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MANAGEMENT REVIEW

APRIL/MAY 2017



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**Mark Globan on
Cleanaway's long-term
waste strategy for Victoria**

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Plastics recycler Enviroinex's unique enterprise
Transfer station revamp prioritises customer
South Australia's educational C&D solution
Housing development avoids landfill pile-up

REPORTS

National Waste and Recycling Industry Council's plan
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COVER STORY 14

CLEANAWAY'S LONG-TERM STRATEGY FOR VICTORIA'S WASTE

Cleanaway's Mark Globan explains how the company's new South East Melbourne Transfer Station aligns with the Victorian Government's Statewide Waste and Resource Recovery Infrastructure Plan.

"FROM AN OPERATIONAL PERSPECTIVE I MAKE SURE WE'RE RUNNING EFFICIENTLY IN OUR RESOURCE RECOVERY, BUILDING THAT CAPACITY AND INCREASING OUR RECOVERY RATES."

Mark Globan, Cleanaway Regional Manager Post Collections Victoria/Tasmania

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From the new Editor New pathways

CHANGE IS AS GOOD AS A HOLIDAY, which is why I'm delighted to take over as Editor of a magazine covering the rapidly growing waste management industry.

IBISWorld's 2017 Waste Treatment and Disposal Services market research report shows the industry grew at an annual rate of 2.2 per cent from 2012-17.

Against this backdrop, we've seen public concerns over environmental issues fuel state government legislation.

As governments set targets to divert waste from landfill, we will continue to see higher volumes of recyclable waste, further assisting growth through increased resource recovery.

To that end, we will continue to provide you with not-to-be-missed information, speaking to industry to find out how it responds to these changes in 2017.

Our cover story reflects industry's response to change, as we spoke to one of Australia's largest waste management companies – Cleanaway, who explained how its modern transfer station ties in with the Victorian Government's expectation of increased waste transfer stations, supported by fewer, but larger, landfills.

In line with this theme, turn to page 30 and you'll find out how Western Australia's City of Busselton incorporated recycled materials into its freshly built waste transfer station.

Elsewhere in the state, the coastal community of the Catalina Estate grappled with an influx of construction and demolition waste, managing not only to prevent its local landfill from reaching capacity, but supplying some of the recycled materials to state infrastructure projects.

Construction and demolition waste is a significant problem in South Australia, as government figures show about 1000 homes are demolished each year. On page 34, we chat to the City of Charles Sturt's Community Safety Officer Building Site Mark Reid. The unique position sees Mark enforce recycling initiatives on council building sites.

We include news of the latest developments on these issues and more on our website – www.wastemanagementreview.com.au – with a weekly round-up available in our free e-Update newsletter, which you can sign up for via the website.

For general enquiries or article ideas, you can contact me directly by email at toli.papadopoulos@primecreative.com.au or phone (03) 9690 8766.

I look forward to following the industry on this exciting journey in 2017.

Toli Papadopoulos
Editor
Waste Management Review

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Cleanaway sells tip sites in Melbourne

Melbourne-based waste management company Cleanaway has sold two landfill sites in Melbourne's west for up to \$22 million.

In a statement to the Australian Stock Exchange, Cleanaway reported the sales were of two dormant landfill sites in Brooklyn, sold to specialist developers Pelligra Group.

"These transactions are forecast to generate a pre-tax profit ... of approximately \$20 to \$22 million," it said.

Pelligra will assume responsibility for remediating and monitoring the sites in Market Road and Old Geelong Road, and has undertaken to cap the sites in line with environmental regulations.

"Based on forecasts, the sales of these closed landfills will reduce spending on landfill rectification and remediation by approximately \$20 million over the next six years," Cleanaway said.

The former tip sites have been dormant for years and had undergone initial remediation works, a spokesman

for the company told Fairfax Media.

Pelligra is focused on developing industrial and contaminated sites, having previously redeveloped the

heritage former ETA peanut butter factory in Braybrook.

Cleanaway said the sale was expected to be done by early March.



Victorian Waste Management Association elects new president

Long-serving executive member Chris Ryan has been elected as President of the Victorian Waste Management Association (VWMA).

The VWMA is a division of the Victorian Transport Association (VTA), and represents the waste and recycling sectors of the industry in the state.

"I am honoured to have once again been elected to serve as President of the VWMA and look forward to working with the Executive and Executive

Officer Andrew Tytherleigh to advance the interests of our industry and our members," said Mr Ryan, who previously served as President in 2013-14.

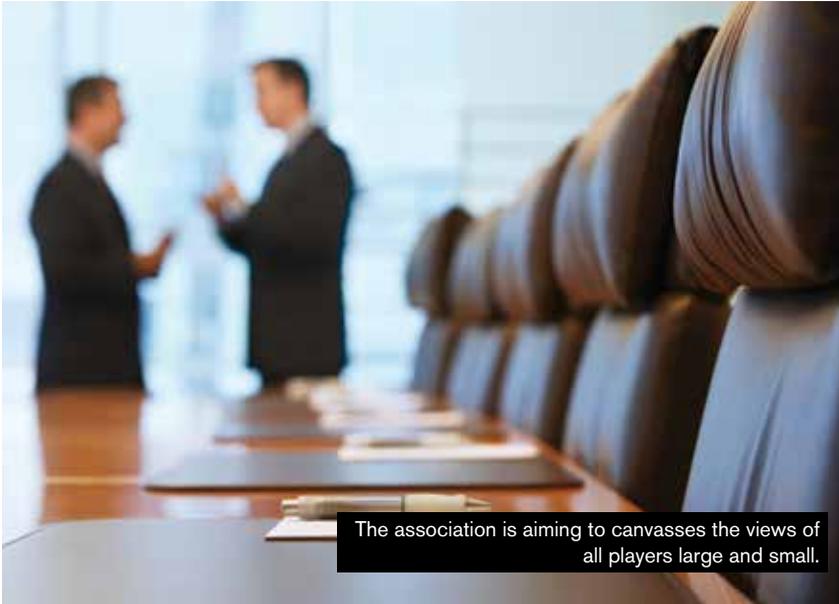
"On behalf of the Council I wish to thank our outgoing President Tim Watts, who worked tirelessly for two years in the role," he said.

Mr Ryan is a long-serving member of the VWMA Executive and is Victorian State Manager for Kartaway, a role he has occupied for close to two years.

Prior to that he was Victorian Operations Manager with Kartaway.

The VWMA AGM also re-elected Bruce Cunningham (Waste 2 Water), Adrien Scott (Solo Resource Recovery), Tim Isherwood (National Resource Recovery), Ken Dickens (Corio Waste Management), Graham Lenthal (Veolia), Paul Smith (KS Group) and James Whelan (Kartaway). They join current members, Matthew Whelan (Citywide) and Past President Tim Watts (Ellwaste).

New Waste and Recycling Industry Association formed



The association is aiming to canvass the views of all players large and small.

A new waste and recycling industry representative body was formed in Adelaide in February, after a meeting attended by representatives from a range of companies with direct

investment in the state's waste management, recycling and resource recovery industry.

An inaugural management committee of the Waste and

Recycling Industry Association of South Australia (WRISA) has been formed consisting of representatives from Solo Resource Recovery, Peats Soil, Veolia, Mastec, Suez, Scout Recycling, ResourceCo and Bettatrans.

"Through WRISA, the waste management and recycling industry operators in South Australia will have the opportunity as a single voice to promote the industry, and optimise engagement of government, business and the community," said Peter Wadewitz, president of WRISA and managing director of Peats Soil.

"Our objective is to influence change in the interest of the industry."

The focus of WRISA will be to engage those with an investment in the industry and to promote solutions to the legislative and regulatory challenges facing the sector.

WRISA said the association's activities will be ensuring consultation goes right across the local industry, including all players large and small.

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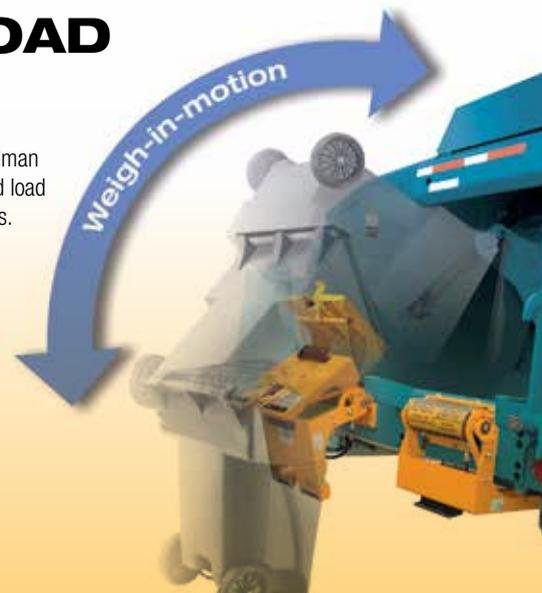
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Nedlands braced to minimise waste with latest strategy

The City of Nedlands is on track to divert 65 per cent of all waste from landfill by 2020, after its latest Waste Minimisation Strategy was approved by Council.

It follows a 10-week community consultation period that found people were mainly supportive of the strategy with only very minor amendments suggested.

The Waste Minimisation Strategy 2017-20 will guide the City, with the support of the community, in its efforts improve the diversion of waste over the next four years.

Methods of improving waste diversion will focus on:

- Exploring the practicality of co-mingling food scraps with green waste

- Combinations of waste bins and collection processes
- Recycling construction and demolition waste
- Working with schools through education and information
- Reducing the amount of the illegal dumping
- Researching new technologies that could produce energy from waste
- Enhancing the management of commercial waste

City of Nedlands Mayor Max Hipkins said the strategy would help to provide an integrated approach to waste prevention.

“We will be working with the community, industry and other local governments to develop common

ground on waste management, wherever practical,” he said.

“The City has already hit the ground running with a 91 per cent recovery from verge collections under its latest contract, compared to the previous best of 51 per cent.

“For the strategy to succeed, it will be important for the City and community to work together to ensure waste materials are thought of in terms of a resource to be recovered, reused and recycled wherever possible.”

Mayor Hipkins thanked the community for their responses and said they would be included as part of the implementation of the Council's minimisation strategy.



City of Nedlands Mayor Max Hipkins, with Year 6 Dalkeith Primary School students Eloise O'Clery, Max Yee and Sophie Laurance at Nedlands foreshore for Clean Up Australia Day activities.

ZenRobotics delivers new waste sorting system

Finnish robotic technology developer ZenRobotics will deliver a new robotic waste sorting system to Melbourne waste management firm Sunshine Groupe.

Waste Management World reported the three-armed ZenRobotics Recycler units (ZRR3) would be the first of its kind in Australia, and fully operational by spring 2017.

Sunshine Groupe told the publication it had been investing its funds in a bid to become one of Melbourne's primary waste processors.

"We believe that through changed thinking and innovative technology, wastes can be transformed into valuable resources. We will achieve this by challenging conventional waste practices and by looking for new and innovative technologies to recycle waste," explained Tom Buxton, Director at Sunshine Groupe.

Sunshine Groupe installed a material recycling facility (MRF) at its Brooklyn landfill and recovery site through a partnership with Sustainability Victoria.

The facility has been used by the Melbourne company to better identify resources from the 120,000-tonnes-per-annum waste stream to be repurposed and reused for other materials.

Once the waste is sorted, it will be transferred to the robotic material sorting plant.

ZenRobotics explained that the ZRR3 will use precision sensors and artificial intelligence (AI) to sort specific material types from the waste stream.

Robots in Waste's Jim Duncan

told *Waste Management World* the Australian market looks very promising for the technology.

"It is exciting for Robots in Waste to have the Sunshine Groupe project finally close to completion as there are many companies that are aware of this significant development and are watching with interest," he said.

"Because of the sheer size of our country we will have people flying across the continent to see the ZRR3 in action. Such is the interest in the system."



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Central Australian salt mine to operate as waste facility

A proposed salt mine in Central Australia will also be used as a deep storage facility for archival material and hazardous waste.

In February, developer Tellus Holdings noted the facility's potential in a statement, after the draft environmental impact statement was released.

Managing director Duncan van der Merwe told *ABC News* the concept was nothing new.

"The voids leftover from mining effectively creates an underground warehouse business," Mr van der Merwe said.

"This is popular in Europe and North America where the banks and governments store equipment and

electronic archives and paper copies.

"It's just like one of your commercial above-ground storage facilities, but is well suited in a dry environment."

The proposed Chandler site salt mine is 120 kilometres south of Alice Springs.

Mr van der Merwe said various waste types could be stored in the rock salt mines, such as those from the agriculture, construction, health care and manufacturing sectors, as well as chemical, industry, mining and technology.

"Oil, gas and waste from utilities like electricity, water, gas supply [can also be stored]," he said.

The facility would be able to store or permanently isolate up to 400,000

tonnes of waste per annum, the draft indicates.

