depends on metal and as sustainable technology is developed this will continue to be the case.

"To create solar panels, wind turbines and batteries to store renewable energy, metals like lithium and cobalt are in high demand," Nick explains.

"With growing demands and conventional ore grades also declining in quality, it means more energy is needed to create and process the metals. At the moment, there is a growing stockpile of metal resources that could possibly be captured with the right infrastructure."

The amount of waste metal generated in Australia has grown from 2002 and 2011, from about five to six million tonnes or around 270 kilograms per person.

Another major roadblock to

recycling metal is the geographical size of Australia itself. The distance between points in the supply chain has led to higher collection costs compared to other nations.

“High collection costs due to low population density for a material that has a relatively low intrinsic value on a per unit basis creates significant economic barriers. Technological barriers also exist, as products containing some of the most valuable minerals are not designed to facilitate remanufacturing,” Nick says.

### LASTING LONGER

Nick explains that extending the lifespan of a product before it is thrown away increases the material efficiency of the metals in an object without needing additional energy to reproduce it via recycling.

He points to a recent research paper from the Wealth from Waste cluster, “Slowing” and “narrowing” the flow of metals for consumers goods: evaluating opportunities and barriers, which that reports the strategy for

extending product lifespan is important for products with high environmental impacts during the production phase.

“The trend of shortening lifespans of products over time is due to the behaviours of both producers and consumers: producers aim to sell more products, consumers may desire new products and replace them before they stop working,” the report says.

“Technological obsolescence may also force consumers to purchase a new product sooner.”

Research from the Australia Mobile Telecommunications Association found that the desire for new technology was the biggest reason customers had for upgrading their old phones in 2010 to 2014.

It found as smartphones have become more common, consumers have been holding onto their phones for longer and upgrading when they become too slow.

“For consumer products with short lifespans such as personal electronics, the majority of the environmental impact occurs in the production

phase,” the report says.

“While consumers have low expectations for their lifespans, from an environmental perspective, there is a strong case for extending the product lifespan.”

Nick says there are around 22.5 million mobile phones that have been forgotten in storage in Australia.

“People have a tendency to hoard phones away instead of recycling them when they upgrade, which makes it difficult to recover the valuable resources stored in them,” Nick says.

“Some products like phones could take advantage of a leasing model, where customers pay per month and are more likely to return it when it reaches the end of its life.

“Incentivising return logistics means products can last longer before being refurbished and sold.”

Nick says that by promoting stakeholder collaboration and new initiatives to improve recovery pathways, the amount of value from waste could be increased. ■



Research found domestic processing of metal scrap only occurs to 15 per cent of metal consumed in Australia.

# Collecting tech

WARREN OVERTON FROM TECHCOLLECT EXPLAINS TO WASTE MANAGEMENT REVIEW HOW THE ORGANISATION'S FREE SERVICE IS KEEPING TVS AND COMPUTERS OUT OF LANDFILL.

Six years ago, the National Television and Computer Recycling Scheme (NTCRS) was established for Australians to recycle their old electronics. Large companies that manufacture or import computers or televisions in Australia are required to help fund the scheme.

This led to the creation of TechCollect, led by the Australian and New Zealand Recycling Platform (ANZRP), to reduce the nation's waste by collecting their old technology.

Since 2011, TechCollect has recycled more than 135,000 tonnes of e-waste. Annually this comprises around 12,000 tonnes of steel, enough to build 10,000 cars, alongside valuable materials such as gold and palladium.

Warren Overton, Chief Executive Officer of the ANZRP, says the scheme is industry funded, meaning it can provide services for local councils and organisations for free.

"Market research has shown there is a big gap in understanding about free recycling services available. Because our membership, made up of world-leading IT companies, pays for the logistics and recycling of the products created, we can provide a free service," he says.

"Our annual percentage target for recycling at the moment is 62 per cent, but we're moving towards hitting 80 per cent. The NTCRS has been an amazingly successful program that has diverted over 282,000 tonnes of e-waste from landfill around the country."

There are currently more than 100 collection points in Australia for the TechCollect program with recyclers in each state keeping logistical costs low.

"We offer bins, signage and training

for free to councils, with many councils joining the program after they learn about how successful and cost effective TechCollect is," he says.

Warren says Australia's sparse population density can make reaching regional areas difficult. However, TechCollect has been able to find opportunities in regional communities.

"One of the ways regional councils can make e-waste recycling cheaper is through collaboration and aggregation. For example, if a council has six towns, leveraging the existing infrastructure to deliver discarded electronics to a central location can ease the logistical burden," Warren explains.

"Innovation in the processing sector are also helping regional areas, with some really exciting opportunities in 'micro factory' technology currently being designed by the University of New South Wales."

Warren says one of the biggest barriers

to electronics recycling is data security.

"People are concerned about their personal data, and rightfully so. It can be difficult to clear a device, but there is usually information available online on how to do it. We are investigating ways to make it easier for people before recycling their old technology," Warren says.

Education is also an important part of TechCollect's program, which funds promotion and community awareness campaigns like the Young E-Waste Hero awards. "Schools are filled with digital natives, so it's important to educate children early about how to properly recycle of their technology. Consistent, simple, and constantly reinforced awareness of the services available means people will be more likely to recycle."

To learn more about TechCollect or your nearest drop-off site, head to [www.techcollect.com.au](http://www.techcollect.com.au) ■



There are more than 100 collection points in Australia for the TechCollect program.

**WHATEVER YOU NEED,  
FIND IT ON FERRET.  
THE SEARCH IS ON.**



**RELY ON AUSTRALIA'S MANUFACTURING, MINING AND INDUSTRIAL HUB**

70,000 monthly users can't be wrong. Find what you're looking for with over 12,000 business listings and 8,000 specific product listings. Access relevant information and resources, empowering you to make a qualified purchase decision. You can always rely on your industry hub.



**FERRET.COM.AU**

FERRET GROUP  
OF WEBSITES

Manufacturers'  
MONTHLY

Mining

Food & Beverage

Safe  
towork

waste  
MANAGEMENT REVIEW

PACE  
PROVIDE A COMPLETE SOLUTION

Trailer

Electronics

PRIME MOVER

ROADS  
& INFRASTRUCTURE

LOGISTICS &  
MATERIALS HANDLING

# Nothing left to chance

AS SUEZ TENDERED FOR ITS MAJOR CONTRACT WITH BRISBANE CITY COUNCIL, THE COMPANY SOUGHT TO IMPROVE ITS SAFETY AND SECURITY WITH SURVEILLANCE SYSTEMS BY HI TECH REAR VISION.

One of the key learnings of SUEZ from its 16-year contract with Brisbane City Council was the need to improve safety conditions for its drivers and the security of its fleet.

Earlier this year, Brisbane City Council and SUEZ renewed its contract for an additional 16 years, which has been held continuously since 2002. While continuing its strong reputation for high quality service and

a competitive tender, Rob Nimmo, Council Contract Manager, SUEZ Australia & New Zealand, tells *Waste Management Review* that one of the key factors in getting the renewal over the line was a detailed and thorough surveillance system.

“I’ve been with SUEZ since 2006 and the contract renewal was one of the best days of my career. The 16-year contract shows Brisbane City Council’s forward-thinking perspective in giving us the

ability to be flexible in our fleet and trial a variety of equipment,” Rob says.

As one of the largest contracts in the southern hemisphere, SUEZ carried out due diligence to protect its drivers handling 125,000 services a day and ultimately support its customers into the future.

“One of the biggest issues we’ve had in the past was accident damage, where it has been alleged our refuse truck damaged a post box or another



Brisbane City Council and SUEZ renewed its contract earlier this year.

vehicle,” Rob explains.

“We were in a difficult situation with having to undergo an investigation. Having a comprehensive surveillance system has that two-fold effect where it ensures drivers are following correct procedures, while also giving you the ability to mitigate vexatious calls with evidence.”

At the beginning of last year, Rob says he and the IT project team sought a high resolution camera system for the 148 vehicles scheduled to hit the road once the contract recommenced on 2 July, 2018.

After looking at a number of suppliers, Rob says he was impressed with Hi Tech Rear Vision, with company founder Fong Tio tailor-making a solution to support SUEZ’s needs.



SUEZ trialled Hi Tech Rear Vision cameras on its four IVECO vehicles.

With more than 20 years’ experience in the surveillance space, Fong developed eight cameras per vehicle to offer a front forward, side and rear-facing line of sight. The cameras offered recording and were specially made for the contract.

In mid 2016, SUEZ trialled the cameras on its four IVECO vehicles through to the end of that year, before agreeing to install the eight cameras on each vehicle upon commencement of the contract.

“We wanted a camera system that gave us the flexibility to allow drivers to take the required shots,” Rob says.

“What was equally important for us was the ability to record information and take that in the event of a query under specific circumstances. For example, if a bin was contaminated and not picked up, we could take a photo of it and send it through to council to show why it was not picked up.”

Fong’s service was also a factor in the decision, as he was there to assist SUEZ every step of the way.

“He identified what we were looking to achieve and designed it around our needs,” he says.

Rob says the camera can transmit

instant photographs of events – a unique feature when compared to other systems in the market.

He adds that the ability to transmit photos instantaneously as opposed to going through video saves time and resources that can be devoted to other critical areas of the business.

“The advantage for us is being able to have select photos taken and the ability to transmit those to a control centre,” Rob says.

The systems also offer up to 22 days’ of footage on the vehicle, with the ability to search for minute-by-minute footage and swap disks easily.

“From a security perspective, the benefits are huge.

“The cameras offer 360-degree vision and allows us to examine coverage while the vehicle is in motion.”

Rob adds that the software aligns well with all of its existing onboard systems.

He says he’s highly pleased with the service offered by Fong, who is on hand to provide any assistance should there be any difficulties.

“No problem is too difficult for Fong and he has helped us throughout the entire process, from the trial to deployment.” ■



The North East Program Alliance level crossing removal project saw the movement of 400 trucks in a single shift.



# Level crossing alliance

WITH ASSISTANCE FROM REPURPOSE IT AND EASTERN PLANT HIRE, THE NORTH EASTERN PROGRAM ALLIANCE COORDINATED A RESOURCE RECOVERY PROGRAM ON MAJOR VICTORIAN LEVEL CROSSING REMOVAL PROJECTS.

Victoria's biggest ever program to remove 50 dangerous level crossings began in 2015, with a goal of improving safety and congestion in the growing state.

Reducing congestion across the busy suburbs of Melbourne led to the establishment of multiple consortiums to remove the crossings, including the North Eastern Program Alliance, the North Western Program Alliance, the Western Program Alliance and the Southern Program Alliance.

The North Eastern Program Alliance, led by alliance members Laing O'Rourke, Fulton Hogan, Jacobs, Metro Trains Melbourne and the Level Crossing Removal Authority, saw the removal of the Grange Road level crossing in Alphington, the Lower Plenty Road crossing in Rosanna and a

track duplication between Heidelberg and Rosanna.

In a bid to improve the lives of the Victorian community, the alliance maintained a sustainability policy and ensured its stakeholders managed their environmental risks.

As the nominated disposal site, Repurpose It collaborated with the North Eastern Program Alliance and its logistics provider Eastern Plant Hire in charge of haulage and disposal. Repurpose It and Eastern Plant Hire worked across the Alphington, Rosanna and Heidelberg duplication track projects earlier this year.

Bulk excavation works were performed under occupation to remove the level crossings and facilitate the realignment of the new railway line, with alternative bus routes in place to

ensure minimal community disruption. The resulting disposal and recovery of green waste, vegetation, rail ballast and construction and demolition waste generated from the project was conducted in just under 30 days.

Bulk excavation works were completed after Easter, with more than 80,000 cubic metres of spoil generated and removed across the three sites. During the occupation, the project ran 24 hours a day, seven days a week. As such, there were upwards of 400 truck movements per shift.

Repurpose It was the only disposal site for the spoil generated across the three projects, with disposal at its Epping site beginning on 17 March and concluding just after Easter.

One of the company's directors, George Hatzimanolis, says the objective

on its side of the project was to recover as many of the materials generated from the excavation as possible.

He says managing the logistics of 400 trucks arriving at its Epping site in a single shift was an obstacle that was overcome with appropriate policies. In order to meet its objective to complete the task in as short a timeframe as possible, Repurpose It had to ensure its sites were wet-weatherproof, with materials stockpiled and stored in a manner to minimise cross contamination.