ABC News reported the company expects to start with 30,000 tonnes for the first year and an average 340,000 tonnes per annum after that.

Mr van der Merwe said underground salt mines were ideal for storing these waste products.

However, he said they will not take nuclear and uranium waste.

"We're emphatically saying that we will not take uranium waste and nuclear waste. In the event that we even get approached down the road we will decline that.

"We are not interested in using our facility for these services."



Victorian Government launches waste to energy fund

The Victorian Government has launched a new \$2 million program to support the development of waste to energy technologies, including anaerobic digestion and thermal treatment of waste.

The Waste to Energy Infrastructure Fund will boost sustainable energy production using organic and other materials and divert more waste from landfill.

As a major food producing and processing state, Victoria's commercial and industrial sector produced more than 300,000 tonnes of food waste in

2014-15, but only 22 per cent of that was recycled.

Diverting commercial and industrial food waste from landfills means methane produced during decomposition is not released to the atmosphere where it is a major greenhouse gas.

Methane released to the atmosphere is 25 times more potent than carbon dioxide, trapping heat and contributing to climate change.

The Waste to Energy Infrastructure Fund is designed for the waste management sector, councils, water authorities and businesses with

proposals for new or upgraded projects that can be commissioned by 31 December 2019.

Minister for Energy, Environment and Climate Change Lily D'Ambrosio said waste to energy projects helped to reduce business costs, generating sustainable energy and reducing pressure on landfill.

"This program supports investment in renewable energy technologies that will help Victoria become a low carbon economy and reach our target of zero net greenhouse gas emissions by 2050," Ms D'Ambrosio said.

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Global industrial shredder market projected to decline

The global industrial shredder market is projected to drop from US\$840 million (A\$1.1 billion) to US\$810 million (A\$1.06 billion) by 2021, according to London-based research company Technavio.

The company released its market outlook for 2017-21 earlier this year.

The report provides a detailed industry analysis based on products, including iron and steel and aluminium, copper and non-ferrous metals.

It covers products based in the Americas, Europe, the Middle East, Africa and the Asia-Pacific region.

Despite challenging economic conditions ahead, growing sales

of electrical vehicles will be a key growth driver for the segment, the company found.

“The adoption of electric vehicles has increased due to advances in technology and government incentives on these vehicles,” explained Lead Analyst Gaurav Mohindru.

“Western Europe is witnessing an explosive growth of the electric vehicle market, with manufacturers expanding their factory floors to meet the increasing demand.”

Mr Mohindru added many electric vehicle manufacturers are thus heavily investing in expanding and improving their manufacturing capabilities – a

development that is expected to boost the demand for shredding machines, driving market growth.

The reported noted that sales will also be driven by the mining and nuclear waste sectors.

The top three emerging trends driving the global industrial shredder machine market according to Technavio heavy industry research analysts are:

- The growing sales of electric vehicles
- The evolution of waste management techniques to suit low-grade ores
- Stringent nuclear reactor regulations following the Fukushima Daiichi nuclear disaster in 2011.



London-based research company Technavio believes the growth of electric vehicles will boost the shredder market.

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Cleanaway's long-term strategy for Victoria's waste

CLEANAWAY'S MARK GLOBAN EXPLAINS HOW THE COMPANY'S NEW SOUTH EAST MELBOURNE TRANSFER STATION ALIGNS WITH THE VICTORIAN GOVERNMENT'S STATEWIDE WASTE AND RESOURCE RECOVERY INFRASTRUCTURE PLAN.

The Victorian Government has a vision to achieve an integrated system of waste management and resource recovery infrastructure, and Cleanaway believes its new transfer station, due to open in May 2017, supports the model well.

Strategic planning is now being undertaken by industry across the state to support the plan.

Statutory authority Sustainability Victoria, who released its Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) plan in 2015, also expects the number of transfer stations to increase over the next 30 years, as landfills, particularly in Melbourne's south-east, reach capacity. This will work in favour of a model increasingly focused on resource recovery, supported by fewer but larger and more modern landfills around the state, allowing ongoing

consolidation and sorting of waste and material streams.

This will ultimately bring Victoria's waste management and resource recovery activities, together in a network of "hubs and spokes". Hubs are defined as a facility or group of facilities managing waste and material streams (such as a landfill), while spokes are the sequence of activities that move materials from waste generators to and from hubs, including collection, transport and sorting.

"In the long term, the role of landfills will be to manage waste streams that cannot be viably recovered," the plan goes on to say.

According to the SWRRIP, total waste generation in Victoria is projected to almost double from 12.2 million tonnes in 2011 to 20.6 million tonnes in 2043-44.

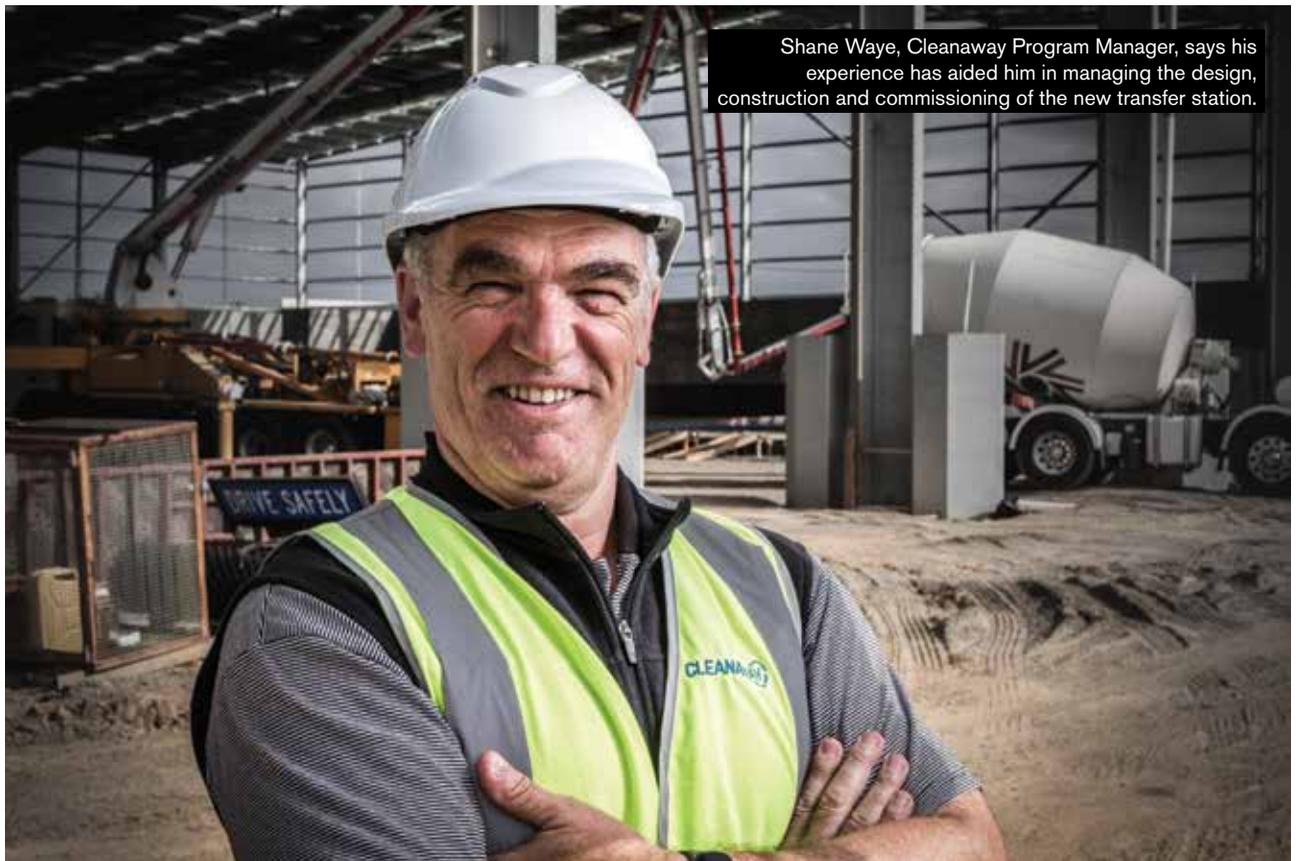
Mark Globan, Regional Manager

Post Collections Victoria/Tasmania, explains that Cleanaway's new state-of-the-art transfer station supports the Government's plan – as the company's landfills in Melbourne's south-east begin entering the phase of post-closure management.

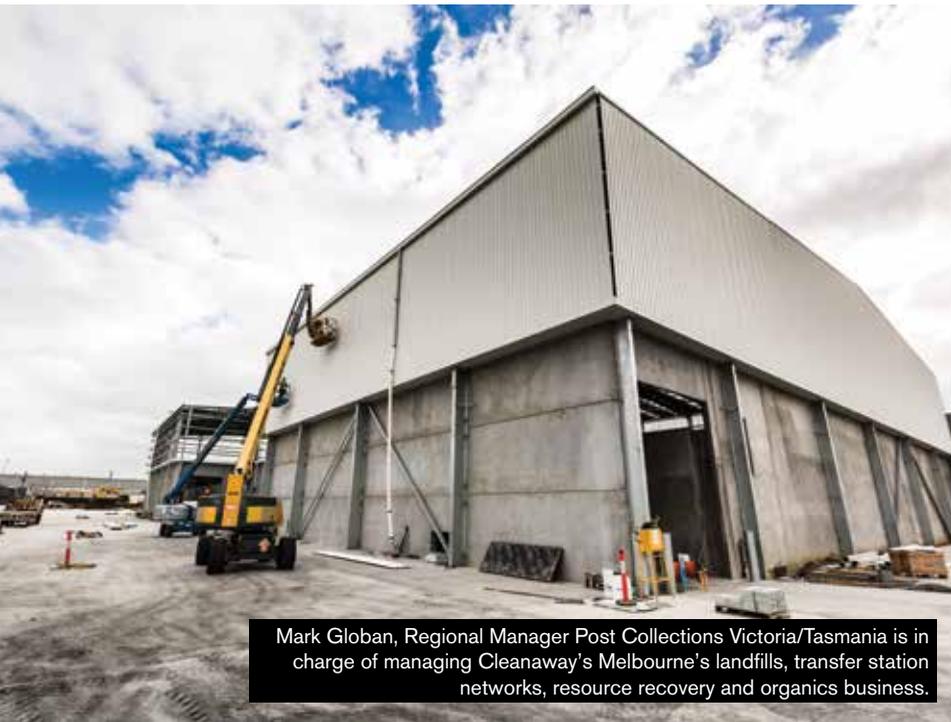
"Our Clayton landfills will be closed by the end of June this year. However, by May, our transfer station in Dandenong will be operational. That will act as a consolidation point for waste, and our vehicles will transfer the material from Dandenong to our Melbourne Regional Landfill (MRL) at Deer Park, for disposal," Mark says.

Mark is responsible for the management of Cleanaway's Melbourne's landfills (active and rehabilitated), transfer station network, resource recovery and organics businesses.

"From an operational perspective



Shane Waye, Cleanaway Program Manager, says his experience has aided him in managing the design, construction and commissioning of the new transfer station.



Mark Globan, Regional Manager Post Collections Victoria/Tasmania is in charge of managing Cleanaway's Melbourne's landfills, transfer station networks, resource recovery and organics business.

I make sure we're running efficiently in our resource recovery, building that capacity and increasing our recovery rates. I am also responsible for a network of Transfer Stations which support Sustainability Victoria's SWRRIP and the hub and spoke model it outlines.

"Our new facility absolutely supports that model as it will become a consolidation point for waste."

Mark says Cleanaway's new transfer facility will be used by commercial customers and councils to transfer their kerbside collections.

He says as the population increases, Cleanaway is positioning itself to provide the critical infrastructure required in order to manage Melbourne's waste well into the future.

"One of our goals is to provide efficient buffers and protection overlays through the government's planning mechanisms, and make sure they're engineered to handle the increase in volumes and future

technology needs."

Mark says part of the new transfer station involves the closure of the landfill and the rehabilitation of the company's Victory Road landfill in Melbourne's south-east. He says Cleanaway has in principal approval from council to turn it into a park.

"It's all work to be completed under EPA auditing and approval processes. We will comply with EPA guidance around capping. We go through a rigorous design, based on the pre-approved contours, and then we go through a construction process where it's capped, and grasses and plants placed over the top.

"Once the landfills have reached capacity, we have to manage them for 30 years. We've got a rehab program running through to 2022, where we will be rehabilitating five landfills."

Mark explains that the South East Melbourne Transfer Station will have the capacity to manage 450,000 tonnes of waste per annum – the largest amount processed in Melbourne.



The new facility will be able to manage 450,000 tonnes of waste per annum.

He says the average amount of waste processed at transfer stations across Victoria is approximately half this figure.

"The capacity is unique when compared to our other sites. Nine trucks are able to tip at a time. There's automation that allows trucks to move through the site safely and efficiently."