“It took a lot of site preparation in terms of having receivable areas, with some periods of significant rainfall. Part of the challenge was ensuring we had wet weather access roads and adequate lighting as the safety of all our staff and contractors remained paramount in our operational approach,” George explains.

“There were no occasions throughout the project where we weren’t able to receive the volume of trucks that we had scheduled and there were no safety or environmental incidents during the project.”

Thom Chrystiuk, General Manager of Eastern Plant Hire, says Repurpose It was chosen as the disposal site due to its commitment to resource recovery, close proximity to the project on the fringe of the inner suburbs, direct access from the Hume Highway and ability to continue operations in all weather conditions.

The company’s 24/7 hours of operation was also a key factor, as Eastern Plant Hire transported the materials using tandem tippers and truck and dog combinations.

“One of the key things with these rail projects is they have a defined start and end time and anything that goes over that incurs a significant cost to the contractor,” Thom explains.

“Rain, hail or shine, Repurpose It was required to keep their site open and operable to ensure they were able to receive materials, which provides a level of security for us and the project as well.”

Thom says one of the main challenges was the fact that Repurpose It was receiving spoil from multiple projects with a variety of head contractors, creating possible confusion about what was sent and from who.

In order to distinguish contaminants from non-contaminants, a series of specifications were developed with materials photographed by material type.

Repurpose It’s weighbridge staff were trained to follow the agreed specification to ensure materials were logged before disposal.

Thom says alignment with the specifications was crucial, as multiple loading locations throughout the project meant a variety of materials with varying contaminant levels at any one time were reaching the weighbridge. He says this meant ensuring clarity between Repurpose It, Eastern Plant Hire and its clients and team on site, ensuring stakeholders knew the difference between sending out a clean load and one mixed with waste.

Eastern Plant Hire also ensured any materials that were transported aligned with environment protection authority guidelines, with clean fill reports and soil documentation developed by its clients.

Thom says photographic evidence of each load also ensured accountability for trucks that were documented as clean loads, but needed to be billed as mixed fill.

For example, there were two different grades of rail ballast, including

clean ballast sent off for reuse and contaminated ballast. Clean ballast did not have any debris from the rail line, such as steel, sleepers, reinforcement and pipes.

The contaminated ballast remains at Repurpose It’s Epping site, where it will be scrubbed and cleaned in the company’s construction and demolition washing plant, slated for completion in November.

Once the materials are clean, they will be sent out to other level crossing removal projects later this year.

Green waste and vegetation have been converted to mulch, with some of the top soil and mud stone recovered and to be used on other construction projects. The excavated rock will be crushed and reused in aggregate and road base for other major construction projects.

Level crossing removal and major rail occupations typically involve removing large quantities of track and ballast at the front end of the 44-day, 24-hour construction period.

Damien Bergstrum, North East Program Alliance Senior Project Engineer, says it was a significant benefit to be able to recover the materials and return them back to the market.

“The main thing for us was to have 24-hour access to tips so we can get rid of the materials as quickly as possible and Repurpose It was certainly able to keep up with the volume,” Damien says.

“Their availability to work with us and Eastern Plant Hire and manage the backend of the tip site has led to a smooth service.”

Damien says having stakeholders engage with companies like Repurpose It early in the process is important for future level crossing projects, as this will help boost the resource recovery of materials generated on site. ■

# UNCLOGGABLE



Tana has unveiled a new disc screen capable of shredding almost any waste.

## TANA HAS UNVEILED A NEW SCREENER, WHICH THE COMPANY SAYS HAS BEEN BUILT FOR THE WASTE INDUSTRY AND IS HIGHLY RESISTANT TO CLOGGING.

Sorting waste requires durable machines able to handle the wide variety of textures, materials and quantities.

To provide a machine capable of handling whatever the waste industry can throw at it, Tana has announced it will be bringing a new product to market. The Finnish company has unveiled a new mobile disc screen, which it says is capable of shredding almost any waste.

The new disc screens were introduced at the beginning of March 2017 in Europe, with the machine

to be launched in Australia by Tana through their dealer, GCM Enviro.

Kari Kangas, Chief Executive Officer of Tana, says the product has been developed to allow their customers a wider selection of technology when it comes to solid wastes.

The product line takes advantage of a collaboration between Tana and EcoStar, leveraging their 20 years of experience in research and development.

The disc screen uses a range of hexagonal, heptagonal or octagonal

discs with a patented flat profile. Patented anti-clogging technology prevents material from wrapping around the shaft and clogging the unit.

Each machine can be tailor-made for certain applications after screening, with the size, shape and clearance between the discs modified according to the material, ensuring high output and capacity.

The technology can be used across all kinds of waste streams, including industrial, municipal solid and construction and demolition waste, as

“The design of the free running covers on the shafts is a great concept which greatly improved the performance of the unit next to the older star screen.”

Spokesperson for Trans Waste

well as resource-derived fuels. It can also be used with recycled wood and green waste, rubber and tyres, metals, slags and ash, separating glass from waste, plastics and PET, compost screening and cleaning or a selection of industrial waste.

The disc screener consists of a series of screening shafts which the discs are inserted into and supported by the frame. An inverter enables the operator to change the speed of the shafts, allowing for adjustments of the particle size to be within 20 per cent above and below.

The machine has two variations, a hooklift model and a track drive model, with a compact design allowing it to fit within 1.8 to 2.7 metres instead of the equivalent 4.8

to 5.7-metre space required of a drum screen. Its design also makes it fuel efficient to keep operations costs low.

*Waste Management Review* contacted a range of companies in the UK who had tried out the new disc screeners.

UK company Attero Recycling Ltd currently operates eight Tana Shark shredders and a 6D Drum Screen. The company used the Disc Screen for several days with bulky mixed waste that had passed through a Tana Shark with no screen fitted.

“It easily kept up with the throughput of the Shark, estimated to be around 40 tonnes an hour,” a spokesperson for the company says.

“We are impressed with the unit

and would like to see the machine on another waste stream that we will be trialling soon.”

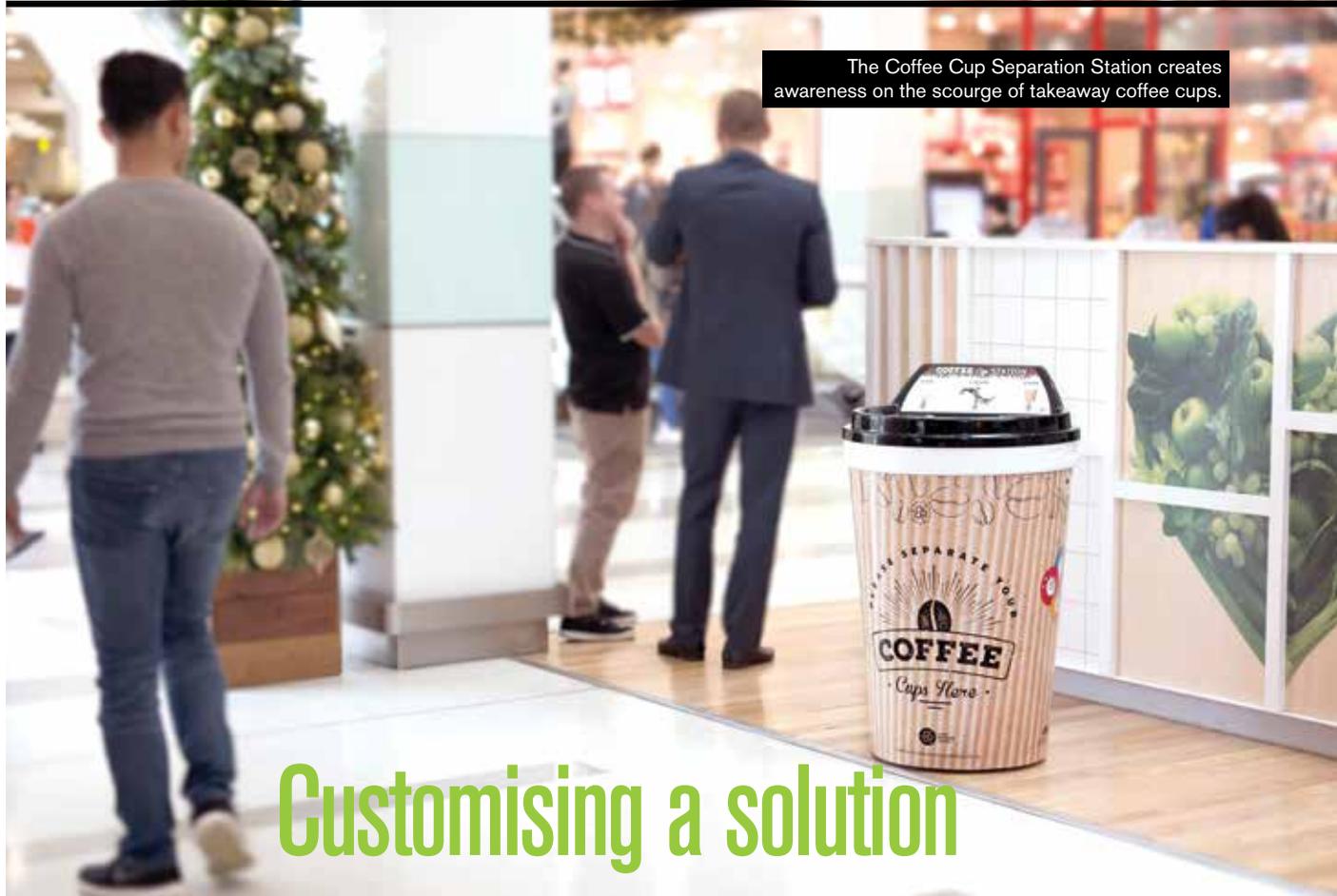
Similarly, a spokesperson for UK company Trans Waste say the machine was outstanding after comparing the performance with its older EcoStar Screener. It ran the machine on bulky and black bag resource-derived fuels and was able to process around 15 tonnes an hour of the waste through the disc screen with no problem.

“The design of the free running covers on the shafts is a great concept which greatly improved the performance of the unit next to the older star screen. It outperformed the older machine by a considerable margin,” the spokesperson says.

LSS Waste Management Ltd, based in Leeds, West Yorkshire, used the machine on its biowood process. The company found the machine stood out next to other screens and when in full use was able to process eight tonnes an hour easily. A spokesperson from LSS says the only thing that limited the pace was how fast they were able to feed the unit and they are very impressed with the machine. ■



The machine has two variations, a hooklift model and a track drive model.



The Coffee Cup Separation Station creates awareness on the scourge of takeaway coffee cups.

## Customising a solution

SOURCE SEPARATION SYSTEMS IS TAKING ON MORE CUSTOMISED WORK AS A MARKET SHIFT IN THE AUSTRALIAN RECYCLING INDUSTRY HAS SEEN MORE COMMERCIAL ENTERPRISES EMBRACE CHANGE.

**T**he recycling industry is in a period of unprecedented change.

These changes have been driven by a number of factors, not least state and territory bans on single-use plastic bags, China's change to import laws and the subsequent increasing cost of collection.

Many businesses are choosing to see this change as a trigger for innovation, and, as a result, are pushing new boundaries in waste diversion by revolutionising their own waste management practices.

These are the sentiments of Source Separation Systems, a company specialising in the development of waste and recycling infrastructure. Having worked with an increasing number of

high-profile clients, Source Separation Systems is at the forefront of these changes.

Source Separation Systems' Peter Cruwys says the company has over the years moved towards more customised work.

"We are finding that clients have now proved the benefits of our best practice systems, and are contacting us to expand their programs to not only new sites, but more often to new unique waste streams which reflect their business," Peter explains.

"Commercial clients are increasingly conscious of the complexity of recycling and are seeking expert advice that they can trust to provide an effective solution."

### RISING DEMAND

The demand for customised solutions is so high that Source Separation Systems has already outgrown its current facility after only three years, and is purpose-building a new expanding facility in Newcastle. This will further increase its onsite manufacturing capabilities. "It seems most custom projects are initiated by clients who want to go beyond internal recycling and move towards more sustainable waste management in their manufacturing processes," Peter says.

"They are also importantly more active in the responsible disposal of their own products at their end of life."

Peter says Fujitsu is a great example of this, providing a unique service

to its corporate clients through the installation of smart bins fitted with sensors to monitor fill levels, geo-location, temperature and tilt angle. He adds that the company is providing a complete managed solution for their corporate clients.