He says the modern transfer station features a fully automated traffic control system and high speed loadout doors, improving wait times for customers.

"The automated traffic control system will change the way vehicles move through the site. Customers will be able to dispose of their waste more efficiently, saving both time and money. And through



to loadout walls up to 750mm thick, located on the west side.

“A Caterpillar 962M wheel loader picks up the waste, loads over a 1.8m push wall, and empties the waste into the new 30m A-Doubles vehicles. That’s why it’s called a loadout/push wall because the waste is pushed up against the wall and then lifted over the top of that wall and into the truck.”

He says a 20mm thick/2m-high-steel plate attached to the pit wall guides the waste into the trailer.

Shane says the Caterpillar 962M was chosen due to its loading capacity.

“You want to get a larger machine so you’re not running it at its capacity all the time.”

“We’re using A-double trailers to transfer the material out to MRL and the unique thing about these are they’re not a walking floor or dump style, they’re what they call a tipper trailer. This allows us to increase payload, improving transport economy. There is a maximum weight you can load onto a truck, so rather than having hydraulic material management within the trailer which would consume some of that weight, we don’t have any of that, so we can fit more waste on the truck,” Shane says.

Shane says 26m crossovers were built at the entrance of the site to cater for the 30m purpose-built A-Double trailer configuration. He says a Columbian Tipper will operate at MRL to unload the A-Double trailers that pick up the waste from the new transfer station. It will then lift the loaded trailer to a height where the waste will empty from the trailer onto the operating face.

Construction is well underway on the site, with the new transfer station on schedule.

“After work commenced, Melbourne had one of the wettest winters for

increased automation, we will have less personnel moving around the site, which greatly increases safety,” Mark explains.

Mark says the location is positioned more centrally in south-east Melbourne than Cleanaway’s competitors, and is being designed and built to maximise efficiency.

“Driving on a concrete hardstand is less intrusive to vehicles – for our customers it’s all about efficiency.”

Shane Waye, Cleanaway Program Manager, explains the transfer station was designed by a local team that leveraged information from previous projects. This was combined with the experience of a company from the US, Cambridge Constructions. Cambridge Constructions specialises in the design

and construction of waste facilities and has been commissioned on many of the largest transfer stations in the US for the some of the world’s largest waste companies.

Shane says the company was hired to help develop a generic design blueprint, identifying specific construction standards and building requirements pertinent to a purpose-built waste transfer station. Cleanaway is now using these standards in the future design and construction of similar facilities around Australia.

The research has informed the use of push walls on the east, south and north sides of the transfer station, which are up to 4.2m high, and used to create an efficient loading of the waste arriving at the facility for transfer, in addition

The new transfer station will be fully operational by May.



a decade in 2016. The builders had to work with a variety of pumps, drainage systems and continual movement of earth to continue works, but the team worked through these issues.”

Shane believes his experience has helped him manage the design, construction and commissioning of the new transfer station.

“It is not just the design and build that requires time, but also the operational requirements. These include balancing the schedule against budget, as well as managing the site fit out, such as IT infrastructure and communications, which can be challenging. You have to ensure the systems align with weighbridges. Safety requirements are also critical, and we need to balance that within our timeframe.”

Shane says having a broad knowledge of multiple work streams, such as IT, construction, security, operations and the site fit out, has

allowed the planning, design, and commissioning to proceed with the completion of items in the correct sequence.

Finding a cost-effective site for the transfer station is also a challenge, Shane says, which is why Cleanaway decided to build the transfer station on an empty block of land, rather than the initial proposal to build on top of existing closed landfill.

“There was an opportunity to collaborate with a local developer who already had a transfer station application in process on the site finally selected. This enabled the team to lodge an amendment to the existing application for the new Cleanaway design. As it was a greenfield site and not a former landfill, it actually allowed us to accelerate the project planning phase and meet some of our critical operational timeline requirements,” Shane explains.

Mark says monthly and half-yearly

maintenance programs will review the design of the transfer station to ensure it remains built to last.

“We have strict design and maintenance requirements.”

Alongside the build of the new site in Dandenong, Cleanaway is undertaking further infrastructure work to increase their resource recovery rates in line with State Government strategies. In its latest renewable energy project, the company is increasing the amount of renewable energy generated at the Melbourne Regional Landfill in Deer Park.

“As waste degrades, it generates landfill gas, and part of that landfill gas is methane. We install and maintain a landfill gas collections system within the landfill to capture and transfer the landfill gas to our Biogas Plant to generate electricity. We are generating electricity through the Caterpillar 3516 (CAT 3516) engines, which we place back into the power grid.” ■



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National Waste and Recycling Industry Council **to advocate for industry**

A NEW BODY WORKING TO CREATE A COHESIVE NATIONAL VISION FOR AUSTRALIA'S WASTE MANAGEMENT INDUSTRY HAS OFFICIALLY FORMED. WE SPOKE TO THE ORGANISATION'S CEO MAX SPEDDING ABOUT HIS PLANS.

Tell us a bit about your past role as the chief executive of the Australian Landfill Owners Association (ALOA) - how do you think your past experiences will help you as CEO of the National Waste and Recycling Industry Council (NWRIC)?

Having both industry CEO experience (BFI then SITA from 1994 to 2001) – and the last three years with Australian Landfill Owners Association – I have a great basis to take on the role. As the NWRIC will, in time, address all sectors of the waste and recycling industry I expect my first-hand knowledge will help give the Council focus, and an industry approach.

How will the NWRIC work in the best interests of Australia's waste management industry? How does this collaboration similarly fit in with state-level industry-based associations?

The Council works to represent the interests of Australia's waste and recycling industry through the creation of industry-driven policy. This policy aims to create an industry which is fair, safe, sustainable and prosperous for all waste management companies.

Working with industry stakeholders, we intend to develop industry position papers, which will become policy road maps to take the industry forward.

We'll then promote, both directly and through our affiliates, these consensus policy papers to key state and Commonwealth regulators and decision makers. In this way, the Council is Australia's first national advocacy group linked to an affiliate branch in each state.

How will you work with some of the national members such as Alex Fraser Group, Cleanaway and Solo Resource Recovery?

Just as the waste industry is broad, the activities and services of our members are broad. However, there are many issues they can agree upon. For example, regulations covering the Australian waste and recycling industry vary greatly from state to state, and this variation can create increased costs. Likewise, the need for waste management infrastructure to be protected from encroachment and creating fair markets is also important.

What are some of the major challenges for the industry going forward and how does the NWRIC intend to advocate for change?

The NWRIC is a broad based policy body which will create, promote and advocate for industry-driven policy. We want to bring to the Government's attention regulations and administrative burdens which create a cost to business but don't benefit communities, businesses or the environment.

Poor policing of standards is a simple example. State EPAs need to be equipped to find, prosecute and close down operators who operate illegally or dump waste. These groups undermine the investments made by quality providers, and harm the environment and communities.

Similarly, the great variation in landfill levies across Australia is creating unnecessary waste transportation. We want to ensure that regulation doesn't create unintended consequences.

What level of progress has the association made since commencing in February, and what are your goals for 2017?

We're in active consultation with our members, our affiliates and key industry stakeholders. Right now we're working to identify key industry issues and then build consensus around new policy positions. When these positions have been ratified by industry, we'll share them on our website and with the industry more broadly.

We're seeing a lot more collaboration between industry and local, state and federal government. **Where do you see this heading now and into the future?**



NWRIC has received support from some of Australia's largest companies.



The Council is aiming to advocate for cohesive and national waste policies.

Collaboration is improving – but there is still a lot of work to do. Nationally, harmonisation of regulations and standards have, in the view of industry, gone backwards in the last five years. For example, in 2013 Queensland introduced a landfill levy, then rolled it back less than one year later.

Likewise, a carbon pricing scheme was put in place in 2012, applied selectively to landfills, and then repealed 24 months later.

The NWRIC will be asking regulators to put in place simple, effective regulations which last. Further, the Council will advocate for regulations which don't create market distortions.

There's been quite a bit of movement in areas such as waste to energy, with Victoria recently launching a \$2 million program. What potential do you see for this space?

Australia has very little energy recovery infrastructure, and no operating large scale energy recovery plants today. Using large scale energy recovery infrastructure as an alternative to landfill is not far away. Our members work consultatively in each community where they operate in to ensure the maximum social,

environmental and economic outcomes are achieved. Communities will have to accept the siting of these facilities, and be willing to enter into long term contracts for secure funding.

Meeting government targets to reduce waste to landfill is certainly going to be difficult for local and state governments across the nation. What do you think governments are doing well in terms of planning and what can they do better to ensure industry is better equipped to handle this?

Landfill diversion targets in Australia may be achievable – but without supporting infrastructure for recycling, composting and anaerobic digestion, they may be difficult to achieve. As a result the Council believes state and Commonwealth regulators need to focus on planning to support infrastructure development and the creation of markets for diverted products.

Historically, encroachment by urban development has closed down waste management facilities. We need State Government to put aside clearly marked zones for waste management, and once these zones are established, they must be protected for the

lifespan of the infrastructure.

If funding is to come from the private sector, laws and regulations need to be durable over the long term.

What are some of the challenges surrounding greenhouse gas emissions?

The Australian waste and recycling industry is only responsible for around 1.5 per cent of Australia's greenhouse emissions – so relatively speaking it's a very small greenhouse emitter.

Greenhouse emissions from the waste industry have fallen of the last decade, mostly due to the work of landfill gas operators, with all of Australia's large landfills now capturing gas.

Between 1990 and 2008, net emissions from the waste sector declined by 20 per cent, despite huge growth in waste volumes.

Broadly speaking, waste and recycling was an early respondent on greenhouse emissions, and this is expected to continue in future through the diversion of organics from landfill and the introduction of 'micro' flares on smaller landfills. The Commonwealth Government has recognised this by allowing access to the Emissions Reduction Fund.

What do you think are the key concerns of small and medium waste management enterprises? What are manufacturers, distributors and collection companies saying needs changing?

Smaller waste and recycling enterprises face high regulatory burdens, and the Council wants to address this problem. The waste and recycling industry is heavily regulated – and reporting requirements are unnecessarily high in some cases – particularly for waste transporters. Regulations need to be simple, effective and statewide.

Small waste enterprises need to know that if they play by the rules, they won't face competition from illegal or substandard operators. Finally, the licensing of waste facilities takes too long. Administrative

processes shouldn't take years when there is a genuine need for a facility. The Council will work to develop policies that will shorten these waiting times without compromising environmental standards.

What waste streams pose the most issues? Construction and demolition waste is one area that is piling up in states such as South Australia.

All waste streams are important, but the complexity of their treatment and the development of end markets vary from product to product and from location to location.

Some waste streams have resource recovery rates which are lower than others due to disposal pricing, the value of recovered materials and available infrastructure. The Council

supports a “circular economy” approach to resource recovery and will strive in the future to develop policies to reduce stockpiling and improve resource recovery rates. ■



Max Spedding, NWRIC CEO, has previously worked for ALOA.