Peter says the same principles apply to many other major industries such as eyewear collection programs for optometrists, in addition to the transition to Compost-A-Pak Australian certified compostable packaging for organic stores.

### INSPIRING SOCIAL CHANGE

However, Source Separation System programs are not limited to developing an industry's products, as they can inspire a range of social changes. Peter cites a recent project for one of the world's leading social media organisations involving collection units. The units encourage the company's team to bring in items such as clothing, which is then donated to charity.

Recently, the Source Separation Systems team has also worked with one of the leading diversified Australian property groups, developing a specialised Coffee Cup Separation Station designed to create awareness on the scourge of takeaway coffee cups.

"These units were specifically designed as a dedicated collection system encouraging staff, visitors and contractors within each of the facilities to divert the takeaway coffee cups from the misconceived recycling collection streams, which are a cause of contamination," Peter says.

He notes that a dedicated collection system provides a cleaner recycling stream, while creating an educational medium for each site. He says that by building on such programs, other clients are using these same collection units with customised graphics for their own programs. These programs further the collection of provided reusable cups, which are washed onsite and

returned to the inhouse cafes for further distribution.

Using its expert industrial and graphic design capability, with specialists in sheet metal and joinery, such systems are completely customised to the client's requirements.

### INFRASTRUCTURE FIT OUTS

The Source Separation Systems team also does a lot of work on new infrastructure developments. Peter says that although most new fit outs include predesigned internal waste and recycling systems, often built into the décor, they are not always designed with best practice recycling features and prove ineffective. As such, Source Separation Systems works with clients to assess the current systems and design, build and retrofit a solution that converts the current infrastructure into best practice recycling solutions.

"We've done a lot of work for larger corporations where they've had an interior designer and architect spend \$6 million on a fit out and they expect their recycling systems to work," Peter says.

"If not well designed, they simply don't work, and so we work to design

and often retrofit a custom solution, which ensures that the aesthetics are maintained, while recycling is made easy for staff, who often want to do the right thing."

For this reason, Peter says it pays to ensure you talk to recycling experts early so that recycling systems work. After having worked for years with various consultants, waste collection facilities, interior designers and architects to understand how bins can be adapted to fit into a specific space, Peter says that despite aesthetics playing a significant role, the most important consideration is ensuring your infrastructure aligns with Australian best practice recycling systems.

"Often when you bring such groups together onsite, there is an interesting dynamic as many people have a perception that fabulous aesthetics and best practice recycling features such as colour coding and customised apertures can't be achieved in the same unit," Peter says.

"One of my favourite parts of customised projects is surprising the designers, with either well-designed or integrated solutions." ■



A recent project for a major social media company saw units designed to inspire charitable donations of clothing.

# Hauling with ease

HIAB'S MULTILIFT RANGE OF HOOKLIFTS HAVE BEEN HELPING AUSTRALIAN WASTE BUSINESSES RACE AHEAD OF THE COMPETITION WITH THEIR COLLECTIONS.

**H**aulaway Managing Director Richard Hilbert needed to maintain an edge in Melbourne's waste market.

The company had been using hooklifts from the 1990s, which were strong but slow. With more urban development and a need for increased efficiency, Richard realised there was a requirement for a faster, more economical hook. That is why he purchased four XR26Z and one

XP22Z Multilift hooklifts.

Richard says the Multilifts are much faster than what the family business had used before, with drivers eager to be behind the wheel of the trucks installed with one. "The hooklift is very quick and user friendly, giving us up to an extra load a day. They save around three to five minutes on each job, which adds up over time," he says.

"They're the Ferraris of hooklifts, much more efficient than other brands

we have used in the past and with plenty of additional technology to increase safety and speed."

Haulaway handles a range of contracts, from industrial waste to infrastructure, and collects a diverse range of bins. Richard says the articulated neck with shock extenders allows the lifts to get into places with a low clearance – vital for inner city works and in undercover shopping centres.

The Multilifts have been built predominately for the waste industry.



The Multilifts have two ranges, the XP and XR, which are the standard and premium versions respectively.

“We have some of the top of the range on our trucks, the XR range of Multilifts. These units have a two-speed system and automatic safety features that slow down the arm when the bin is at certain points,” Richard says.

“The joystick controls are easy to understand with a simple control method instead of a confusing array of control valves. This means drivers can operate the lift single handed, letting them watch the bin.”

Richard says the Multilifts are reliable and notes that they’re never off the road for long.

“They’re durable, strong and can cop a lot of punishment which is important when transporting some heavy-duty waste,” he says.

Wayne Venn from Hiab Australia says the Multilifts have been

predominantly built for the waste and recycling industry.

“The Hiab brand is recognisable worldwide and has been proven with 70 years’ experience in the waste industry. It has built up the reputation of versatility and durability,” Wayne says.

He says that a Multilift hooklift will most likely outlive two to three trucks before it needs to be replaced.

“It has quality hydraulics, specifically cast designed instead of steel fabricated to minimise the amount of damage the Multilift takes. Its design means there’s less wear and tear on wearpoints, making it significantly stronger.”

Wayne says the Multilift can handle almost everything the waste industry can throw at it and is versatile enough to handle waste from shopping centres to renovations, or carting topsoil or gravel. He says the Multilifts also

take advantage of Controller Area Network (CAN bus) technology which interfaces with the trucks’ computer. Wayne says this is customisable and programmable, meaning there’s a lot you can do with it.

“For example, you could run lights off of it, perform an automated sequence, increase speed or integrate other technologies. Because of the faster tip, you also have trucks revving their engines less which creates less emissions.”

He says multinational and national companies, all the way down to family owned businesses like Haulaway, use Multilifts.

“We have companies that will use nothing but this range of products.

“A number of Australian waste companies understand that by paying a bit more for quality equipment, they’ll reap the benefits at the end of the day,” he says. ■



# Going dynamic

DYNAMIC WASTE COLLECTION RESPONDS TO THE EVER-CHANGING AMOUNT OF REFUSE BY HARNESSING INTERNET OF THINGS SENSORS TO PROVIDE WASTE BUSINESSES WITH EFFICIENCIES.



Responding dynamically to waste collection can help lower costs for waste authorities.

The UK produced 202.8 million tonnes of total waste in 2014, according to government statistics.

This represents an increase of 4.6 per cent since 2012. In 2014, the US generated 258 million tonnes of municipal solid waste alone. According to The World Bank, cities around the

world produced 1.3 billion tonnes of solid waste in 2012, giving each person a footprint of 1.2 kilograms per day. That 1.3 billion tonnes is expected to rise 2.2 billion by 2025.

Population and, thus, consumption, are growing across the globe. Between 2011 and 2015, Greater London's

population increased by 5.7 per cent, Bristol 4.5 per cent and the West Midlands by 3.4 per cent. These are just a few examples cited by the Office of National Statistics. New York City expanded by 5.5 per cent between 2010 and 2015.

As urban areas around the world



Emptying containers has traditionally involved static planning.

look for sustainable growth, responding dynamically to waste collection can protect the population, ecosystem and boost revenue for waste management companies, while lowering costs for local authorities.

### DATA INFORMS

Consider the costs involved in emptying containers: transportation, equipment and vehicle maintenance and labour. Emptying these containers, at least in much of the world, involves static planning: where particular containers are scheduled to be emptied on a certain day.

Dynamic waste collection turns that model upside down. With the Internet of Things (IoT), an intelligent network of receptacles is created by equipping bins with smart chips or sensors. For example, the data collected reveals fill rates or the time of the last collection. This aims to result in a more efficient process for waste collections, which can be planned in real time based on the data. Another added benefit is that waste collections can be based on fill levels, which may give a better indication of performance. Dynamic waste collection responds to the amount of refuse that can change week to week, or even day to day.

The information collected offers organisations a better understanding of how rubbish in any location is produced and how it can be managed. As a result, resources can be targeted more efficiently. For instance, they'll know which areas are at risk of street litter and can be proactive in addressing the situation.

Gerard Kissane, Head of ANZ Region at AMCS Group, says many companies in Europe have already adopted on-demand collection and it's making a difference.

"Introducing dynamic waste collection generates new data that can be analysed to better identify habits in different areas of cities and reduce their waste collection frequency," Gerard says.

### EFFICIENCIES EQUAL COST SAVINGS

With increased efficiencies across waste collections, cost savings will naturally follow. By analysing the data, collection routes can be optimised and prioritised. Waste collectors could go one step further by gathering information about weather, traffic and special events to redesign routes for maximum efficiency.

Gerard says that for waste management companies contracted to

collect rubbish, this can present fantastic opportunities in terms of savings on running costs.

He says the cost savings could be substantial, while also reducing carbon dioxide emissions.

"A large part of the expenses involved are eliminated, so that they're spending less by putting fewer trucks on the road, less on fuel by optimising routes and travelling fewer kilometres, and less on labour," Gerard says.

He says dynamic waste collection also presents a boost to contractors whose fee includes an extra charge when the weight is over a certain level. Gerard notes the bin will tell them when it's time to be emptied.

"This knowledge, coupled with more efficient routes, offers two benefits: the chance to optimise the amount of chargeable revenue, while lowering the cost of collection."

### THE NETHERLANDS EXAMPLE

In the Netherlands, one AMCS client focuses on reverse collecting – the collection of recyclables rather than waste. The company reported savings on vehicle movement through dynamic waste collection. By only collecting filled bins and using optimised routes, they were able to increase their volumes collected per hour by 20 to 25 per cent. The success also saw an increase in filling degree, which measures efficiencies in packing, rising from an average of 45 to 55 per cent up to 75 to 85 per cent. They also saw a reduction in their total mileage over a week of 35 per cent. Following these efficiencies, one truck was removed from service and a planned purchase of two new trucks was cancelled.

"The technology needed to drive dynamic waste collection, such as route optimisation, can completely transform businesses stuck in static processes. The other alternative? Keep to business as usual," Gerard says. ■

# GOLDEN ANNIVERSARY



Vaclift has come a long way since it began in 1968 under the name Industrial Containers.

## WASTE MANAGEMENT REVIEW LOOKS AT VACLIFT'S SECRET TO SUCCESS AS THE COMPANY REACHES ITS 50TH YEAR IN BUSINESS.

In 1968, Industrial Containers filled a need in the market and provided skip bins for a growing industry. In the early 70s, it also began building vacuum tankers powered by milking machine pumps.

The company has come a long way since its early days, changing its name to Vaclift, improving upon their vacuum tanker design, and moving their focus to providing purpose built and reliable machines for the waste industry.

Jon Pamment, Managing Director of Vaclift, is the second generation of the family business which has lasted 50 years and expanded across Australia. He says the company's values of honesty, humility and services have been critical to maintaining customer relationships

over the past five decades.

"Our survival through all the ups and downs is due to our customer relationships. We work hard to maintain existing customers, with some working with us for more than 30 years. Our growth based on referrals is solid, so we are doing something right when our customers recommend us," he says.

"We strive to treat our customers the way we would like to be treated ourselves.

"Whether they are an owner operator, run 10 trucks in a fleet or are a multinational company, it doesn't matter – what they want is what you would want."

Jon says Vaclift's team of experienced engineers and designers helps create

solutions for their client's challenges.

"We create solutions that suit the Australian environment and regulations. We first strive to understand what our clients want to do and design to meet those needs and regulatory requirements," he says.

"Further, when something goes astray, we are here with the expertise to get it right quickly."

He explains that technical support, after-sale support, parts and servicing are paramount to ensuring Vaclift's customers are provided with high-quality service.

"We understand the cost of downtime, which is why we ensure we have virtually every part in stock all the time," Jon says.



Keeping things simple is key to a reliable product.

“Our clients make a living out of the products we provide. If we can’t get it back on the road quickly, we’ve failed. Because we have designed, manufactured and installed the systems, we understand them intimately.”

Keeping things simple is the key to a reliable product according to Jon, who says the challenge comes from meeting modern safety standards without losing that simplicity and reliability.

“When we first manufactured vacuum

tanks in the 70s they were a vessel, a milking machine pump and a side swing door with ‘G’ clamp locks. They took 10 to 15 minutes to create a vacuum,” Jon explains.

“Today, the tanks are ready to vacuum load or pressure discharge in one minute, they tip, and the doors use automated hydraulics with robust safety interlocking.”

Vaclift has been the distributor of Italian BoB Hooklifts for more than 20

years and has sold more than 550 across the Australian market.

Jon says Vaclift has provided BoB with feedback for the Australian market, which has led to the creation of a new hooklift, the BoB ITK multihook height machine.

“For a long time, the lack of an Australian standard has resulted in a minefield of bin designs with differing hook heights and rail widths. We now have a hooklift that can accept a wide range of sizes and shapes with no operator input,” Jon says.

The new BoB hooklifts can handle rail widths from 860 inside to 1180 outside millimetres and features a lifting hook that can safely work with 1430 to 1610 millimetre hook heights.

“All that needs to be done is line the bin up, pick it up and dump it. It’s safe and easy, with nothing to adjust or adapt, all with BoB’s robust hydraulic interlocking,” he says.

Vaclift is able to manufacture tankers from 2000 litres to more than 26,000 litres with tankers available to suit skid bases, hooklift bases, rigid trucks, semi-trailers and B-doubles. Jon says all can be developed to custom specification and with performance-based standards certification.

He says Vaclift is able to provide products that are fit for purpose, durable and easy to use with a range of possibilities.

Vaclift is able to help customise tankers with features including remote control systems, retracting bumpers, LED clearance lights, sludge pumps, water tanks, work lights and rear mounted cameras and more.

Jon says this flexibility shows how Vaclift strives to maintain the same level of understanding and cooperation in the industry to provide dependability.

“No matter who the customer is, they all want and deserve the same thing: great designs, great prices and great service.” ■



For more than 50 years, Vaclift has prided itself on its values of honesty, humility and services.

# First-mover advantage

TELLUS HOLDINGS MANAGING DIRECTOR DUNCAN VAN DER MERWE TELLS *WASTE MANAGEMENT REVIEW* ABOUT THE COMPANY'S PLANS FOR AUSTRALIA'S FIRST COMMERCIAL GEOLOGICAL HAZARDOUS WASTE REPOSITORY.



Geological barriers ensure isolation of wastes from the environment over hundreds of thousands to millions of years.

**G**aining a first-mover advantage on a novel Australian commercial waste facility is no easy task.

Entering an untapped market often means exploring new environmental and compliance controls. That's not to mention investigating project feasibility, finding a suitable location and identifying critical infrastructure, all while garnering industry and community support.

Such was the case for infrastructure project development company Tellus Holdings Ltd, which has set its sights on building Australia's first dual open-cut kaolin mine and arid near-surface geological waste repository. Notably,

the repository will be used to store, recycle, recover and permanently isolate hazardous waste. As the first commercially owned and operated facility of its kind in the country, the geological waste repository forms a significant milestone in Australia's hazardous waste management.

The key difference between a landfill and a geological repository is the fact that landfills rely on man-made engineered barriers, which fail over time. Geological repositories conversely rely on multiple fail-safe mechanisms underpinned by man-made barriers (active controls) and natural barriers (passive controls). This includes geographic, geological, climatic and

seismic factors, that, combined, are superior to any man-made barrier. Geological barriers also ensure isolation of wastes from the environment over hundreds of thousands to millions of years – an occurrence not possible with man-made engineered barriers.

Duncan van der Merwe, Tellus Holdings Managing Director, says he first became familiar with the concept of a geological repository in 1999 after running an investment banking team specialising in public-private finance initiatives with six waste management projects on the books.

Around that time, the UK had sought to ban hazardous waste to landfill, and Duncan also noticed Australian

governments were beginning to ban a number of hazardous wastes to landfill. At that point, Duncan asked himself a simple question: where are Australia's geological repositories?

"I was quite surprised we did not have this tool in the tool box and then had a light bulb moment," Duncan explains.

The research led Duncan to conduct a fact-finding tour in 2009 of international repositories in the UK, US and Canada before establishing Tellus Holdings in NSW, under its former name – Underground Storage Solutions.

### THE NATION'S BIG WASTE PROBLEM

The investigations came as the nation grappled with a growing hazardous waste problem. According to federal government data, hazardous waste is rising faster than population growth at nine per cent per annum between 2010-11 and 2014-15, with much of this driven by a rise in demand for coal seam gas.

Blue Environment's Australian hazardous waste data and reporting standard, 2017 revision, defines hazardous waste as that which cannot be imported or exported from Australia without a permit under the Hazardous Waste Act. The definition also encompasses that which requires high levels of management and controls and additional wastes nominated as hazardous by the federal government.

According to the Australian Bureau of Statistics, Australia has one of the highest rates of waste generation per capita in the world and this includes hazardous waste. Duncan estimates that more than 5.3 million tonnes of hazardous waste each year enters Australia's infrastructure network and over 40 million tonnes each year remains onsite and does not enter the network, highlighting that the facilities simply aren't there to deal with it. This



has resulted in a legacy stockpile that has crossed the billion-tonne line and is still growing.

"Europe and predominately countries like Germany have been using geological repositories since the 70s and, more recently, the UK, North America and South America and Africa have too," Duncan explains.

"The Western Australian Government has owned for the last 26 years a geological repository called Mt Walton East Intractable Waste Disposal facility, but it opens infrequently and on a campaign basis and at a less competitive price point. This has successfully demonstrated the multi-barrier safety case."

### A FACT-FINDING MISSION

With a mission to contribute towards a cleaner Australia through a portfolio of geological repositories, Tellus Holdings from 2010 to 2013 began investigating the best natural barrier to establish a world's best practice geological repository. After years of thorough investigation, it found a suitable site in Sandy Ridge, 240 kilometres from Kalgoorlie, WA, in a 70-million-year-old clay bed.

Its investigations found there would be no plausible scenarios where the clay bed would leach and cause pollution. This is due to the fact that

the clay allows for absorption and adsorption, absorbing any liquids while also adhering to the surface. The arid near surface geological repository also benefits from a quality kaolin mineral resource, lack of surface water and regional groundwater, high evaporation rates, low erosion rates, no rare, threatened or endangered species and animals, no recorded items of cultural heritage and no local population.

### ACCEPTING HAZARDOUS WASTES

Duncan and his team decided that Sandy Ridge would be the ideal site to accept contaminated soils from site remediation projects, as well as asbestos from housing projects, PFAS (including fire-fighting foams and associated contaminated materials), acids and alkaline wastes from industry, arsenic and cyanide from the gold industry, hydrocarbon wastes from the oil and gas industry and wastes generated by man-made or natural disasters.

It also determined that other waste types would be collected from the agriculture, manufacturing and utilities sectors, as well as household wastes collected by waste management companies. Its patented technology means it can accept liquids and solidify them.

In response to customer demand, Tellus Holdings decided it would also

accept low-level radioactive wastes such as medical isotopes, disused sealed radioactive sources from measuring equipment and smoke alarms. That's in addition to naturally occurring radioactive material as a result of processing from the mineral sands, water desalination and oil and gas industries. The company will not accept intermediate and high-level wastes or nuclear wastes and is not a nominated site under the National Radioactive Waste Management Facility site selection process. Nevertheless, it can handle most wastes under the NEPM 75 categories and is also supportive of the circular economy and plans to on-sell the recoverable wastes to recyclers.

**GOVERNMENT APPROVAL**

Setting up the Australia-first facility required a rigorous environmental impact assessment by the WA Government, with draft statements out for public consultation. The Sandy Ridge project released a draft Public Environmental Review out for public comment in early 2016. After undergoing detailed feasibility studies, it received conditional approval from the WA Government's Environmental Protection Authority (EPA WA) at the end of 2017 and ministerial approval at the end of June 2018.

The Sandy Ridge approval allows for the mining of 290,000 tonnes of kaolin clay and the receipt of up to

100,000 tonnes of Class IV and V waste each year. The clay will be mined and exported with the residual space used for waste placement.

Part of the assessment criteria included that Tellus Holdings would conduct an annual independent audit of accepted wastes on site, along with detailed record keeping and a leachate monitoring and management plan.

"Due to our multi-barrier safety case, we are the only company that can permanently isolate difficult to manage waste," Duncan says.

"Therefore, we are the only company that can issue a much sought-after Permanent Isolation Certificate – called a PIC. The trademarked PIC is very much in demand and the PIC certifies critical facts that may provide a basis for derecognising a liability provision on the financial statements under Australian accounting standard (AASB 137) and international financial reporting standards (IAS 37)."

Duncan says this removal of contingent liability is critical for businesses demonstrating accountability to directors, insurers, government, community and shareholders, not to mention alleviating any occupational health and safety and environmental concerns.

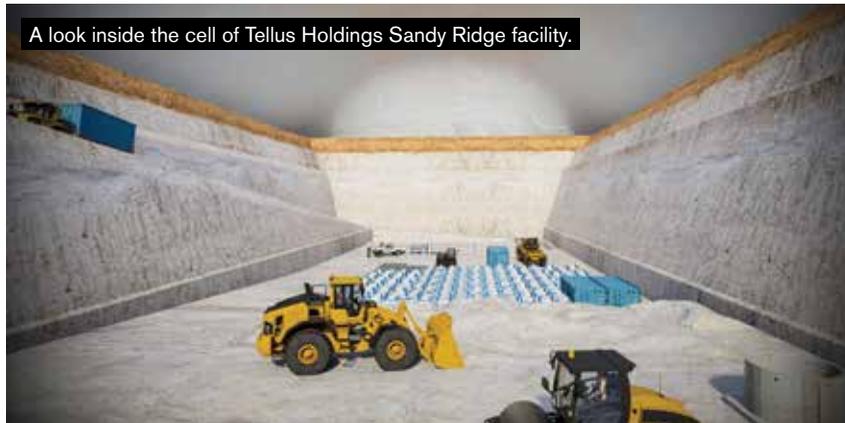
He says the combination of these factors and a cost-competitive pricing point makes it a compelling business proposition.

Over the years, a second deep salt geological repository (trademarked SaltVault) 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. In addition to salt mining mostly for exports, the business plans to store equipment and archives (underground warehouse business), as well as the long-term storage, recycle and recovery and permanent isolation of difficult to manage chemical wastes not accepted at landfills. The NT EPA recommended approval following its environmental impact assessment at the end of 2017.

The ambitious plans are all part of Tellus Holdings' wider goal of introducing geological repositories across Australia, supported by a logistical network of hubs and spokes offering door-to-door service and a circular economy business model. Tellus Holdings has already partnered with Toll Group to leverage its extensive network of warehouses and air, sea, rail and road logistics solutions. It is also forming networks with waste producers and managers, which continues to grow via its national business development team led by General Manager, Richard McAree.

Construction of the company's Sandy Ridge facility (ClayVault) is expected at the end of 2018, with the Chandler facility (SaltVault) to be built about two years later, once the first facility has established itself. "We see our business model as becoming an enabling business for many of the existing waste management companies," Duncan says.

"When a facility like ours opens, the hazardous waste begins to move and when it moves, the industry has an uptake across the value chain and we become a very important tool in the tool box." ■



A look inside the cell of Tellus Holdings Sandy Ridge facility.

# Achieving greater diversion in Queensland

THIS YEAR'S FUTURE WASTE RESOURCES 2018 WILL PROVIDE CRITICAL INFORMATION ABOUT HOW QUEENSLAND CAN ACHIEVE ITS WASTE DIVERSION AND RECYCLING TARGETS, WRITES RICK RALPH, CHIEF EXECUTIVE OFFICER – WASTE AND RECYCLING INDUSTRY QUEENSLAND.

Queensland's waste management and recycling industry has an essential services and utility role. This critical role ensures the community responsibly achieves its environmental obligations and delivers ongoing business aspirations.

It is beholden upon the sector to lead and present solutions and demonstrate ideas for change to all its stakeholders. In doing so, companies can be confident their investments will be secure and that they remain sustainable in all their operations.

Providing this leadership also demonstrates the sector is growing and remains fiscally strong, especially as government policy environments coupled with technological advancements have the potential to foster significant disruption in so many secondary and other markets.

Over the past 18 months, a perfect storm of negative waste and recycling media, coupled with other international measures have undermined many stakeholders confidence in Queensland's waste and recycling performance.

Waste and Recycling Industry Queensland (WRIQ) is committed to changing this perception by showcasing and demonstrating the opportunities that will reshape Queensland to become Australia's leading secondary resources and recycling state. Importantly, we are committed to realising the state

government's future policy direction, ensuring its new waste strategy and waste levy announced in its directions paper – Transforming Queensland's Recycling and Waste Industry – is achieved.