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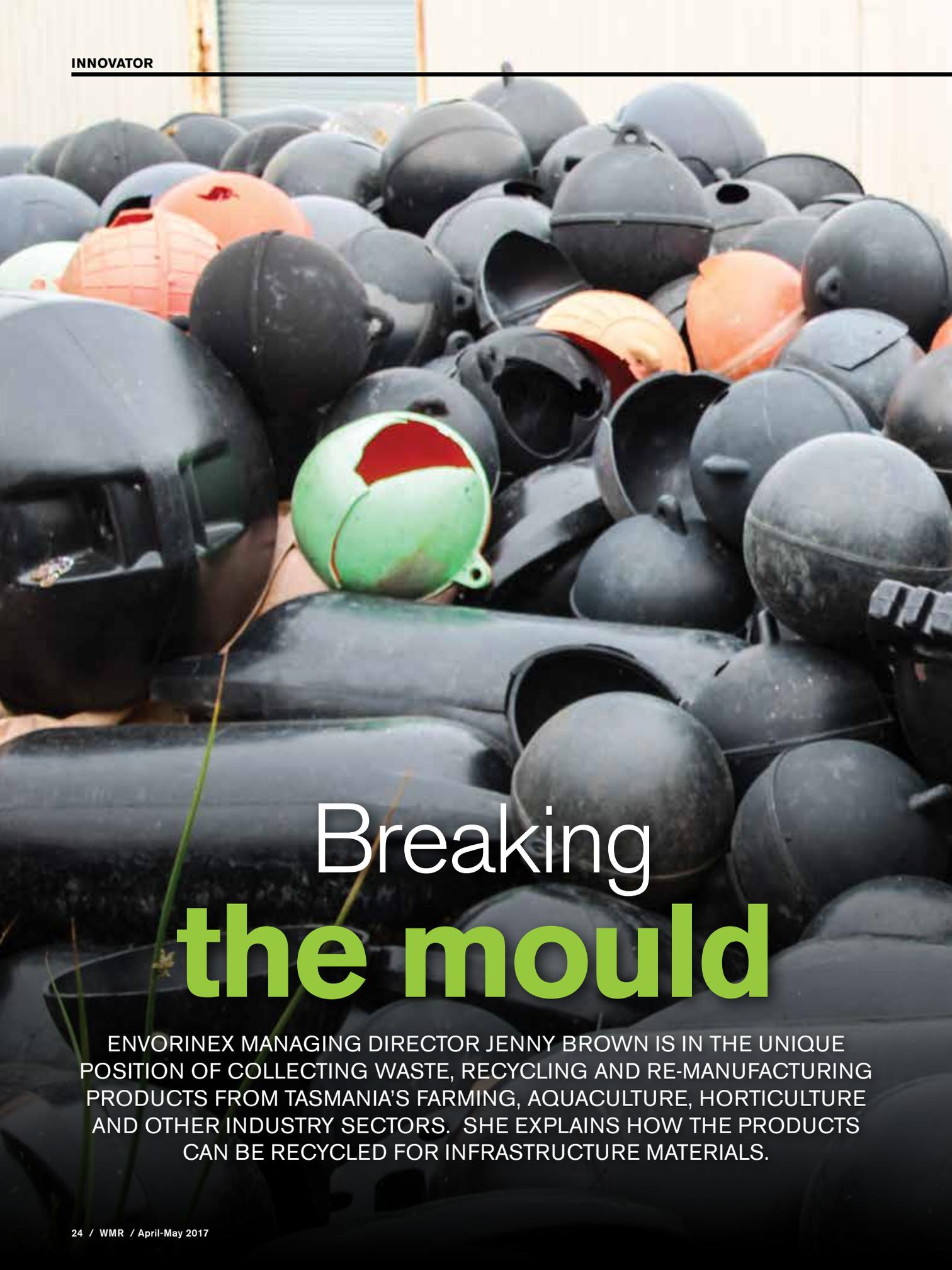


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Breaking the mould

ENVORINEX MANAGING DIRECTOR JENNY BROWN IS IN THE UNIQUE POSITION OF COLLECTING WASTE, RECYCLING AND RE-MANUFACTURING PRODUCTS FROM TASMANIA'S FARMING, AQUACULTURE, HORTICULTURE AND OTHER INDUSTRY SECTORS. SHE EXPLAINS HOW THE PRODUCTS CAN BE RECYCLED FOR INFRASTRUCTURE MATERIALS.

When Jenny Brown purchased a plant and equipment from Tasmania-based SVP Industries in 2009, she saw an opportunity.

The state's booming aquaculture industry created thousands of tonnes of plastic from salmon pens, which Jenny identified could be used in manufacturing infrastructure products if recycled.

After extensive market research, she discovered that exporting waste across Tasmania's Bass Strait to the mainland came at a hefty cost for businesses.

But she found that recycling the materials into products could help reduce costs for her business and others in Tasmania.

To help change the focus of the company, Jenny renamed it to Envorinex, with a goal of helping improve Australia's environmental footprint through collecting, recycling and remanufacturing

plastic into second life products.

"When the previous company closed we bought their machinery and started up again. Since then we've focused more on the recycling, though we still manufacture and export our products."

The company has been recycling plastics since 2009, but in 2015 Envorinex installed its first complete recycling line to process high density polyethylene and polypropylene plastics, used in salmon farming.

Jenny explains that the company, based in Tasmania's north east, is in a unique position of being a collector, recycler and re-manufacturer of waste plastics with those finished products being exported to countries such as Papua New Guinea, Vietnam and Scotland.

"Because we are based in Tasmania

we've got the logistics to take into consideration. It's best for us to recycle the waste here instead of baling the waste and sending it to the mainland or overseas recyclers. We can collect, recycle and re-manufacture it into another product within Tasmania which can then be exported out of the state, sold within Tasmania, and any excess recycled pellets sold to Melbourne manufacturers."

She says as a result of her work the company now manufactures products from 65 per cent recycled materials.

She estimates up to 12 different streams of waste are collected, including plastics from the salmon industry.

As part of her setup, Jenny says she travels to salmon farms across the state, collecting the plastic from salmon pens and feed pipe.

Demand for additional sites has seen Jenny explore options overseas.



Jenny says Tasmania's Bass Strait has substantial transportation costs.

Jenny says once collected, the waste is brought back to the factory and stored on site until it is time to process the material.

The plastic pellets, which are made from high density polyethylene plastic (HDPE), are converted into a range of infrastructure products, including a grid, named the EnvoHexGrid, for permeable paving. The grid is sold to agents who supply the materials to councils, gardeners and landscapers across Australia as a replacement for concrete or asphalt.

Jenny explains that salmon pens in Tasmania produce the bulk of the facility's recycling materials.

"We've had a contract with salmon farmers Tassal for quite some time and we're about to enter into another contract with them in a couple of months, which will focus on recycling fishing nets using a similar process.

"Their pens also have stanchions, which are upright mouldings that sit around the salmon pen, also made from HDPE."

The HDPE is shredded using a Genox shredder in order to reduce the volume of the plastic before it is granulated.

The Plasmac recycling line then granulates and extrudes the material,

which is then pelletised to be sold or used in the manufacturing process.

"Shredding basically reduces the size of the material, the granulating takes it down to a very small, about a 5mm piece, before it's melted in an extruder and then it goes through what is like a "spaghetti" die head, and then it's sliced into small pieces, known as pellets within the industry.

"It's a valuable resource to us, there's no reason why it can't be reused. Previously all this material was going to landfill and it's a huge

volume of material. It's not really the weight that's the issue, it is the size. Some of these pipes are up to 800mm in diameter, so they're large volumes that we're processing through the factory."

Polyethylene pipes used for water irrigation lines and mining sites also form part of Enviroinex's collection.

"Pivot and Impact (Tasmanian fertiliser companies) have about 48,000 bags per annum, which we collect and are turned back into a polypropylene pellet."



Enviroinex's operation aims to improve the nation's environmental footprint.

Stanchions are used to fabricate the salmon pens. Tassal brings in the items.



Waste polypropylene is used to make baseplates used on council roads, Jenny says.

Silage wrap will also be used in a \$1.5 million processing line, to be installed in the next six months.

While the company is spending millions of dollars upgrading its Tasmanian site, Jenny says demand exists for additional sites that would follow a similar process.

“We’ve just finished two years of research to recycle rope and fishing nets and at this stage we will begin recycling these products late this year. At the moment we are stockpiling the rope, netting, bulker bags and silage wrap until we get that line in place.

“Port Lincoln we’re doing a feasibility study on and also in East Gippsland with the option to replicate our operation.”

But recycling is not without its challenges, she says, as contamination poses a huge risk to their products.

“The biggest challenge is contamination. With the waste we bring in, this machinery is very expensive so we don’t want metal or timber or any foreign objects getting through our production line. We have magnets that can pick up metal but there’s some things such as timber and tyres they don’t pick up.”

She says contamination is best avoided by finding it before it reaches the extruder.

“This is why we don’t pick up public waste – it’s only commercial and industrial waste.” ■

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COPPER ROCK INVESTMENTS MANAGING DIRECTOR JOHN MASTROPAOLO SAYS PRODUCTIVITY AT HIS WASTE AND RECYCLING DEPOT HAS INCREASED 20 PER CENT AS A RESULT OF PURCHASING A BOB MB 8 TAL SKIPLIFT.



skiplift and MB 12 TAL, and John Mastroapaolo purchased the former in February of this year.

Skiplifts are predominately used for waste collection and recycling in Australia.

The main difference between the two is the BoB MB 8TAL skiplift has a lifting capacity of eight tonnes, compared to the MB 12 TAL which can lift 12.

John, of Copper Rock, runs a waste and recycling depot which also offers bin hire and garden supply, operating out of Melbourne's south-east.

The pair have been working together for almost 10 years, and John says the company has always delivered a consistent product on time.

With more than 10 vehicles travelling through the city, John says Vaclift has previously provided a reliable and infallible hooklift.

"The advantage of a skiplifter over the other technologies that are out there is that they pick the container up and it remains parallel with the ground," Jon adds.

"So if you have anything that's likely to slide around or move, compared to a cable lift or a hooklift machine, it picks it up parallel and puts it on the back of a truck."

Since getting the skiplift onto the

A strong relationship between contractors and manufacturers in the waste collection industry is paramount to improving productivity.

That is according to Vaclift Managing Director Jon Pamment and his client – Copper Rock Investments Managing Director John Mastroapaolo.

By bringing new products into the

market, family-owned Australian manufacturing, importing and distributing company Vaclift has continued to maintain its robust relationship with Copper Rock.

Jon Pamment says he is ecstatic to have entered the skiplift market with BoB Skiplifts which uses telescopic arms to load multiple bins at once.

Vaclift has two models of skiplifts, including the BoB MB 8 TAL

road, John of Copper Rock believes the recycling company's productivity has gone up by about 20 per cent.

John also boasts a quicker loading time and enhanced stability.

"It was hard to pick up 6m bins full of soil, so we went a bit bigger and it paid off," John says.

"You can pick up more, it's actually faster from start to finish and the bin on the truck is a lot faster."

The speedier process brings the trucks back quicker to the depot.

With almost 30 years' experience distributing hooklifts and 50 years in the waste industry, Jon explains that the family owned business entered the skiplift business after identifying a gap in the market.

"We saw an opportunity for us to be a player in that market. I think there was some space for a well-priced good quality European machine.

"We began installing skiplifts in November of last year. We've got well over 550 hooklifts installed around Australia."

He says European machinery allows for higher weights on axels, so changes were made to the imported product to bring it in line with Australian standards.

Jon explains that the company has also fixed a common problem in the industry of companies having to wait three to four months before they can gain access to a machine.

"We've solved that problem by having them here in stock. If people need them quick we can have them on the truck in a week and a half," Jon says.

"We order them to specification, and have them sitting here. We did our research first to see what the market needed, and then we've ordered the machines and we have five of them currently out there awaiting delivery."

The MB 8TAL is designed to load

one bin up to 4600mm in length.

Both models come with long telescopic arms, which allows two bins of up to 2300 millimetres long to be loaded one behind the other.

Jon says the old fixed arms on previous machines were able to squeeze one container inside another, but the new technology has greatly improved on this benchmark.

"With a telescopic arm we can get four or five containers and then put two stacks of them up of a back of a machine if they need to."

He says the current machines improve metals recycling by picking the materials up parallel, ensuring the metal remains in the vehicle.

BoB's cylinder guards protect the cylinder rod regardless of it being retracted or extended.

Jon explains that another advantage of BoB's skiplifts is the wheel base is typically shorter than a hooklift or

cable lift machine, making it more manoeuvrable.

But the pair say they wouldn't have been able to achieve their desired outcomes without a strong working relationship.

"We go hand in hand. We have to get along with each other to try and move things forward," Jon says. "There's no point buying alternate equipment that's going to let them down."

By the same token he argues it's important to offer an affordable product.

The strong client to supplier relationship has allowed John to call upon Vaclift for valuable product information.

"We've bought hooklifts and trailers off them and at the end of the day they've given us exactly what the specs should be," John says.

"They're always around to help." ■



Transfer station prioritises customer experience

WESTERN AUSTRALIA'S CITY OF BUSSELTON HAS DEVELOPED A NEW AND COST-EFFECTIVE WASTE TRANSFER STATION, INCORPORATING STATE OF THE ART TECHNOLOGIES AND THE UNIQUE USE OF RECYCLED MATERIALS.

How do you bring waste transfer into the 21st century?

In a once-in-a-generation opportunity, the City of Busselton, which lies in the south west of Western Australia, has torn down its tip and started from scratch.

The regional coastal city incorporated the use of recycled materials in a six-month construction

process from April to October, 2016.

With more than 10 years' experience in the waste industry, Vitor Martins, City of Busselton's Manager Waste and Fleet Services, says the new facility operates with greater efficiency and puts the customer first.

It's a concept that's involved a regimented community education program, as customers transition to a

new system of dropping off their waste to a designated area.

Rather than construct a transfer station at a previously undeveloped site, the Busselton Waste Transfer Station has been built on top of the former transfer station and old landfill.

Ertech provided a competitive tender, Vitor says, offering an alternative design for the retaining wall



Vitor Martins, Manager Waste and Fleet Services, with Mayor Grant Henley.



correct area, while guarantying security of the site at all times.

Commencing in May 2016, Vitor says the project involved demolishing the existing structures at the site, constructing new roads and a gatehouse building, the installation of a new drop-off area and electrical and communication conduits, as well as appropriate drainage and disposal of potentially contaminated stormwater.

He explains that in developing the retaining wall structure, Ertech supplied Lomwest proprietary prefabricated concrete walls, which included whole recycled tyres within their structure used as fill materials.

“This has allowed substantial savings in terms of additional concrete that we’d have to pour otherwise.”

Vitor says the process involved bundling and tying the tyres together, then hanging them in position over a casting bed. One side of the wall was then poured, casting the tyres into that slab. When cured, the slab and tyres were turned over and the second slab was poured, again casting the tyres into it. After curing, the

of the domestic drop-off area, a major component of the facility’s new layout.

He says the tender was most competitive due to Ertech’s offer to use recycled materials available on site, including recycled tyres and bricks and concrete.

“The concrete structure of the retaining wall at the general waste drop-off area, included the recycling of used tyres, so over 200-250 tyres were included in the retaining wall structure,” Vitor says.

The original waste disposal cell had been decommissioned since 2012, with the site operating as a Waste Transfer Station only.

Non-recyclable waste was transported to the Dunsborough Waste Facility for disposal.

However, after stricter environmental regulations were introduced by the Department of Environment Regulation, burial at the site was no longer permitted.

As a result, the new waste transfer station was built on top of the former tip site.

With an eye for the customer experience, the new facility was based on other state of the art transfer stations in Europe, including the UK, Ireland, Portugal, and in metropolitan areas in Australia.

It comes with CCTV cameras, designated areas for waste disposal, fully sealed roads and enthusiastic staff ready to explain the seamless process to their customers.

Vitor says CCTV cameras ensure customers dispose of their waste in the



The transfer station in its completed form.

wall was transported to site and lifted into position.

The retaining wall structure included a 6,000 m² surfacing of road base materials comprising of recycled bricks and concrete, Vitor says, which formed much of the asphalted surface.

The structure also incorporated recycled construction and demolition materials stockpiled over a four-year period, including crushed bricks and concrete, produced by feeding sorted and cleaned construction debris into a jaw crusher and screeners.

“As we were building it, we had the final users in mind. There was a lot of calibration and trialling as we went along and some minor improvements we had to do to the original design, but no major challenges.”

Vitor says the process of switching customers to the new transfer station involves an ongoing community education process.



?

Did you know...

Equipment used on the project:

- Caterpillar 950 Front End Loader
- Caterpillar 12 H Grader
- Caterpillar 330 Excavator (30 tonne)
- Hitachi 8 Tonne Excavator
- Dynapac Pad Foot Roller (15 tonne)
- Dynapac Smooth Drum Roller (15 tonne)
- Tadano Crane (200 tonne)
- Caterpillar Skid Steer Loader
- Hino 15000 Litre Water truck

This was due to the fact that staff at the waste transfer station used to sort through and transfer each customer's waste after they dropped it off, whereas now customers have to place their items in a designated area, either at the various recycling stations or directly into a hooklift bin at a multi-tiered drop-off area for general waste.

Vitor says local media conveyed these messages effectively, along with a recycling education officer who developed material distributed at the gatehouse.

“We provide some useful tips how to make it easier for them, and also to indicate the various recycling areas, in addition to signage on site, so it's clear where they have to go for specific items, including e-waste, green waste and scrap metal.

“Senior residents – we still give them the possibility of disposing of their waste as they used to because the new

system of directly into bin does require some additional effort to overcome the existing railings at the general waste drop-off area.”

The Council even changed the name of its new waste transfer station to align with contemporary practice.

“Although the transfer station itself is transferring waste, we renamed the facility to the Busselton Waste Transfer and Recycling Centre, because we wanted to convey the message that it is no longer the tip that people used to think about back in the day.”

The facility includes an additional space for bulkier items.

Operating a seven-day facility instead of a weekend facility allows the Council to better plan its operations, he says, balancing the workload over the whole week and reducing peak periods for staff and plant.

“We used to have very limited operation on site.

“We were receiving general waste from the public only during weekends, when we had a plant available on site. Now it’s open seven days a week.”

Asphalted areas reduced dust emissions in a location once comprising bare soil, Vitor says, as well as providing an impermeable cap to the former landfill, reducing the impact of legacy contamination from the previous tipping site.

“In some areas we did have to remove the existing waste because it was unsuitable in terms of compaction rates for what we were building on top. But overall, what we basically did was we capped the underlying waste.

“People drive into the site, and dispose of their recyclables, prior to even getting in the general waste area.

“Also a key component is improved safety, we used to have large stockpiles of scrap metal which was a concern, because it created a hazard.

“We now have an area specifically with low bins where people can drop their scrap metal directly into.”

The Council is seeking interest from local community groups to develop a re-use shop within the facility, which will allow re-used items to be sold, reducing the amount of goods sent to landfill.

The new facility also prevents illegal dumping through its seven-day operations.

He says the site was also developed to cater for future growth of the city, and the Council was working with local governments in the south-west on a new waste facility.

“The transfer station has been designed to cater for that long distance travel, where we have to transfer the waste to regional, remote sites.

“After an appropriate compactor has been installed, our own kerbside collection will have the possibility to

transfer out of there to the new site when it comes into operation.”

The City of Busselton is growing its population by roughly four per cent per year, Vitor says, impacting its recycling and general waste capacity.

But the modern pressures of stricter environmental standards have led to a landfill levy being imposed in metropolitan WA, which Vitor believes will likely reach Busselton.

“This further increases the cost of residents disposing of their waste, but that’s a potential driver when you’re planning for the future, because it is likely that as marginal opportunities to recycle are reduced in the metropolitan areas, obviously state government looks at regional areas to follow suit.”

He says he is proud to note that Busselton is the first local government in regional WA to build a properly lined landfill in accordance with environmental standards. ■



South Australia's C&D waste solution

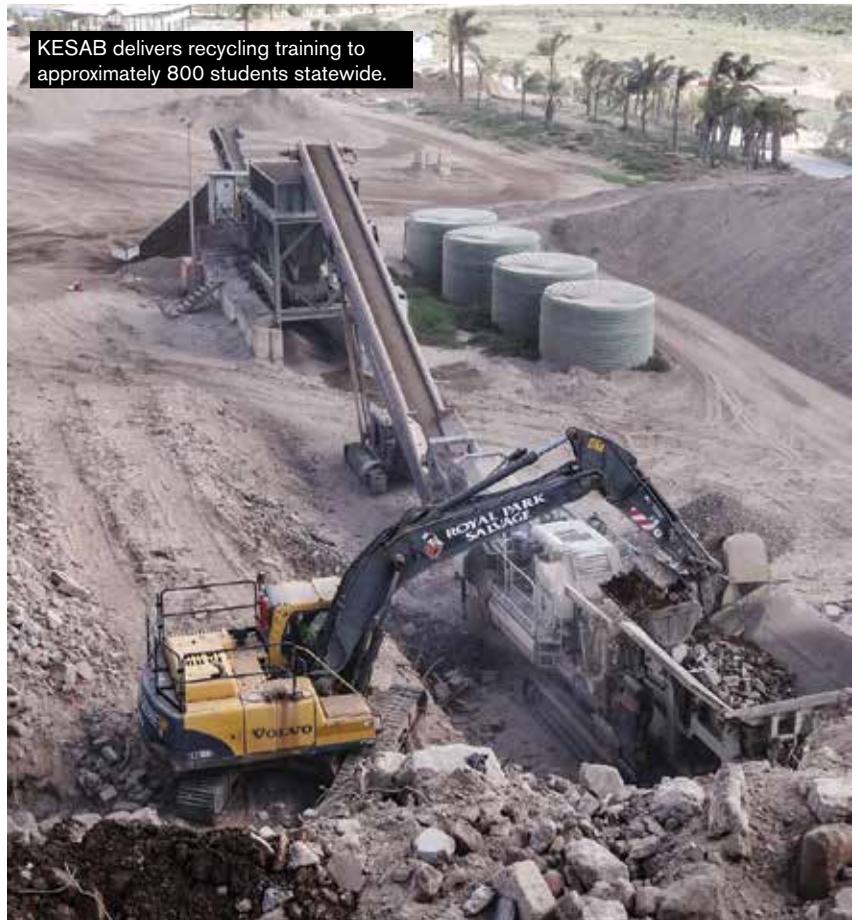
GOVERNMENT FIGURES SHOW CONSTRUCTION AND DEMOLITION WASTE IS ON THE RISE IN SOUTH AUSTRALIA, WITH ABOUT 1000 HOMES DEMOLISHED IN ADELAIDE EACH YEAR. DICK OLESINSKI FROM KESAB ENVIRONMENTAL SOLUTIONS EXPLAINS HOW EDUCATION COULD BE THE KEY TO IMPROVING RESOURCE RECOVERY.

Construction and demolition (C&D) waste has long been an issue in South Australia, but one organisation continues to change the way builders think about how they dispose their waste.

Through its Clean Site program, KESAB is aiming to increase recycling and resource recovery rates from construction sites through its training programs provided to emerging builders, contractors and students in the Construction Industry Training Board's Doorways2Construction program across the state.

The organisation has partnered with groups such as the Master Builders South Australia and the Construction Industry Training Board to create awareness, engagement and industry participation.

Coordinator Dick Olesinski said the Clean Site program was established by KESAB about 18 years ago, in line with the Environmental Protection Agency's (EPA) goal to reduce stormwater pollution and C&D waste.



Figures show C&D waste contributes to about 40 per cent of SA's landfill waste.



The not-for-profit program assists the state's bid to improve diversion and control stockpiles of C&D waste, identified as a major problem by the South Australian Government.

A fact sheet from government agency Green Industries SA (formerly known as Zero Waste SA) showed approximately 1000 houses are demolished in Adelaide each year, and the level of urban decay means this is likely to increase.

Construction and demolition waste contributes to about 40 per cent of all landfill waste, with valuable recyclable items such as timber, bricks, and fittings still being thrown in the dump.

"Because of this, Zero Waste SA came on board to assist us with the education process and funded the program for a number of years which assisted with resource development.

"Currently we're delivering training in conjunction with the Construction Industry Training Board. There's a network of about

"There's a network of about 800 students throughout the state, and we deliver training to all of them."

Dick Olesinski **Coordinator, KESAB**

800 students throughout the state, and we deliver training to all of them. Recycling and resource recovery is a key element of the training delivery and the strategy is trying to capture students and engender some sort of environmental ethic."

Dick says elective subjects also include focusing on working effectively and sustainably in the construction industry.

However, he notes resource recovery is less of an issue within the commercial sector as it is for the domestic sector.

"On major construction projects, you find there's half a dozen bins. So there's a lot of resource recovery

already going on there. Domestic builders have not fully begun to comply with environmental standards. If you and your partner want to build a house, you want the cheapest house.

"Here in South Australia, the waste levy is \$80 to a tonne. So if you generate eight to 10 tonnes on a two-story build, that's going to cost you \$640 to \$800 to get rid of your waste."

He cites Badge Constructions as a good example of compliance on building sites.

"They're compliant with ISO14001, which is an international environmental standard. They have their different bins, including bins for

steel, paper and cardboard. On major construction projects, it's about health, safety and environment.

"If you're tendering for projects these days, you've got to have quality assurance. You've got to have health and safety accreditation and now you need to have environmental management systems in place. If you don't have all those three, don't even worry about tendering."

Dick says compliance on council building sites is another issue in South Australia, though the City of Charles Sturt in Adelaide is a shining example of how it can be enforced.

As one of the largest councils in Adelaide, the City of Charles Sturt decided to develop a compliance officer role on council building sites.

Mark Reid commenced his role in January 2011 as Community Safety Officer Building Site.

Mark says the position focuses on inspecting damage to infrastructure and reporting back to Council, including footpaths, verges and parklands.

"It's not a common position. Many of the smaller councils just don't have the resources to appoint someone in that role. They generally have an inspector of compliance who also deals with a range of other areas," says Mark.

He says part of his role is also to deal with litter on public road verge footpaths and measuring standards in accordance with those set by the EPA.

He says that he would visit building sites on a daily basis.

"Initially there was a great amount of litter on those sites. Now they are generally kept clean and only need a phone call to rectify the problem."

He says plastic waste is a problem, as it has begun to flow into water catchments from building sites blocking them.

"Over time, through education and enforcement, people have improved practices greatly," Mark says.

Reporting directly to council, Mark initially began inspecting a number of major building sites, including Adelaide's Bowden Urban Village, Woodville West, Gateway Estate and West Lakes, taking photographs of each allotment and noting waste or litter incorrectly disposed of or coming offsite.

"We started by delivering education programs to the Housing Industry Association for about three to four months, which provided advice to those working within the building industry," Mark explains.

"We then visited major building companies, sitting down with supervisors and managers to discuss what the councils were looking for in terms of compliance."

He says the contractors would then take most of the waste to the Adelaide Resource Recovery.

Mark explains that from about 2013 onwards, the industry started to take note and become largely self-regulatory, as environmental standards set by the EPA became better known within the industry.

He says he worked collaboratively with the Council's Illegal Dumping Officer Derrick Simpson to ensure builders separated their waste correctly.