To provide key information to stakeholders about how we can achieve the state's waste diversion and recycling targets, WRIQ will be hosting the Future Waste Resources 2018 – Queensland's Innovation in Recycling Convention (FWR 2018). This event will provide key information about how with the right policy settings, Queensland can achieve these targets aspired to by all stakeholders.

The convention will showcase these important discussions at Queensland's historic and oldest manufacturing centre, The Workshops Rail Museum in North Ipswich.

The international event will feature an impressive line-up of local and international keynote speakers and industry experts, presenting practical insights and outcomes that articulate how Queensland can deliver a new business environment focused on secondary resource and recycling management.

FWR 2018 will showcase and share ideas that demonstrate more sustainable ways of managing our waste and of achieving more in terms of the sectors resource recovery and in using these

streams locally and future investment opportunities.

The convention format will be split into three: with day one featuring international keynote presenters who will share their experiences and outline programs that are achieving results in policy settings globally.

Following these key presentations session streams led by Australian business leaders, FWR2018 will focus on topics of the bio-industry, construction industry, production and packaging sectors.

Day one will comprise information sessions, with a unique business/government networking function at the convention to cap it off.

Day two on Friday will follow a similar format as day one with its focus on waste to energy materials handling and data and innovation that will support that change.

The final day will be an open day in which the community will be invited to visit the equipment and trade exhibits, speak with reprocessors, local manufacturers/composters and recyclers and engage directly with waste businesses. ■

*FWR 2018 will take place at The Workshops Rail Museum in North Ipswich from Thursday, 11 October to Saturday, 13 October.*

*For more information, head to: [www.fwrconvention.com.au](http://www.fwrconvention.com.au)*

# Recognising excellence

THIS YEAR'S AUSTRALIAN PACKAGING COVENANT ORGANISATION AWARDS WILL BE HELD IN CONJUNCTION WITH ONE OF THE NATION'S MOST PROMINENT WASTE CONFERENCES – WASTE EXPO AUSTRALIA.

Industry engagement is key to ensuring sustainable supply chains working towards a common goal.

In the evening during this year's Waste Expo Australia, co-regulatory organisation the Australian Packaging Covenant Organisation (APCO) will be hosting its annual awards. The awards recognise outstanding achievements in design, recycling and packaging stewardship, as well as the APCO member of the year who has shown outstanding achievements.

APCO helps businesses, government

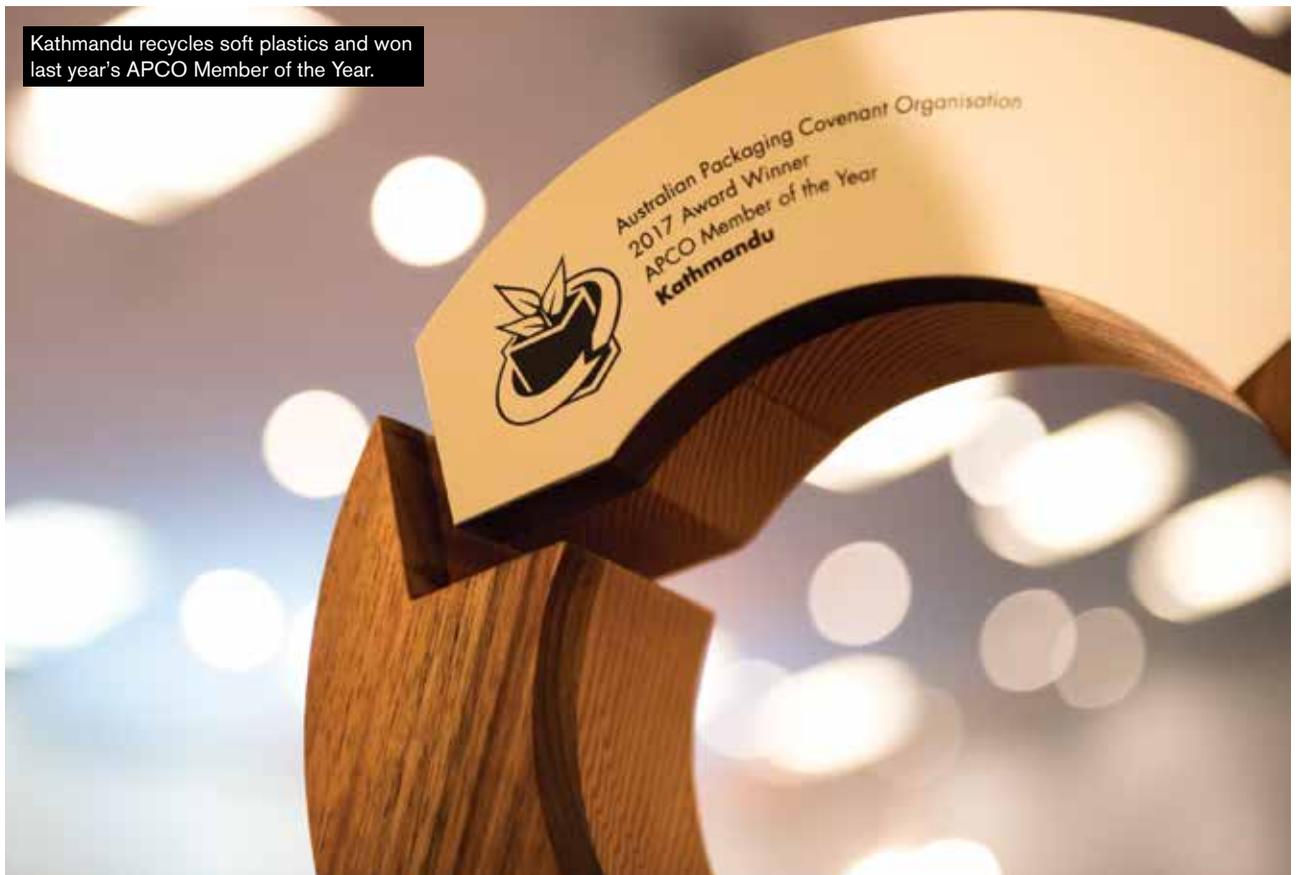
and industry reduce the environmental impact of packaging in Australia and has members ranging from manufacturing, retail, transport, technology, hospitality and tobacco industries. Last year's ceremony saw 41 industry finalists and 21 winners, with winners including major corporations, such as Kathmandu, Qantas Airways, McDonalds and Unilever Australasia.

Brooke Donnelly, APCO Chief Executive Officer, tells *Waste Management Review* that one of APCO's key tasks for 2018 is to expand

its member base. This includes reaching out to organisations to help them be part of the April commitment by state and territory environment ministers to see 100 per cent recyclable, reusable or compostable packaging by 2025. State and territory ministers will work with APCO, which represents more than 900 companies, to deliver this target.

"A lot of work with government will go to refining the approach. We've now developed a granular target broken down into design, education around contamination and the development

Kathmandu recycles soft plastics and won last year's APCO Member of the Year.



of end markets within those three dimensions,” Brooke says.

This year will be the first year of members monitoring their progress against APCO’s Packaging Sustainability Framework, which includes leadership criteria, such as a packaging sustainability strategy, packaging processes and outcomes criteria, such as procurement and consumer labelling, and operations criteria comprising on site waste diversion, business to business packaging and supply chain influence. A series of questions are asked to determine an overall score for how businesses rank in their sustainability.

“It is important to the integrity of the awards that effort and commitment has been shown and a strong requirement at a performance level, as being a finalist is not easy,” Brooke says.

“Winning this award offers a great advantage for businesses internally in giving them a visible sense of achievement in sustainability. It gives them a platform to have a conversation about the hard work being done and progress other sustainability issues within the organisation.”

As one example, Kathmandu won the Clothing, Footwear and Fashion category and APCO Member of the Year. The organisation runs a soft plastics recycling program across seven of its Australian and New Zealand stores. As a result, they now recycle more than 260,000 litres of soft plastics annually. It has partnered with Melbourne based consulting firm REDcycle to progress its goal of zero waste to landfill by this year. Kathmandu uses an apparel and footwear industry self-assessment tool known as the Higg Index to assess its sustainability performance against international standards. Brooke says knowledge sharing and awarding best practice is vital to helping businesses on their sustainability journey.

She says during Waste Expo Australia,



an event will be held in the afternoon to discuss the 2025 target, which will lead into a cocktail party and the awards ceremony in the evening.

As one of the largest free-to-attend waste conferences and exhibitions, this year’s Waste Expo Australia will showcase innovations across waste, recycling, and renewable energy and efficiency at the Melbourne Convention and Exhibition Centre. Taking place during Australian Sustainability Week alongside the renewable energy event All-Energy Australia and Wastewater Expo, Waste Expo Australia will see case studies, knowledge sharing and networking opportunities via its Waste Summit and Waste Evolution conference.

The Waste Summit Conference will see industry panel sessions, workshops, updates on legislation, levies and policies and future trends and innovations highlighted by industry experts from Australia. The broad selection of topics range from waste to energy, local policy to landfill management, e-waste, collection best practices to container deposit legislation and more.

Exhibitors can highlight the latest technologies and products to prospective customers and industry

professionals, which will form the basis of the future of waste management in Australia.

As one of the major hubs for waste management in Australia, Brooke says it’s absolutely vital that organisations such as APCO continue to engage with industry on the ground, with APCO continuing its collaboration with organisations such as the Victorian Waste Management Association and Metropolitan Waste and Resource Recovery Group.

Cory McCarrick, Exhibition Manager for Waste Expo Australia, says this year’s conference will be addressing the challenges and opportunities in waste management through technology, strategy and policy.

“Waste Expo Australia will provide visitors with an opportunity to hear from some of the industry’s biggest names in the free-to-attend Waste Summit conference which will tackle the topics that are so crucial to the sector moving forward,” Cory says.

Waste Expo Australia will be held on 3-4 October at the Melbourne Convention & Exhibition Centre.

For more information on the event, including joining as an exhibitor or registering to attend, head to: [www.wasteexpoaustralia.com.au](http://www.wasteexpoaustralia.com.au) ■

# Connecting captains of industry

AS SYDNEY'S ONLY WASTE INDUSTRY EXPO, THE AUSTRALASIAN WASTE & RECYCLING EXPO WILL SEE INDUSTRY PROFESSIONALS FROM ACROSS THE NATION COME TOGETHER TO SHARE IDEAS AND SHOWCASE UNIQUE TECHNOLOGIES.



The Australasian Waste Expo will see more than 10 hours of industry insights.

**T**im Barnes, Project Manager at UK-based sorting and separating equipment distributor Donasonic, is poised to enter an Australian market.

It's a market he sees full of opportunities – due to its comparatively clean kerbside recycling stream.

Donasonic helps companies separate even the most bizarre waste

stream combinations, from mango skins mixed in with wooden pallets, to the standard amalgamations of paper, rubber, plastics and metals within oil filters. The company designs and installs sorting and separating equipment to deal with a variety of wastes, including municipal solid waste and commercial and industrial.

“With today's technology, from

near-infrared to robotic separation, you can separate nearly everything in household waste. It just hinges on getting the economics right,” Tim tells *Waste Management Review*.

“We work across the Asian market and if you put it into context, their lower wages and the fact that there is a greater percentage of unskilled labour, then the economics turn and it doesn't make sense for the customer

to make a huge investment on the latest and greatest technology.

“So in this situation, we design a line to integrate manual labour with a processing machine.”

Tim says he visited Australia 20 years ago and at that point noticed it was further ahead than the UK in the area of environmental management. However, there is always room for improvement, he says, and this is where Donasonic is aiming to make an impact. “What I’ve seen in many pockets of the industry worldwide is there is never a complete lifecycle system put in place,” Tim says.

“Years ago when I travelled to Australia, one of the fundamental things I remember is that people were separating garbage at the household. Everybody in that level was very happy it was occurring, but nobody was actually aware of what was going on downstream and what the actual lifecycle of those products were.”

He adds that it’s often not seen commercially viable to turn waste into a resource and this is where looking at the full circle is important.

Donasonic offers specific products to deal with challenging waste streams, from its thunderstorm machine, which uses a special rotor shaft to pre-shred materials from tyres, to cables and e-waste, to eddy current separators which use strong magnetic fields to separate non-ferrous metals such as aluminium, copper and lead from bulk materials. The company can tailor make a solution depending on customer requirements. Tim says that for example, it has developed a shredder for seven different purposes.

Donasonic also partners with various technology companies to offer a complete solution for organics and helps businesses process their residual waste into biogas, which can be used for general electricity or

liquefied natural gas, depending on the composition of the material.

With Australia’s knack for source separation, Tim says Donasonic should be able to implement its solutions with ease, particularly for organics, with many councils increasingly turning to three-bin systems.

He says that to begin his first foray in the local market, he has decided to exhibit at Sydney’s only waste and recycling event – the Australasian Waste & Recycling Expo (AWRE). Based in the metropolitan suburb of Darling Harbour and offering picturesque views of the bay, the event offers an opportunity for the movers and shakers of the waste industry to come together in the highly influential NSW market.

AWRE will feature a host of exhibitors across a range of product categories, including vehicles, bins, food and organics, software and services, machinery and equipment, alternative waste technologies, e-waste and waste management.

Product demonstrations will highlight the latest in machinery, software and vehicles, with the industry’s leading brands sharing their insights in waste collection, processing, recovery and recycling.

Coupled with the opportunity to highlight innovative products is the ability for the industry to network with an influential community of suppliers/service providers, recyclers and waste transporters, public sector bodies and special interest groups.

Expert speakers will also touch down in Sydney to offer more than 10 hours of industry insights and lessons learnt, in addition to education invite-only programs providing valuable case studies.

It comes amid a vital time for the Australian waste and recycling industry, with China’s National Sword prompting a discussion for new

connections, solutions and strategies to build a stable, sustainable and profitable economy.

Andrew Lawson, AWRE Event Manager, says that with new and changing regulations and the China import ban turning Australia’s waste and recycling industry on its head, AWRE couldn’t come at a better time for industry professionals looking to improve their waste disposal and resource recovery processes.

“With current market challenges as they are, this year’s event is set to be the most important waste management expo ever,” Andrew says.

With a vision for a green future, Tim says Donasonic wants to create opportunities for businesses to thrive with advanced processing technologies. He says he’s looking to gain new clients and contacts as a result of the event. Internationally, Donasonic has installed plants in Thailand and processed requests from countries such as Peru, Korea, Indonesia, Singapore and Romania.

“We started this business about five years ago, with an engineering team and a lot of experienced professionals from the waste industry,” Tim says.

“The Australian people clearly discovered many years ago how to deal with litter and pollution. In Asia, it’s been a long forgotten story. So we’ve had a lot of exposure there due to market forces and because of that, we’ve neglected to push ourselves in places like Australia. We think we can actually have an easier time installing systems in Australia, because the waste streams are easier to control and cleaner.”

The Australasian Waste & Recycling Expo will take place from 29-30 August at the ICC Sydney, Darling Harbour. For more information, including free visitor registration, head to [www.awre.com.au](http://www.awre.com.au) ■



Fujitsu's e-waste bin monitors fill levels and alerts customers when it needs to be emptied.

# Making e-waste circular

FUJITSU'S BLAISE PORTER TELLS *WASTE MANAGEMENT REVIEW* ABOUT HOW THE COMPANY'S ICT SUSTAINABILITY BENCHMARK IS HELPING REDUCE WASTE ACROSS THE COMMERCIAL AND INDUSTRIAL SECTOR.

The definition of e-waste varies across the states and territories. According to the NSW Office of Environment & Heritage e-waste disposal page, e-waste is “any item with a plug or battery”.

The South Australian Environment Protection Authority’s e-waste environmental info page, which banned e-waste to landfill in 2013, says it comprises electrical or electronic equipment waste, providing a list of the various types.

The Victorian Government, which

has announced a ban on e-waste to landfill, effective July 2019, says that in its draft regulatory tools for its ban, it proposes that e-waste be defined as “any end-of-life equipment which is dependent on electric currents or electromagnetic fields in order to work properly”.

The government notes e-waste will likely be simply described to the public as “any device with a power cord or battery that is no longer wanted or useful”, which will be further tested by an education and

awareness campaign.

When it comes to recovering many of these materials, the federal government’s National Television and Computer Recycling Scheme (NTCRS) provides access to industry-funded collection and recycling services. But materials such as mobiles, photovoltaic solar panels and batteries still fall outside of the NTCRS and the Product Stewardship Act, which includes the NTCRS, currently undergoing a review.

A March 2018 review of the

Act indicates the department is developing a Product Impact Management Strategy to assist a shared approach to product stewardship across the states and territories. This review asks: has the interaction of the Act with the NTCRS, state and territory local government legislation, policy and programs been effective?

As we wait until mid-2018 for these recommendations to be made to the minister, Blaise Porter, Sustainability Manager, Oceania, Fujitsu, believes that business maturity in e-waste recycling has not grown since the NTCRS was introduced in 2011.

“From a sustainability benchmark point of view looking at business maturity, Australia-wide there hasn’t been much movement in the last couple of years in businesses’ maturity in dealing with e-waste,” Blaise says.

### SETTING A BENCHMARK

Fujitsu, a major provider of ICT services, has a long term commitment to sustainability, and since 2009 has implemented its own zero e-waste to landfill policy. The company designs its own products, including tablets, laptops and servers, with end of life and recyclability in mind.

To help accelerate this knowledge and implement the right policies, Fujitsu developed its ICT Sustainability Benchmark in 2011. Blaise explains that Fujitsu offers the benchmark as a service to help businesses understand their overall ICT sustainability practice.

“We ask businesses what they’re doing in their overall environment compared to industry best practice against our database where we’ve conducted the benchmark before,” Blaise says.

“Fujitsu provides a benchmark score of how they stack up against that cohort and what they can do to

improve their practice. For example, from a lifecycle perspective we would look at stringent controls for e-waste, or stricter purchasing standards so that you’re procuring energy efficient information technology in the first place.”

Blaise says the database now includes 3000 organisations across the world and is the largest of its kind.

The ICT Sustainability Benchmark lists categories such as enablement, metrics, lifecycle, end user and enterprise. Enablement includes concepts such as readiness for sustainability policies and the users of technology across the organisation, as well as business process management. Metrics focus specifically on what is being managed and energy consumption and cost. Lifecycle focuses on the procurement of new ICT assets, including standards and ratings, the use of the equipment over its lifecycle and e-waste disposal. End user covers the personal devices a business is using, the business’ policies and controls in this area and its use of consumables such as paper and print toner. Enterprise is focused on evaluating business data centres and the broader infrastructure, including networks, software and architecture.

Crown Melbourne, Victoria’s largest single site private sector employer, is one major company to apply the benchmark in 2016. Based on quick surveys and short interviews, the benchmark measured itself against Fujitsu’s database, formulating a five-year plan to reduce energy consumption by 10 per cent, power management controls tangible key performance indicators to measure environmental progress and sustainability reports.

International airline Qantas also used the benchmark to implement Fujitsu’s e-waste service in 2016.



### Fast Fact

Fujitsu’s top tips for e-waste recycling For people:

- Meet people where they are and bring the facility to them
- Allow everyone to participate
- Treat it like a benefit

For organisations:

- Allocate a budget
- Have an e-waste policy
- Do policy education
- Buy for recyclability
- Measure, communicate and celebrate

For navigating technology:

- Identify the biggest impact
- Start small – but start
- Use competitors to your advantage
- Look out for the added unintended consequences and benefits

For recycling partners:

- Visit stakeholders
- Conduct an audit
- Examine downstream processes
- Check the chain of custody
- Check certifications
- Look at additional capabilities you may want

Since working with Fujitsu, more than 12,000 assets have been recycled and 120,000 materials diverted from landfill. Qantas’s data security concerns have also been allayed knowing that the company is able to provide a secure environment before disposing of materials. Employees have also been encouraged to bring their own devices in to be recycled, removing 1.5 tonnes in a single day.

### BOOSTING THE PROFILE

To raise awareness of e-waste, Fujitsu collaborated with recycling infrastructure provider Source Separation Systems and recycler Sims Recycling Solutions. The bin housings, developed by Source Separation Systems, feature an Internet of Things sensor to monitor fills levels and alert customers when

their bin needs to be emptied. Sims partnered with Fujitsu to recycle its e-waste. The smart bins contain a 240-litre standard wheelie bin inside and include one small slot for mobile phones and tablets and a larger one for laptops and screens.

Fujitsu uses a courier when pickup and changeover is required, which sends it to Sims for processing.

The bins are being used by large multinationals as part of Fujitsu's overall ICT service.

“When we looked at this e-waste solution, what we found overall was that there was a lot of confusion about what constitutes e-waste. People generally are dealing with waste that might contain their data, such as phones and laptops – so that security risk is front of mind,” Blaise says.

“But then there’s this whole other category of e-waste such as monitors and keyboards that people just don’t really think about as e-waste, and that is quite likely to just wind up in the bin.”

She says the smart e-waste bin was designed to boost the visibility of the issue.

“We designed it so you can fit it out in your office and it’s a way to dispose of e-waste, whether it be corporate e-waste or materials brought from home and offer a centralised collection point to get people talking about the issue.”

Several pilot projects were trialed in 2016 and 2017 before choosing the right size.

“We originally had one that was about half the size, but you had to physically lift up bins full of e-waste which then got quite heavy and there was an occupational health and safety issue,” Blaise says.

“There was a fair bit of trial and error with our partners to come up with the actual housing we knew would work.”

In addition to fill levels, Fujitsu’s smart bins sensors also monitor



geo-location, temperature and tilt angle. The wireless sensors weigh less than 250 grams and have a battery life of 10 years. The shell is non-corrosive and the bins do not require maintenance.

Fujitsu has also taken the technology integration a step further and used its own Run My Process automation tool to fully automate the bin collections. The automation tool retrieves a job number from Sims, books the courier collection, and advises the customer of the booked pickup time.

Fujitsu has plans to double the number of bins deployed in the next year with its existing customer base.

Ultimately, the bins are part of the company’s multipronged approach to managing e-waste. To ensure all security issues are eliminated, customers receive a certificate informing them their data has been wiped and that the material was disposed of appropriately.

“What we’ve found is the bins are great at starting a conversation and we can find out where someone

else in the business has a cupboard or entire room full of e-waste that they’ve never been sure how to deal with,” Blaise says.

“So they are hoarding and one of those reasons is data security. When you have the option to recycle that is visible front and centre, it sparks a conversation and gets people thinking.

“From there, we can have a conversation with them about how you select an e-waste provider and the due diligence that they should be looking for.”

Peter Cruwys, of Source Separation Systems, says that the design stage required stepping through all the stages of the project to ensure it was easy to install and managed by staff on site.

“We initially supplied a smaller bin on site before custom building it to suit Fujitsu and Sims’ requirements,” Peter explains.

“The most important driver comes from Fujitsu and their corporate social responsibility. The team is really driving this change and making a difference in the community.” ■



# CONGRATULATIONS TO ALL 2018 WOMEN IN INDUSTRY AWARD WINNERS

OPPORTUNITIES TO PROMOTE YOUR BUSINESS AS AN  
INDUSTRY LEADER ARE NOW AVAILABLE FOR **2019**

[WOMENININDUSTRY.COM.AU](http://WOMENININDUSTRY.COM.AU)

PROUDLY PRESENTED BY

LOGISTICS &  
MATERIALS HANDLING

Trailer

PACE  
PORTS & CONSTRUCTION

Mining

BULK  
HANDLING  
REVIEW

Rail Express

PRIME MOVER  
MAGAZINE

Manufacturers' MONTHLY

ROADS  
INFRASTRUCTURE

SPONSORED BY

Rockwell  
Automation

Atlas Copco

BOC  
A Member of The Linde Group

# Cup recycling made simple

DISPOSABLE COFFEE CUPS CAN BE DIFFICULT TO RECYCLE DUE TO THEIR PLASTIC LINING, BUT RECYCLING COMPANY SIMPLY CUPS HAS FOUND A SOLUTION AND TEAMED UP WITH 7-ELEVEN TO HELP DIVERT CUPS FROM LANDFILL.



Australia has a coffee addiction. As a nation, we use more than 50,000 disposable coffee cups every half hour, with an estimated three billion takeaway cups thrown away every year, according to statistics from Sustainability Victoria.

These cups can be difficult to recycle because of their polyethylene lining, which contaminates standard methods of recycling paper. Standard household recycling bins aren't properly equipped to handle them, but a confused public has meant that the cups often end up in the wrong bin.

Even the biodegradable or compostable coffee cups are somewhat problematic. They are rarely composted because Australia's existing facilities aren't able to process them effectively yet, according to Sustainability Victoria.