"Derrick and I monitor waste and illegal dumping issues at both major building sites and suburban public space. We continue to investigate issues via doorknocks and inform residents of the procedures for collection via our contractor.

"These days it's just a telephone call if somebody is doing the wrong thing, and it is usually resolved through negotiations.

"The challenges going forward mean that there has to be a consistent approach with council initiatives to gain compliance for each generation of builders and residents." ■



Bruce Harris from Bruce Harris Project Management, with Mark Reid, Community Safety Officer Building Site from the City of Charles Sturt.



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ISCA sorts waste asset trash from treasure

THE INFRASTRUCTURE SUSTAINABILITY COUNCIL OF AUSTRALIA'S IS RATING SYSTEM HAS HISTORICALLY BEEN USED TO MEASURE SUSTAINABILITY OUTCOMES IN ROADS AND TRANSPORT. AS TRACTION CONTINUES TO INCREASE, DISCUSSIONS WITH THE WASTE INDUSTRY HAVE OPENED.

Since 2012, infrastructure leaders across the nation have measured their performance in sustainability through a comprehensive rating system.

The Infrastructure Sustainability Council of Australia's (ISCA) IS rating scheme evaluates sustainability across the design, construction and operation of infrastructure. The IS rating scheme measures sustainability across a range of areas, such

as governance, the economy and the environment. The methodology covers different infrastructure types, including transport, water, energy, communication, open space assets and waste.

ISCA Manager Business & Technical Services Ainsley Simpson says ISCA was formed in 2008 by a committed and represented group from the infrastructure industry, that affirmed the need for an independent sustainability assurance body for infrastructure.

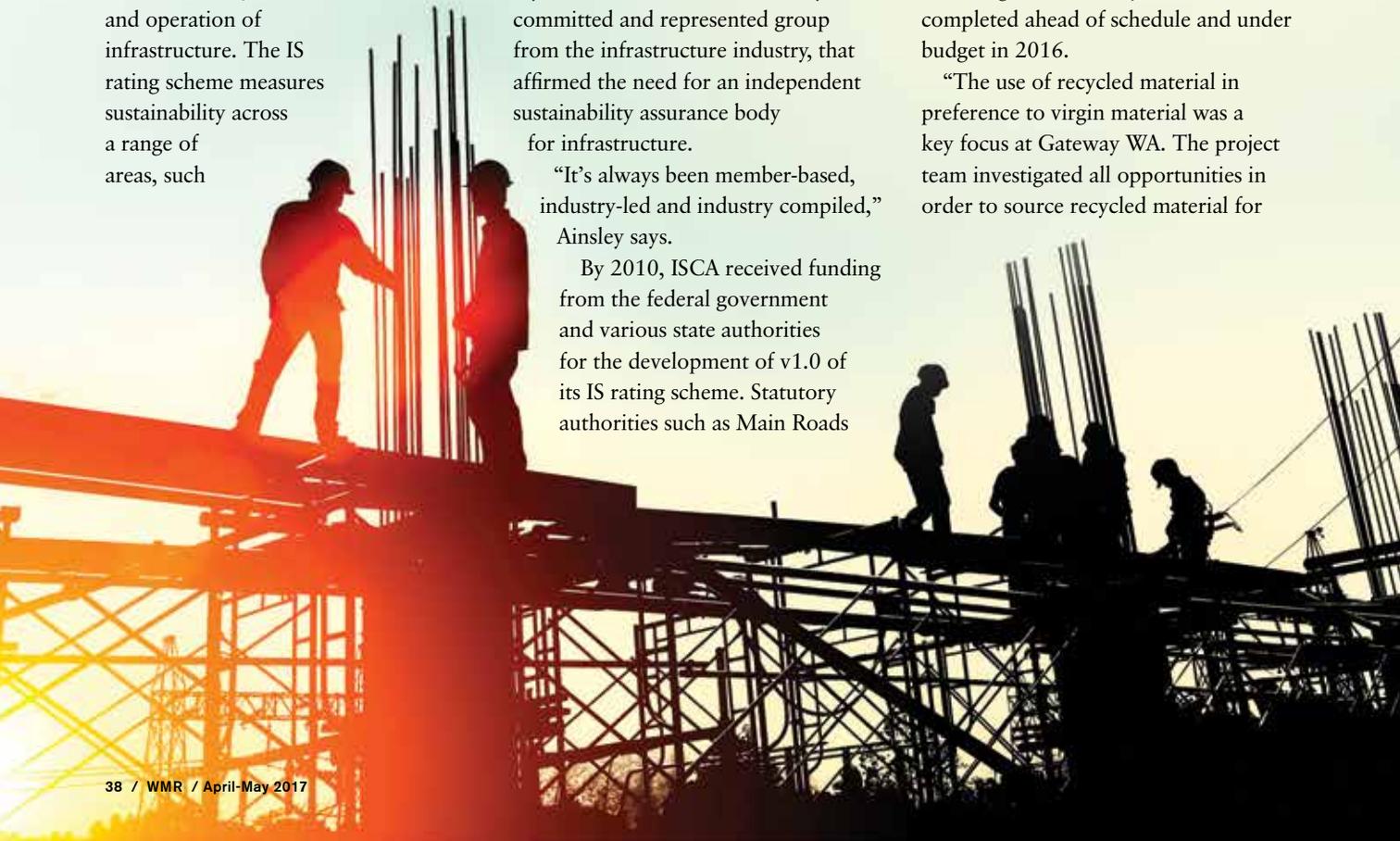
"It's always been member-based, industry-led and industry compiled," Ainsley says.

By 2010, ISCA received funding from the federal government and various state authorities for the development of v1.0 of its IS rating scheme. Statutory authorities such as Main Roads

WA have since mandated the voluntary scheme for projects over \$100 million, finding sustainable ways to build road infrastructure.

Ainsley says Main Roads WA engaged their supply chain to achieve sustainable outcomes in the delivery of the Gateway WA Perth Airport and Freight Access Project which was completed ahead of schedule and under budget in 2016.

"The use of recycled material in preference to virgin material was a key focus at Gateway WA. The project team investigated all opportunities in order to source recycled material for



the works. Not only were suppliers of crushed construction and demolition material contacted, but so were other construction sites around Perth. Some 20 per cent of fill and road base material was from recycled sources, Ainsley says.

“The lifecycle environmental impact from materials was reduced by 58 per cent through negotiated airport requirements to allow an altered design that reduced the depth of excavation for some sections of the road, the use of C600 binders which reduced the quantity of asphalt by 10 per cent, and updated pavements specifications and work with the Public Health Advisory Committee to allow use of crushed recycled rock and waste quarry materials as a sand replacement.”

She says ISCA is exploring opportunities to benchmark waste sector assets in the same way.

ISCA is speaking with council asset managers, sustainability officers and general managers to adopt the scheme into their operations.

“We are in discussions with various segments of the waste sector, with some assets at the design stage while others are fully operational facilities,” Ainsley notes.

“The waste sector hasn’t been as engaged as the transport sector with us over the past five years. In May 2016, we launched IS v1.2 which included special provisions for smaller assets, which could be anything less than \$20 million. Since then, we’ve started working more with local councils, and obviously they’re at the forefront of waste management. There is some interest in getting local councils and waste operators in the mix, so that they can make a more transparent commitment to sustainability.”

She says conversations are already

underway with several waste facilities, including a landfill and materials recovery centre. She says ISCA is also considering incorporating the benchmark of a circular economy, which is defined as an industrial economy promoting greater resource recovery, by reducing waste and avoiding pollution by design or intention.

“A waste facility in its own right is an infrastructure asset. A waste-related facility is able to measure its own sustainability performance, in addition to being involved in sustainable outcomes in the construction sector.

“For infrastructure, this would promote a continuous positive development cycle that optimises resource efficiency, enhances natural capital, and provides a more effective and integrated approach to risk and opportunity management.”

She adds ISCA is actively encouraging the waste sector to provide input into the development of IS v2.0, through peak bodies such as the Waste Management Association of

Australia. All forms of waste assets would apply the IS rating tools, and the opportunities range from landfills and materials recovery centres to waste to energy facilities.

“Waste asset owners and operators are interested in using the IS rating scheme to quantify performance gaps and material sustainability aspects to enhance asset and portfolio management,” Ainsley says.

“They are also able to measure and rate their assets through design, construction and operations utilising a common framework. Industry also benefits from increasing efficiency in the delivery of unified industry expectations of beyond compliance practices.”

Ainsley says the benefits of the IS rating scheme range from efficiency gains, to reduced consumption and emissions.

“It enhances stakeholder relationships, because there’s more participation, collaboration about either the development of an asset, or operation of an asset.” ■



Housing development's sustainable solution

INSTANT WASTE HAS PROCESSED 3,500 TONNES OF CONSTRUCTION AND DEMOLITION WASTE AT A HOUSING DEVELOPMENT PROJECT IN WESTERN AUSTRALIA, PREVENTING THE LOCAL COUNCIL'S LANDFILL FROM REACHING CAPACITY.

Approximately 35 minutes north of Perth's CBD lies the urban development of the Catalina Estate.

The coastal community, which remains partly in development, features more than four hectares of cycle paths, walkways and landscaped parks.

Since the development began in 2013, it's expected more than 2,600 homes will be built over a 10-year period, housing around 8,000 people, according to

estimations by the Urban Development Institute of Australia.

The construction and demolition (C&D) waste created could have filled the local council's landfill five years before the expected 2025 capping and rehabilitation dates.

That's according to waste transporters Inside Waste, who provided a successful tender for their recycling project in 2014, working with Tamala Park Council to recycle 95 per cent of the development's waste.

Instant Waste predicted that the large volumes of C&D waste would have affected the council's capacity to handle the municipal solid waste created by households over 10 years.

Jake Hickey, Instant Waste's Resource Development Manager, says the double brick construction leads to heavier waste streams of around 30 tonnes per home site, with around 78,000 tonnes over the life of the project.

"The Catalina is actually right next



door to Mindarie Landfill, and it's estimated to be finished by 2025," Jake says.

"One of the key concerns was if we filled the landfill with loads of inert construction waste, we eventually wouldn't have anywhere to put the municipal waste from the homes being built."

The development is a project between the owner of the land, Tamala Park Regional Council, and developer Satterley Property Group.

The Council proposed to establish a recycling facility on site, but Inside Waste had its own idea.

It proposed builders load the C&D waste into commingled (blended) skip bins.

From there, the waste would be transported offsite to Instant Waste's site at Bayswater, where the material would be separated and recycled.

"We submitted a tender. We're only 40 minutes away via skip trucks and we can create a lot of efficiencies through our facility out of Bayswater.

"You would have needed to set all

these systems up brand new on the Mindarie site. Which means there's no infrastructure set up costs it's already established, already tried, tested and working, with no commissioning risks."

Tamala Park Regional Council predicted the increase in landfill levy would lead to greater incidence of illegal dumping, and decided to give builders on the Catalina site an incentive.

They offered to provide builders a \$900 rebate to load their C&D waste into Instant Waste's skip bins, with 75 per cent of builders opting in.

Jake says had the landfill become full, the council would have had to travel an hour and a half to a waste management facility in Red Hill, managed by Perth's six major councils.

"With Catalina Estate there was a lot of small apartment units, medium density lots and small cottage lots. So the frontages were quite narrow and there wasn't enough space to put multiple source separation bins outside the front of these sites," he says.

"Multiple source separation runs better when the same builder runs the whole estate and we effectively had to engage a wide range of builders."

Jake says the bins were placed on garage crossovers, verges and sometimes adjoining lots.

An initial letter was sent to builders, introducing the waste management plan for the estate and the process of Instant Waste's Material Recovery Facility.

He says as builders took over site lots on the development, Instant Waste would be notified by the land developer.

From there, Instant Waste's sales staff general manager and state resource development managers would contact the building company to discuss the project with site managers.



“Our GM and the property development director would meet with the owners or directors of the building companies in joint meetings to help get the program up and running.”

He says the \$900 rebate was offered for each land lot, which meant builders working on multiple lots received the same offer for each block of land.

Since 2013, approximately 3500 tonnes of C&D waste has been processed from the site, achieving a recycling rate of 96 per cent.

He says the Catalina housing estate project had easily diverted more than 90 per cent of its C&D waste from landfill.

The system, based on loads of mixed waste, does not require source separation on site, and was proposed prior to the increase in the landfill levy.

The increase in the landfill levy budgeted in the Western Australian Government’s May 2014 budget projected it would increase from \$8 per tonne to \$70 per tonne by 2019.

Instant Waste estimated through its education programs that 30 per cent of source separation by builders on their own would incorrectly place waste in the wrong bins, prompting additional disposal and sorting costs.

The program demonstrated the

company would be better off separating the C&D waste at its material recovery facility.