The ABC's *War on Waste* led to an increased attention on the topic, and reusable coffee cups like KeepCup rocketed into popularity. But while

bringing your own cups is a good start, waste managers are fighting an uphill battle against a tide of waste.

7-Eleven, one of the largest takeaway coffee destinations in Australia, recently partnered with Australian recycling company Simply Cups to tackle the problem of cup recycling.

Designed by solutions-based business Closed Loop, Simply Cups has been operating in the UK since 2014. The scheme was considered a success and brought into Australia in 2017.

Simply Cups collection bins have been set up in more than 200 7-Eleven stores across Australia, with 50 more set up in large-scale locations like universities or construction sites.

7-Eleven sells around 70 million cups every year and helps fund the recycling of every cup sold.

Lisa Birch, Senior Marketing Manager at 7-Eleven, says the company felt the best way to pioneer a solution to the coffee cup issue was

to partner with Closed Loop.

Lisa says 7-Eleven has been focused on researching the best way to dispose of coffee cups, as that is the biggest consumer packaging product it puts into the market.

"We did a lot of research into different material recovery facilities and met with independent consultants. When we spoke with Closed Loop we got to understand their program in the UK and felt that supporting them with the launch into Australia was the best way to recycle coffee cups into the future," Lisa says.

Lisa says that 7-Eleven hasn't changed how their cups are designed, as even if they were to go compostable, there is still no way of properly disposing of them.

"There are lots of cups out there that promise that they are biodegradable or compostable, but there's no mass market way for that



The nation's penchant for a caffeinated beverage sees us use more than 50,000 disposable cups every half hour.

to happen properly. To properly dispose of them requires specific criteria, so we're continuing to supply our usual cups," she says.

Collection points at 7-Eleven stores are able to collect and store up to 1000 cups thanks to Simply Cups' method of disposing them. First, the lid is recycled separately, as they're made of plastic that can be recycled already. Any excess liquid is then poured out and the cups are stacked top of each other to maximise the amount of space.

Because of the stacked system, the bins are able to fit significantly more cups before collection. The system accepts most cups, including those

that aren't from 7-Eleven, to be recycled, as well as Slurpee cups.

While people often buy their coffees then take them to go, Lisa says that having a drop-off point available at 7-Eleven stores allows people to find a collection point for any coffee cups they may have.

"One of the most important things for success was to make sure that people working at large organisations that drink plenty of coffee know about the recycling program. These are places like big office towers, but also hospitals, government organisations, commercial business districts and cafes.

"Our main aim is to ensure coffee cups are being recycled. We've just finished a campaign period to build awareness and tell people about the program," she says.

### **SIMPLY RECYCLE**

Closed Loop began operating in Australia in 2001 before setting up in the UK in 2004. Both sides of the business were set up to look at how a circular economy could be encouraged with recycling.

To date, Simply Cups has collected more than one million coffee cups that would have gone to landfill.

Robert Pascoe, Managing Director at Closed Loop, says he was concerned when he found out that coffee cups weren't being recycled when he believed they had been.

"Because of the plastic coating on the inside of the cups, it wasn't suitable for recycling. We also found out that when the cups go to the paper mill, they can often draw out more fibre as it can get caught up in the cup when it's removed," he says.

Robert and Closed Loop then began looking for ways to turn these coffee cups from a waste product into a valuable resource.

“The polyethylene lining only makes up six per cent of the disposable cup, but that’s what makes all the paper useless. There are a few processes that can melt the plastic off the paper, but these are few and far between, which makes it not commercially viable to a lot of traditional recycling facilities.

“To fix that, we began setting up partnerships with businesses to develop a process for recycling coffee cups. We found a method that worked in the UK and we decided to bring a similar version to Australia last year,” he says.

To start the process in Australia, Simply Cups needed to collect enough material to begin designing recycled products. The company needed 1000 tonnes of raw material to be considered viable. Considering that the average coffee cup weighs around 10 grams, the challenge then became about collection.

“We went to market to find places where we could collect cups, so places like coffee shops, offices and universities. 7-Eleven’s partnership has been really helpful, but we’re still looking to increase collection rates,” Robert says.

“We’ve been growing exponentially since we first started. In our first month, we collected a total of 900 cups. Now, going on six months we’ve managed to reach 200,000 cups a month. We’re currently looking at being able to collect 40 million cups annually, but that number is still growing.”

Robert says Simply Cups still has plenty of work ahead of them. While they’ve collected one million cups so far, that’s less than one per cent of the total number of cups being sent to landfill each year.

He explains that Simply Cups is using a two-pronged approach to reduce the number of coffee cups being thrown away.

“We’ve been talking to major brand owners like 7-Eleven and Muffin Break, which have come on board, and several others who are also selling the cups. When we set up a partnership, we have an obligation to collect the same amount of cups and divert them from landfill.

“The other method is to promote the usage of reusable cups. With the disposable cup market growing at 10 per cent at a minimum per year, we need to make sure we’re keeping up. While there will always be a need for the disposable containers, we’re trying to get technology companies to come on board and encourage more people to use reusables.”

Simply Cups has designed and sold their own reusable coffee cup in the UK. Called rCup, each is made up of material recovered from six recycled coffee cups. The company released the rCup to the Australian market in July.

### HOW IT WORKS

Robert says he values transparency and wants to encourage people to get on board with recycling. Because coffee cup recycling can be a confusing process, Simply Cups allows people to come in to their facilities and see how the process works.

“We want to show people exactly what happens to a cup, from when its thrown out to where it goes when its recycled.

“Ultimately, our plan is to show people how cups are binned, collected, baled, turned to raw material then into a product,” he says.

Robert says they have had a few

local Australian technology companies come on board already to help find new and efficient ways of recycling the coffee cups.

“One of these companies we’ve partnered with is Australian company Newtecpoly who have introduced us to technology that will turn plastic recycling on its head,” he says.

“They have a prototype plant in Moama that uses an amazing process that’s able to recycle both the plastic and the paper from the cups.”

Robert says Newtecpoly’s PolyWaste Technology is able to use the long paper fibres from coffee cups and turn them into a solid polymer



Closed Loop collected 200,000 cups a month in the first six months of its new recycling program.

that can be used in a variety of products, from food trays, to tomato stakes and concrete substitute.

“This is one of the first times this patented process has been used and the beauty for us is that it’s the perfect thing for plastic and paper. It’s very exciting technology that we can use to make products like car stops in car parks or reusable coffee cups that can go back to 7-Eleven,” he says.

“In layman’s terms, two hoppers are on the side of the machine which we’re able to put the cups into. Inside it’s a closed cylinder with holes in it.”

Robert says that once the material is inside the hopper, hydraulic rams

compact the product from the hopper into the central chamber and pushes them up under pressure.

“The rapidly rotating cylinder generates heat through friction, which melts the polymers and paper fibres, which then comes out as a liquid plastic that is then sent to a traditional extrusion process into a mould,” Robert explains.

Robert says they’re then able to turn this plastic into products with a mould and can handle up to 20 per cent contamination.

“It ticks all the boxes from an environmental and commercial point of view.

“We’re currently going through 15,000 tonnes of coffee cups a year as a nation and this continues to grow annually.”

Simply Cups has been dedicated to making sure recycled materials were kept and used in Australia instead of sending them overseas.

“These items are a valuable resource, so it doesn’t make sense to just put them in the ground or send them overseas,” Robert says.

“With the recent issues in the recycling industry, the public has really gotten on board and have become interested in how the public and private sectors can handle the demand.” ■



# Choosing the **right** equipment

FROM EDDY CURRENTS TO OPTICAL SORTING MACHINES, WE LOOK AT A RANGE OF APPLICATIONS TO CONSIDER WHEN CHOOSING HIGH-TECH SORTING AND SEPARATING SYSTEMS.

**M**aterials recovery facilities and recyclers require a range of sophisticated technologies to help sort and separate materials such as paper, plastic, metal, glass and wood.

Sorting equipment can in itself be a broad term, referring to simple products such as picking stations, to the more complex magnet and infrared-controlled processors.

While the range of technologies will differ in their componentry and can be more suited to a specific application, *Waste Management Review* breaks down the mix of the more complex sorting and separating technologies and how they can be used for a variety of waste streams and sizes.

Whether you're processing municipal solid, commercial and industrial or construction and demolition waste, the equipment required will depend on the waste stream, blend of materials, size of operation or level of contaminants.

If you're working with metal, organics or plastic, optical and near-infrared sensors can help sort and separate contaminants. Near-infrared spectroscopy with colour sensors can detect materials and provide colour recognition. As such, they are ideal for distinguishing a number of materials by discovering how they reflect light and can be used to detect the often undetectable.

Magnetic separators, such as eddy currents, can also remove aluminium caps in the glass industry, brass rivets and hinges in wood recycling, scrap and electronics processing and a range of other uses.

Eddy currents are generally used to sort non-ferrous metals and other

materials. The varying physical properties of materials will mean some non-ferrous metals are easier to separate than others. Ultimately, the ability to separate materials will largely come down to whether the materials are low enough in density and the electrical conductivity of the machine.

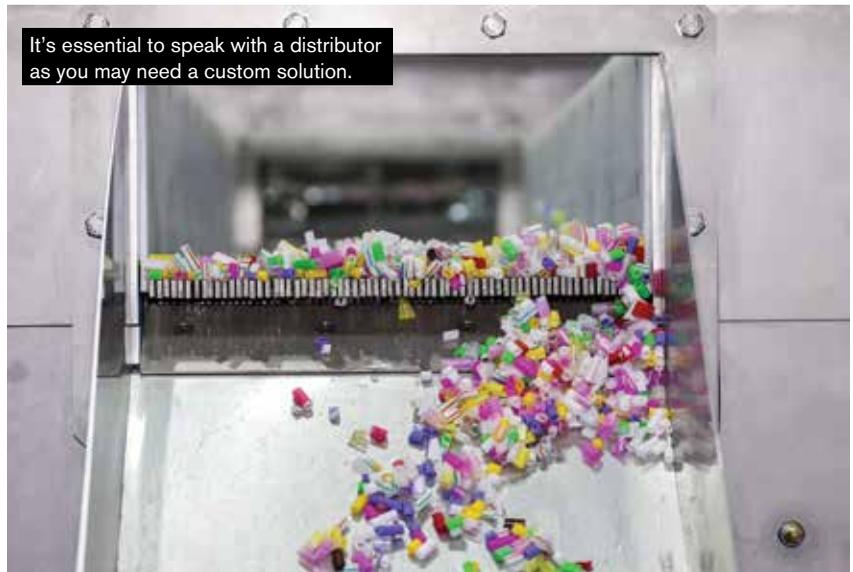
Induction sorting may also complement magnetic sorting and eddy current separation by recovering residuals. The induction sorting can detect materials in accordance with processing requirements, using sensors to locate materials such as metals like stainless steel.

X-ray technology is another option for facilities hoping to separate materials by density and is suitable for glass, metal, stone and other solid particles. X-rays are able to detect material density and particle size in order to separate materials such as plastics and steel mixed in together. It can also be used for e-waste when

you're working with a variety of component materials and heavier metals found within.

Ballistic separators are used for sorting materials such as paper mixed with bottles and cans. The materials are fed onto a series of paddles to screen the materials down into small fractions, including from municipal solid waste, single stream recycling and commercial and industrial waste. These can then be fed onto other machines such as near-infrared sorters to detect contaminants.

Ultimately, when deciding on the right piece of equipment, it's essential to speak with a distributor as they may be able to provide a custom solution to suit your individual requirements. Depending on the input material and desired output, they will be able to advise you on an efficient process flow and the most suitable equipment required to achieve your desired results. ■



It's essential to speak with a distributor as you may need a custom solution.

# Integrated machinery

WASTE MANAGEMENT REVIEW HIGHLIGHTS A VARIETY OF SORTING AND SEPARATING EQUIPMENT FROM EGGERSMANN GMBH, DESIGNED TO SUIT A DIVERSE RANGE OF APPLICATIONS FROM CONSTRUCTION AND DEMOLITION TO MUNICIPAL SOLID WASTE.

The key to successful and efficient material sorting is understanding the material properties and variability, then to properly present the material to sorting technologies or pickers.

Achieving the right particle size and shape is essential and that means optimising the process from start to finish, helping to achieve financial savings. Eggersmann GmbH has expertise not only as an equipment manufacturer but systems integrator, offering full turnkey plants, in addition to its flagship BRT HARTNER brand – distributed locally by Skala Australasia.

Its diverse offering ensures that products can be adapted to fit the task. In the area of sorting and separating equipment, the BRT HARTNER range

has been developed to ensure an even and distributed material flow when presented to downstream sorting equipment.

BRT HARTNER Dosing Hoppers and Bag Openers ensure the material is of a suitable size when presented to material sorting technologies or pickers. BRT HARTNER's BOS opens plastic waste bags and transfers the materials to downstream sorting and recovery plants.

Detlev Rakemann, Key Account Manager BRT HARTNER – Eggersmann GmbH, says dosing hoppers and bag openers offer a financially viable alternative over using a shredder, not to mention keeping materials to the appropriate size for further sorting and separation.

“Our argument against using a

shredder is you use it to cut materials down into small pieces, so when you need to separate and recycle the materials it's difficult,” Detlev says.

“The bag opener opens the bags and does not cut the material into pieces and that makes sorting and separating after more efficient. When you compare the shredders and bag opener, the shredder also has higher energy and wear costs.”

When you combine the materials with an integral decompactor, a feed hopper can also be used for dosed feeding of green, biological and plastic waste and organic production residues. The end result is an even material and a DC feed hopper with decompactor performs this role, working across mechanical and biological waste treatment.

The BRT HARTNER range also offers ballistic separators that perform 2D and 3D material separation, suited to downstream processes such as optical sorters.

Detlev says BRT's ballistic separators patented bearings for the eccentric drive of the screen paddles, in a one-step process to separate single stream, light packaging and commingled waste.

Detlev says that while these machines can be used for light materials such as municipal solid waste, they have more recently also been adapted for heavy duty applications such as construction and demolition waste, which is gaining interest in Australia. ■



BRT's ballistic separators can be used for downstream processes such as optical sorters.

## BS – Ballistic Separator

Application: MSW and adaptable for C&D

Output: Throughput up to 200 cubic metres per hour

Other features:

- High separation grades up to 98 per cent
- Three different paddle types
- Screwable sieve mesh

Contact: Simon Toal

Phone: 0411 277 730

Email: [simon@skala.com.au](mailto:simon@skala.com.au)

Website: [www.skala.com.au](http://www.skala.com.au)

## **STADLER BALLISTIC SEPARATOR**



With increasing demand being placed upon material purity, the STADLER ballistic separator is the ideal machine for cleaning up paper and plastics.

With more than 750 ballistic separators sold to date, STADLER is one of the worldwide market leaders for these low maintenance machines.

The ballistic separator operates on the principle of six or eight inclined screening paddles that rotate offset from each other. This allows for trouble free sorting of materials into three different fractions, without the downtime associated with disc screens.

The machine works by allowing rolling and heavy materials, including hollow bodies, plastic bottles, stones, wood, cans and steel sections to be dropped out towards the low end of the screening deck. Flat and light materials, such as paper and cardboard, are transported upwards. The screened fraction allows for various sizes to be separated with the paddle perforation. In the case of paper, this can significantly reduce any residual glass.

One of the key features includes patented pivoting frame with tilt adjustment, meaning there is no need to tilt the entire machine. Another key feature is optimal material distribution to any subsequent optical sorting machines, such as near-infrared sorters, while bolt-on screens can be replaced individually. The machine also features dirt and wrapping protected shafts, large maintenance openings – both above and below the working area and stadler patented stacking function that facilitates multi-level sorting of different particle sizes.

### **Contact**

Contact: Eric Paulsen  
Phone: 0455 920 888  
Email: eric.paulsen@cemactech.com  
Website: www.cemactech.com

## **THE TOMRA FINDER**

TOMRA Sorting, an industry leader in sensor based sorting systems, has developed the TOMRA Finder to recover high purity metal fractions.

Through a combination of new hardware, such as smaller resolution electromagnetic sensors and finer valve pitches, together with sophisticated new software packages such as intelligent object recognition, the new TOMRA Finder offers users improved product purity together with reduced air consumption.

The TOMRA Finder is available with a range of new features designed to maximise recovery performance and benefits to users. Among the new hardware features, the new EM4 electromagnetic sensor offers a choice of two sensor resolutions which allow the Finder 4 to detect metal objects down to a particle size of one to two millimetres.

The introduction of new, more robust, valve blocks with reduced response times and a much finer valve pitch significantly improves the ability to eject small objects, while also reducing material overshoot.

These features combine to improve product purity by up to 15 per cent, while reducing air consumption. The TOMRA Finder also permits the automatic testing of each valve on the machine with the benefit of identifying any valve which is found to be defective.

Another new feature, adaptive belt calibration, allows the TOMRA Finder to continuously check for permanent metal inclusions in the belt, thereby reducing misfires, optimising product quality and enhancing sorting stability.



### **Contact**

Contact: Jeff Goodwin  
Phone: 0438 106 048  
Email: jeff.goodwin@dksh.com  
Website: direct.dksh.com.au/recycling

## CP AUGER SCREEN

Wastech Engineering has released its newest screening technology from its partner – the CP Group – the CP Auger Screen.

The anti-wrapping, non-blinding screen has been developed specifically for material recovery facilities. The trademark CP Auger Screen sizes material by using a series of cantilevered augers that do not wrap or jam due to their corkscrewing motion, making it very low maintenance.

Any material that can wrap, such as hoses or plastic film, are released off the end of the auger.

Its low-wear augers are made from abrasion-resistant steel, making them durable while requiring little to no maintenance.

The CP Auger Screen can be used in various recycling applications, including municipal solid, commingled, construction and demolition and commercial and industrial wastes. The largest model can handle 30 tonnes per hour of inbound commingled material, 50 tonnes per hour of commercial and 70 tonnes per hour for construction and demolition material.

The machine is unique compared to traditional disc screens as the auger rotors act like a corkscrew,

conveying any stringy materials over the side. The cantilevered augers convey large flat materials over, while fines and flexible fibre go through to under the machine and the remainder goes to the side.

According to Wastech Engineering, what sets it apart is that it “does not wrap”.

The CP Auger Screen can be used in a variety of recycling applications.



### Contact

Contact: Darren Quin or Mike McConnell

Phone: (03) 8787 1600

Email: [info@wastech.com.au](mailto:info@wastech.com.au)

Website: [www.cpgrp.com](http://www.cpgrp.com)

# waste

## MANAGEMENT REVIEW



# CHECK OUT

[wastemanagementreview.com.au](http://wastemanagementreview.com.au)

### The Waste Management Review website features:

- Breaking news, updated daily
- Features loaded in fully digital form
- Events section
- Search bar for easy access to relevant information
- Mobile-friendly for updates on the go

# waste

MANAGEMENT REVIEW

## DON'T WASTE TIME, SUBSCRIBE TODAY

[wastemanagementreview.com.au/subscribe](http://wastemanagementreview.com.au/subscribe)

**WASTE MANAGEMENT REVIEW** is the latest resource providing insights on industry developments and the people and companies shaping its future.



*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

# New team, same plan

IMPROVED PLANNING, CONSISTENT STANDARDS AND VALUE FOR MONEY LANDFILL LEVIES REMAIN THE CORE FOCUSES OF THE NATIONAL WASTE AND RECYCLING INDUSTRY COUNCIL INTO 2019, WRITES THE ORGANISATION'S NEW CHIEF EXECUTIVE OFFICER, ROSE READ.

**W**hile I hope to bring new leadership and insights to my role as Chief Executive Officer of the National Waste and Recycling Industry Council (NWRIC) – the core mission of the NWRIC remains the same.

After more than 30 years in the industry, Max Spedding has retired. He is well respected for his 'steady hand' management style. Following his lead, Alex Serpo, NWRIC's Policy Officer, and I will continue to work for a cohesive national vision to advance Australia's waste management and recycling industry.

The NWRIC was set up to bring together all of Australia's waste management and recycling businesses and create a shared national vision for a fair, sustainable and prosperous industry. NWRIC's membership and affiliates include representatives from every state industry body, including the majority of Australia's nationwide waste management and recycling companies.

In addition to the immediate challenges presented by China's National Sword and the forthcoming introduction of the landfill levy in Queensland, the NWRIC has identified three major national challenges facing the industry. These are creating



Rose Read has in her 20-plus-year career focused on a strong collaborative approach.

and applying consistent standards, improving planning for waste and resource recovery facilities and getting the best value from landfill levies.

These priorities will form the basis of the NWRIC's activity for 2018 and 2019. It's worth addressing each in detail.

**CONSISTENT STANDARDS**

First: standards. The entire industry is premised on them, as their absence means waste generators could simply dump waste into the environment in an uncontrolled way and put the public and employees at risk. The consequences of this are visible in countries which have no standards, or who don't enforce their standards.

Success in this arena means both creating robust national industry regulations and enforcing them equitably. Specifically, the NWRIC believes there is a need for a national landfill standard and harmonisation of levies to prevent levy avoidance. We also need more work on illegal dumping.

**PLANNING IS ESSENTIAL**

Next: planning. Landfills and resource recovery facilities are very difficult to move. As a side note, it is theorised that the largest man-made object on Earth is in fact a landfill.

It's essential landfills and resource recovery facilities are put on the right site the first time. Good quality infrastructure planning can create enormous dividend for the public, industry and government. Since the need for new waste and resource recovery facilities is inevitable as population grows, forward planning is essential to meet community, environmental and economic requirements.

Effective road access and buffers will reduce or eliminate the public disturbance of these sites. Without

reliable planning, industry can't confidently invest in new infrastructure. Historically, bad planning decisions have set the industry and the ability to recover materials back many times.

**HYPOTHECATE LEVIES**

Finally: levies. From 2019, it is expected the states will collect close to \$1.2 billion per year in landfill levies. As their name implies, landfill levies are 'levies' and not taxes, and therefore technically should be hypothecated back into the waste and recycling sectors.

Today, less than one quarter of levies collected are invested back into waste management and resource recovery. With levies on the increase across Australia, governments can now invest more into planning, infrastructure, education, standards and enforcement of regulations.

The mechanism of levy re-investment is important, and by far the largest cost is large infrastructure development. In the April 2018 edition of *Waste Management Review*, the NWRIC suggested the establishment of a 'recycling bank' to distribute a proportion of the levy funds via loans. This ensures levy funds are spent effectively, leveraging private investment so that the funds collected from businesses and households go further. The Clean Energy Finance Corporation shows the success of this model.

Beyond these large scale structural challenges, we are also working on two acute problems. The first is the new landfill levy for Queensland, which is expected to raise close to \$200 million per year. The details will be important, and many unresolved questions remain. For example, will the levy apply to bagged asbestos? (Hint: it shouldn't.) Will enforcement be effective enough to ensure legitimate businesses aren't undercut by levy avoidance?

The second challenge is the continued

impact of the Chinese National Sword policy, which has resulted in a collapse in prices for commodities recovered from kerbside recycling. In the wake of this market shakeup, materials recovery facilities are still in trouble. Kerbside collection services, which have received decades of investment, should not be allowed to collapse.

As the NWRIC has previously advocated, the first step is to clean up what is going into kerbside recycling bins through strong public education programs. In worst cases, kerbside recycling bin contamination is running as high as 40 per cent. Meanwhile, we believe the national average is 15-25 per cent. This figure needs to be reduced down to 10 per cent contamination at the most.

To kick this off, the NWRIC in partnership with the Australian Council of Recycling and the Australian Local Government Association has launched the Recycle Right program. A simple and clear recycling message to be applied nationally on what does and more importantly does not go in the yellow bin.

While the challenges facing industry are significant, they all have well understood solutions. We have the funding and expertise to advance the industry. The NWRIC will be stepping up to promote these solutions. ■

**About**

Rose is a seasoned CEO with experience leading both commercial and not-for-profit organisations, including AMTA's MobileMuster and Clean Up Australia. In her more than 20-year career, Rose has focused on a strong collaborative approach to implementing product stewardship and natural resource management initiatives through multi-stakeholder engagement.



REPURPOSE IT

# 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.**



# CHANGING THE FACE OF WASTE MANAGEMENT

Whatever your waste management needs, GCM Enviro can provide you with the equipment and expertise that you need.

From landfill compactors, shredders 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.

## TANA

From Waste to Value

### 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



## TANA

From Waste to Value

### 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](mailto:info@gcmenviro.com.au)

[www.gcmenviro.com](http://www.gcmenviro.com)

# GCM

enviro