“Prior to 2012 we would have been using screen decks, excavators and even some hand pickers on a conveyor line to remove contaminates.

“Now we have \$15 million worth of equipment set up, including floatation tanks, magnets – the whole process has been pretty much automated with the remaining pickers placed in a secure raised area.”

Jake says the mixed waste comes in various forms, including raft foundations, which are large concrete slabs, as well as timber, lights, finishes and metals.

“Timber, lights and finishes represent next to nothing compared with heavy gauged materials like brick and concrete,” Jake says.

“They’re easy for us to recycle as long as we grab out the concrete reinforcement bars that hold the concrete together under load.”

Jake says that floatation tanks load out the timber while magnets grab the ferrous metals, and screens and crushers handle sand and crushed concrete.

Jake explains that basic raw materials, which include sand, limestone clay, hard rock and gravel aggregate, are placed by



Catalina Estate includes a number of small apartment units.

builders in a bin on site.

“We don’t use magnets for lead and copper. For example, electricians on site won’t be putting copper wiring out because they have value – they’ll send it to scrap themselves.”

The recycled materials are then sold at a reduced price for construction projects and civil projects in the form of road base.

Increased supply of recycled fill materials to market will also allow other civil infrastructure projects such as the GateWay Perth Airport and Freight Access Project to access recycled materials, supplementing their demand for basic raw materials.

“The cost of quarried limestone could be as high as \$25 a tonne, whereas our recycled road base made of predominately concrete mixture can sell for a third of that price.”

He says over the past three months, Western Australia’s City of Swan has purchased 25,000 tonnes alone of sand off Instant Waste for fill material to change ground levels on its new



Instant Waste Management works with a wide range of private sector companies.



recycling facility in Bullsbrook and Resource Recovery Solutions' road base for the permanent roads on the site.

Jake says the project was also assisted by Tamala Park Regional Council's lead in putting the project out to formal tender, which prompted a dispensation by the Australian Competition and Consumer Commission to rule in favour of the initiative.

"It was deemed within the public's best interest to have a recycling initiative on the project," Luke says.

"We had a strong relationship with the project builders that were mainly building within Catalina Estate, which has small apartment units and high density lots and quite a small cottage lot," Jake adds.

Recycled fill materials and recycled road base can be returned to the Catalina site for potential use on the estate's temporary car parks and hardstand areas.

Jake explains that recycled fill or crushed road base runs through crushers, with around 800 tonnes of crushed and screen material processed at Bayswater daily.

"Recycled materials are used elsewhere in the state and this means there's the ability to process inert materials at a cheap price."

C&D waste has historically been problematic in Western Australia, as the state government body Waste Authority's 2012 Creating the Right Environment document showed.

The document showed that in 2009-10, a total of 5.4 million tonnes of waste was sent to landfill, comprising

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of roughly 3.1 million tonnes of C&D waste.

But illegal dumping still remains a huge problem at the Catalina site and other sites across the state.

According to Instant Waste, 50 per cent of illegal dumping on building sites is carried out by rogue waste management suppliers, bobcats and/or other companies and sub-contractors.

“It wouldn’t be uncommon for subcontractor builders, civil builders and the other trades to illegally dump on each other rather than paying the costs of disposing the waste stream,” says Jake.

The Housing Industry Association (HIA) estimates this costs WA construction industry builders \$8 million each year.

Of the 5.4 million tonnes of waste, about 1.3 million tonnes was municipal solid waste and 967,000 was commercial and industrial.

Jake says that on building sites, the removal of illegally dumped material

only becomes a local government responsibility if the material is on council verges.

When the dumped material is on the building block, removal is undertaken by the builder, he notes, adding significantly to the project cost.

In 2012, Instant Waste provided the chairman for a working group to reduce illegal dumping.

The mission of the Dob in a Dumper working group was to reduce the amount of rubbish dumped on and around building sites and on land developments in WA.

“Private investigators from the HIA across the state have taken on board major projects to deter illegal dumping,” Jake says. “For example, they’d go to the site, and if there was clay tiles in the pile outside of a house with a tin roof, they’d know that site was a victim of illegal dumping.”

Its objectives included to identify the main types of waste dumped that

affects the reuse, recovery, recycling or reprocessing of waste and demonstrate alternative uses for waste.

The working group found that approximately 15 per cent of sites visited during the survey period between December and January 2012-13 were the victims of illegal dumping.

It showed half of the dumping occurred on vacant land.

Jake says an independent review conducted by the Dob in a Dumper private investigators in 2014-15 stated the Catalina Estate was one of the cleanest building projects they’d come across.

He says in August 2016, Tamala Park Regional Council sold 786 lots, with 595 homes built and 129 under construction.

Instant Waste is being recommended for the 2018 tender for the next stage of the project, Jake says, having processed about 3,500 tonnes of C&D waste as indicated in January 2017 statistics. ■



The Catalina Estate remains an ongoing 10-year project, having begun in 2013.

waste

MANAGEMENT REVIEW

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The Waste Management Review website features:

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A worker in a warehouse wearing a yellow safety vest is using a handheld scanner to scan a stack of boxes. The boxes are stacked on a conveyor belt or a similar industrial surface. The background is slightly blurred, showing the industrial setting.

The waste challenge behind e-commerce

THE BOOMING E-COMMERCE MARKET IS LIKELY TO PUT NEW CHALLENGES ON THE WASTE MANAGEMENT INDUSTRY, ACCORDING TO THE AMERICAN INSTITUTE FOR PACKAGING AND THE ENVIRONMENT.

E-commerce is one of the fastest expanding retail channels globally. In Australia alone, the online retail market is estimated to reach some \$10.5 billion in revenue in 2017* – making for a momentous logistical challenge along the entire length of the supply chain, from warehousing through to waste management.

In light of the task ahead, the American Institute for Packaging and the Environment (AMIREPEN) has now found that the traditional distribution model developed for “bricks and mortar” stores might not be able to sufficiently fulfil

online sales, which require more touch-points for a product throughout the delivery process.

One key point of difference to the old model is packaging. According to AMIREPEN, e-commerce packaging has to be bulkier than usual to protect the product throughout the journey, in turn causing a “paradigm shift” in the packaging and packing recycling space.

“As e-commerce is beginning to be viewed as an independent distribution paradigm, the related challenges and benefits will provide an opportunity to design a new logistics system that

significantly affects the future of packaging,” says a new AMIREPEN report authored by Kyla Fisher of Three Peaks Sustainability and Bob Lilienfeld, Senior Director Communications at the Institute. “[But,] as e-commerce packaging changes, consideration must be given to the end of life management of those materials.”

While a paradigm shift in the packing industry will likely create new opportunities in the field of sustainability and supply chain optimisation, the duo points out that the resulting waste problem may offset some of the achievements

made in paper recycling over the past decade. “As corrugate rises in curb side collection, it replaces a flagging paper stream lost from the decline of legacy newspaper circulations and home delivery,” Fisher and Lilienfeld note. “It also creates more challenges in terms of transportation logistics, as it takes up more space but weighs less in transport.”

The emergence of new materials, which may offer strong protective qualities at a lighter weight when compared to traditional protective packaging, also challenges existing waste streams that are not yet scaled to sort, process or commoditise these materials. “[As such] consideration and collaboration across the supply chain will be required so that all players in the e-commerce packaging waste stream can anticipate and plan

“In a 2014 study, over 50 per cent of consumers noted that their biggest frustration with e-commerce was related to the ease of, and access to, disposal of packaging.”

Kyla Fisher *Three Peaks Sustainability*

for these and future shifts expected by continued e-commerce growth.”

Consumers are also part of the e-commerce equation, though. “Consumers expect easy disposal of packaging materials,” the pair emphasise. “In a 2014 study, over 50 per cent of consumers noted that their biggest frustration with e-commerce

was related to the ease of, and access to, disposal of packaging. One third of respondents noted they disliked packaging that was hard to dispose of – e.g. takes up too much space in the bin, requires breakdown – and an additional quarter were annoyed with packaging material that was difficult to recycle or unrecyclable.”

In the same study, they wrote over 77 per cent of consumers noted that the packaging a company uses for e-commerce was viewed as being reflective of its environmental values. “To the consumer, packaging that is recyclable is the best option for the environment, but recycling must be made easy for them.”

“As companies continue to develop packaging for e-commerce, striking the balance between ease of recycling and packaging efficiency may prove to be a challenge. An increase in corrugated for added protection will demand more space in the bin, for example. Flexible films frequently used with meal-kit deliveries may not be recyclable.”

As a result, Fisher and Lilienfeld urge both the packaging and waste management industries to commit to “open dialogue and education, along with innovations in packaging and recovery” to be able to jointly respond to the challenges of the global e-commerce boom. ■

*Statista



Reliable equipment cements recycler's reputation

REDUCED FUEL CONSUMPTION AND A PERSONALISED SERVICE WERE THE MAJOR SELLING POINTS FOR ECOGROUP WHEN IT PURCHASED ITS LATEST PLANT EQUIPMENT – THE LIEBHERR L 550 WHEEL LOADER.

Melbourne-based demolition and recycling specialists EcoGroup required an efficient wheel loader to manage their unique service – brick recycling and crushed bricks used for landscape toppings and sporting venues.

EcoGroup Founder Toby Sail says the company is proud to note it is Australia's largest supplier of recycled bricks and red porous crushed brick. Otherwise known as red brick dust, the material is used in tennis court and baseball diamond surfacing.

Toby says he looked to Liebherr's L

550 Wheel Loader to aid his unique enterprise, after bauma, the world's largest construction industry trade fair.

Toby says he attended the conference in Germany in April of last year, purchasing the wheel loader in August and seeing immediate results.

He says Liebherr's 18-tonne wheel loader provides increased performance, reliability and cost savings through reduced fuel consumption.

"We had another machine which was a very good loader, but Liebherr's loader uses half the fuel than the leading brands and they are not as fuel

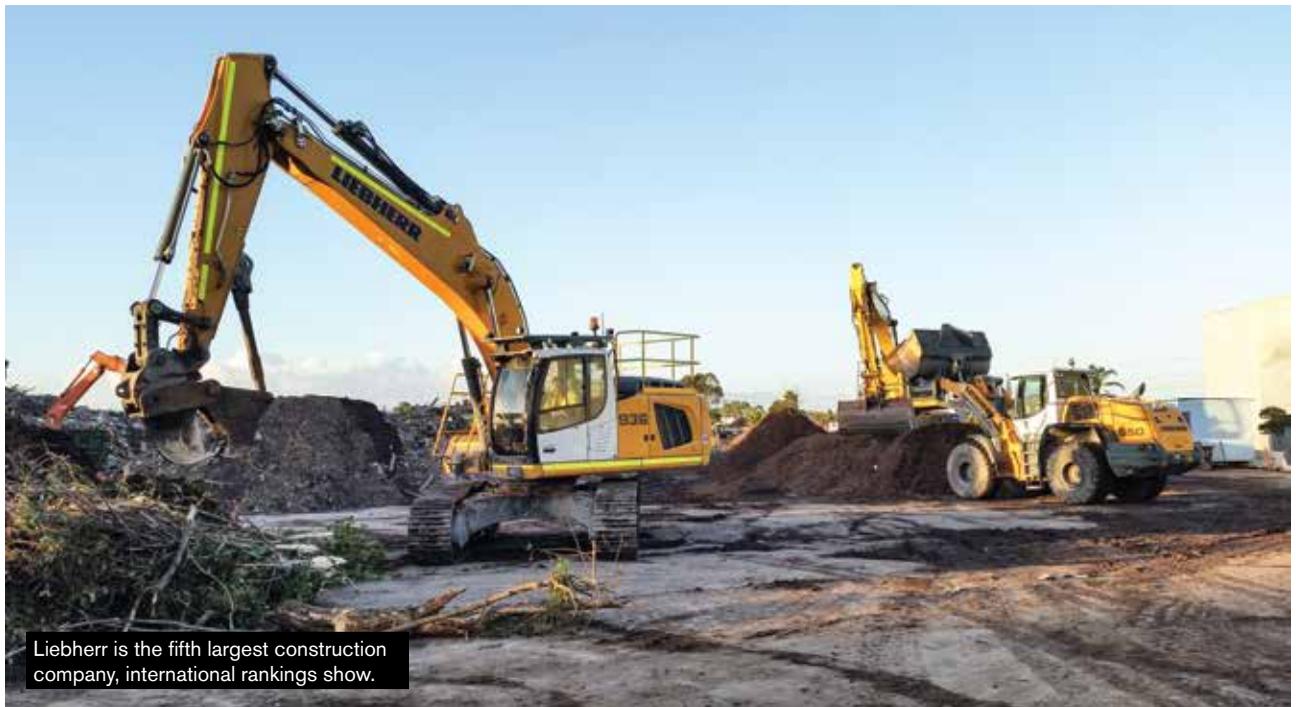
efficient," Toby explains.

He says increased fuel efficiency allows for more materials to be moved during each hour of operation, improving the company's productivity.

The amount of traction the loader generates can be adjusted continuously, stopping wheel spins and reducing tyre wear significantly.

"The bricks come in a raw form from a demolition site which is bulk loaded into trucks then delivered to our site in Clayton for processing," Toby says.

Once the bricks are separated from the other construction and demolition



Liebherr is the fifth largest construction company, international rankings show.

waste materials, the wheel loader is used to feed the bricks into a 10 m³ hopper.

After the bricks are sorted and graded as face or paver bricks, they are stacked on pallets and sold to the construction and landscaping industries. Bricks which are not suitable for reuse as a whole are crushed to create the red brick dust.

“Our point of difference is a brick separating plant, technology which we introduced from Denmark, in 2007. There are only two of these plants in the world,” he adds.

“We have about three or four competitors in Melbourne, so it’s important we get our equipment right.”

With more than 20 years’ experience in the demolition and construction recycling industry, Toby says Liebherr’s product has allowed him to cement his reputation in the market.

According to international rankings, Liebherr is the fifth largest construction equipment manufacturer in the world.

“Compared to conventional transmission systems of other

competing brands, the hydrostatic driveline with Liebherr Power Efficiency achieves a reduction in fuel consumption for wheel loaders of up to 25 per cent. Liebherr wheel loaders are unbeatable for economy,” Liebherr explains.

The Liebherr driveline includes a self-locking hydraulic brake, which means the additional multi wet disc brake are effectively wear-free. Tractive force and speed are automatically adjusted to the requirements of the operator without shifting. There is no need for a mechanical reverse gear because the travel direction is changed hydraulically.

The cooling system is mounted between the diesel engine and the cab on the rear carriage, where it can draw clean air. The speed of the fan is dependent on the cooling capacity, with thermosensors ensuring optimum fan speed.

The company says the combination of the Liebherr driveline and the unique position of the Liebherr diesel engine allows higher tipping loads

at low operating weight. This leads to significantly higher productivity, because there is no need for unnecessary counterweight.

The reduction in fuel also lowers emissions, as one litre of fuel produces up to 3 kilograms of carbon dioxide. By saving up to 5 litres per operating hour, up to 15,000 kilograms less carbon dioxide is produced over 1,000 operating hours. This leads to lower operating costs and a reduced carbon footprint.

Toby says the increased productivity was not the only reason for his purchase, as Liebherr also provides a reliable service in which he can call upon should he encounter any technical faults.

“We found Liebherr very easy to deal with – we could do things on a handshake deal, we bought some machines off another company and they still won’t provide us with the product before they’re fully paid – whereas with Liebherr you just do it on a handshake deal. We make sure we honour our agreements and pay our bills regardless. It’s a more user-friendly service,” Toby says.

“If all goes well we will be looking to purchase more Liebherr products. We also recently bought a 30-tonne excavator, the Liebherr R936 Excavator from them, which we are using in our sorting and recycling facility.”

Liebherr noted an important part of maintaining relationships with recyclers is understanding the unique needs of every customer.

“We’re accommodating not just towards the customer but the actual company. Even from a financial perspective or a payment terms perspective. We look after our clients because we are a family-owned company and we can tailor make a solution based on the customer. Not everyone is painted with the same brush,” Liebherr said. ■



Liebherr's L 550 Wheel Loader was designed with a hydrostatic driveline.

In each edition, we feature a selection of the latest products or updated models to be launched to waste management businesses.

CAT MICROGRID MASTER CONTROLLER

Caterpillar has expanded its power generation offering into renewable energy. The company has developed a strategic partnership with First Solar to create an integrated photovoltaic (PV) solar solution for microgrid applications, which are used in various applications.

The Cat renewable energy system is powered by thin-film solar panels, with performance efficiencies over other types of solar panels. The thin-film technology has a lower temperature derate ratio, so installed in an application where the operating temperature is greater than 30°C, the panel operates more efficiently than other solar options. A key component in the Cat Hybrid Microgrid

system is the Cat Bi-directional



Power Inverter (BDP). The BDP inverter includes the robust Cat power electronics system. This is known for its operational capabilities, having

been used in the Caterpillar D7e hybrid tractor, and ideal for the harsh Australian climate.

The energy storage technology includes lithium ion and the revolutionary zinc metal-air energy storage system. This storage system is one of the lowest cost electricity storage options available. The system includes standard integrated controls and battery monitoring at the cell level. A fully flexible offering enables a combination of these two technologies, while Caterpillar's engineers design the energy storage system according to the needs of the business.

Ron Hall, Segment Manager, Hybrid Microgrid Systems from Energy Power Systems Australia (EPSA) says Caterpillar and EPSA recognise the need to live in a sustainable manner with our environment.

"This new product range is the culmination of millions of dollars in research and development over several years. It combines high performance, project integration and after sales service with state of the art renewable power and the revolutionary Cat energy storage system."

www.cat.com

TAILGUARD FOR GARBAGE VEHICLES

Reversing is one of the most dangerous truck operating procedures, which is why WABCO's TailGuard was designed to help reduce fatalities on the road by detecting small, large, static and moving objects in the blind spot behind a vehicle.

The device is automatically activated when the gearbox is shifted into reverse, with TailGuard detecting all objects within three metres of the vehicle. The Trailer Remote Control is activated, and a warning signal sounds to indicate to the driver that the system is active. It also automatically stops at a programmable distance between 50cm and 200cm, so the driver can then slowly reverse the last few centimetres, if needed.

An easy to operate remote control includes an audible alarm, distance indicator and function buttons. The company notes its defining features which make it a unique solution, including ultrasonic sensor technology, allowing for object detection in conditions with poor visibility and complying with best-in-class automotive standard ISO 12155 for reversing systems for commercial road vehicles.

The system also comes with a cabin-mounted device for the driver indicating the distance. The combination of TailGuard and braking technology provide unique functions, including automatic stopping, forced slowing and distance programmability. In addition, the system can be retro-fitted before, or during a new build.

www.wabco-auto.com/wabco



TRIDENT PLASTICS' FOUR-WHEEL BINS

Trident Plastics, the largest custom moulder in South Australia, has launched a new range of Australian made four-wheel bins for commercial and multi-unit dwelling use. The new 660 and 1100-litre bins are made of injection moulded high-density polyethylene (HDPE), which is UV stabilised to provide "excellent strength and durability", as Trident explains, adding: "With our four-wheel bin range, we aim for excellent value for money in the same way that our two-wheel bins have become so popular in Australia and New Zealand in recent years."

Featuring flat sides to enable pockets to be installed, as well as high quality wheels, two with locks, and noise reducing tyres, the new four-wheel range comes fully equipped and will be available in a whole range of colours for both body and lid.

Trident Plastics commenced manufacturing two-wheel bins in 2012 and has since increased its range each year. Now supplying 80, 100, 120, 140, 240 and 360-litre two-wheel bin sizes, the young company says the new four-wheel options further complete its portfolio.

All two and four-wheel bins are made under strict quality and environmental standards, such as ISO 9001 and ISO 14001.

www.tridentaustralia.com



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Co-regulation as a driver for sustainability

AUSTRALIAN PACKAGING COVENANT CEO TRISH HYDE EXPLAINS THE INDUSTRY SIDE OF CO-REGULATION, AND HOW THIS FRAMEWORK, THROUGH OPEN DISCUSSION AND COLLABORATION, MAKES AN EFFECTIVE REGULATORY MODEL TO DELIVER REAL AND SUSTAINABLE ENVIRONMENTAL OUTCOMES.

Mid way between voluntary industry schemes and full regulation sits the interesting world of co-regulation. As the name suggests, co-regulation requires something from both industry and government. This includes certain self-regulation

actions to deliver on the agreed outcome. In the case of the Australian Packaging Covenant (APC), we are working toward an Australia where packaging resources are used and disposed of wisely to minimise our environmental impact. However, unlike voluntary

schemes, in co-regulation there is an alternative regulatory mechanism to encourage industry participation and discourage free-riders.

From an industry perspective, co-regulation enables businesses to take ownership of their decisions and demonstrate their leadership.

At the APC, we see our role not as a policeman, but as the enabler of innovation, the influencer of behaviour and the ignition for inspiration. Delivering member value is key.

One of the primary ways the APC does this is through the exchange of knowledge across members, sectors and the supply chain.

From theory into action: the tides of plastic

To understand how this co-regulatory framework operates, take the issue of plastic packaging. According to

The New Plastics Economy report released in January 2017 by the World Economic Forum and the Ellen MacArthur Foundation, 30 per cent of plastics packaging will never be recycled or reused if we do not fundamentally redesign the packaging or find innovative ways to recover the materials. This staggering figure demands immediate action. However, finding solutions for those specific problem materials needs consultation with industry to understand how to bring about environmental, economic and social sustainability.

At the recent APC think tank in



The APC has opened discussion of redesigning plastics.



About the APC

The Australian Packaging Covenant (APC) is a sustainable packaging initiative that aims to change the culture of business. Our purpose is to champion and lead packaging sustainability in Australia, creating industry-wide collaboration and inspiring change.

The APC is co-regulatory, underpinned by the National Environmental Protection (Used Packaging Materials) Measure 2011 (NEPM UPM 2011). Organisations sign the Covenant to signal their commitment to design packaging that is more resource efficient and recyclable, and increase the recovery and recycling of used packaging from businesses, households and away from home sources. Almost 1,000 organisations are currently members of the Australian Packaging Covenant.



Industry comment

Han Michel, General Manager of E-Three & Associates Pty Ltd (Management Consultants to the Plastics Industry), comments on the APC's initiative.

The APC has an excellent opportunity to get the industry on board with regard to the circular economy and make real changes to the supply chain.

The think tank organised by the APC has been a first step in the right direction with the aim to focus on outcomes. It was an honour for me to be asked to bring together a small group of experts from the plastics industry to support the APC efforts.

The industry involved in the plastics supply chain in Australia needs to recover more plastic products from the existing waste streams and is in need of finding local solutions for the resulting recyclates from these streams. The area of soft plastics packaging requires special attention.

The current collection systems for soft plastics are fragmented (with exceptions) and new ways of collection and recovery need to be established. A beginning could be made by creating uniformity and national standards for existing systems. A next step could be adding post-consumer soft plastics packaging to the "yellow" bin in kerbside collection systems and by improving existing recycling infrastructure through the installation of modern technology process steps. The resulting recyclates could be used in existing or new value-added solutions.

Such changes cannot happen without investment in the supply chain. It will also not happen without cooperation between the different supply chain partners. There is a need for the quantification of the different options so broader support can be found for the envisaged outcomes. The APC is a good medium to assist with bringing these changes about.

I am sure that the participants of the think tank look forward to working together with the APC in making a contribution to the circular economy in Australia.



The APC believes a circular economy can only happen with collaboration from industry and government.

Sydney, industry, academics and governments openly collaborated and proposed solutions to common barriers to packaging sustainability, including the creation of self-sustaining circular economies. One of the goals of the think tank was to tap into the combined expertise of the participants and facilitate a dialogue about the barriers and opportunities for management of soft plastics in Australia.

Closing the loop requires the retention of value in materials and one example discussed was embracing innovative ways to improve the value

of recycle – this would not only support the recycling of soft plastics, but also deliver valuable end-products making its recycling sustainable.

One of the simplest findings from the think tank about circular economies for soft plastics was its poor definition. From a consumers perspective it is easy – is it plastic and is it scrunchable? But this simple consumer-facing definition takes no account of the polymers involved, the size/value of end markets, and the scalability of any recovery systems that are sustainable.

The think tank did not just identify



the issues, but came up with practical measures to implement solutions. Unfortunately, this is a complex issue and there are many outstanding questions. By continuing this work and creating a space for dialogue, the APC can prove the value of the co-regulatory framework.

Becoming an adult

The APC's inception was through a cooperative arrangement between industry sectors and all spheres of government. Over the years, the Covenant increased its signatory base to cover major brand owners across the packaging value chain. With the Covenant now in its fourth iteration, industry has stepped up to take a leadership role and embrace the opportunity to create systemic change.

The APC's new five-year strategic plan came into effect in January 2017 and centres on three strategic pillars – resource efficiency, landfill minimisation and leadership.

Focusing on these priority areas will enable the APC to take leadership as a co-regulator, facilitating strategic partnerships and addressing the areas where industry can make the biggest impact.

In order to maximise this opportunity for industry, we must rethink the fundamentals of packaging and embrace opportunities to innovate and collaborate. This would not be possible without an open dialogue between governments, brand owners, reprocessing facilities and waste management bodies.

The shift towards a circular economy will only happen when there is a convergence. We must plan for the future today, and leverage our position to make this shift happen.

Two white papers with outcomes from the APC think tank are currently being developed – one on sustainable design and the other on soft plastics. These papers are in circulation for feedback and will be published mid-March. ■



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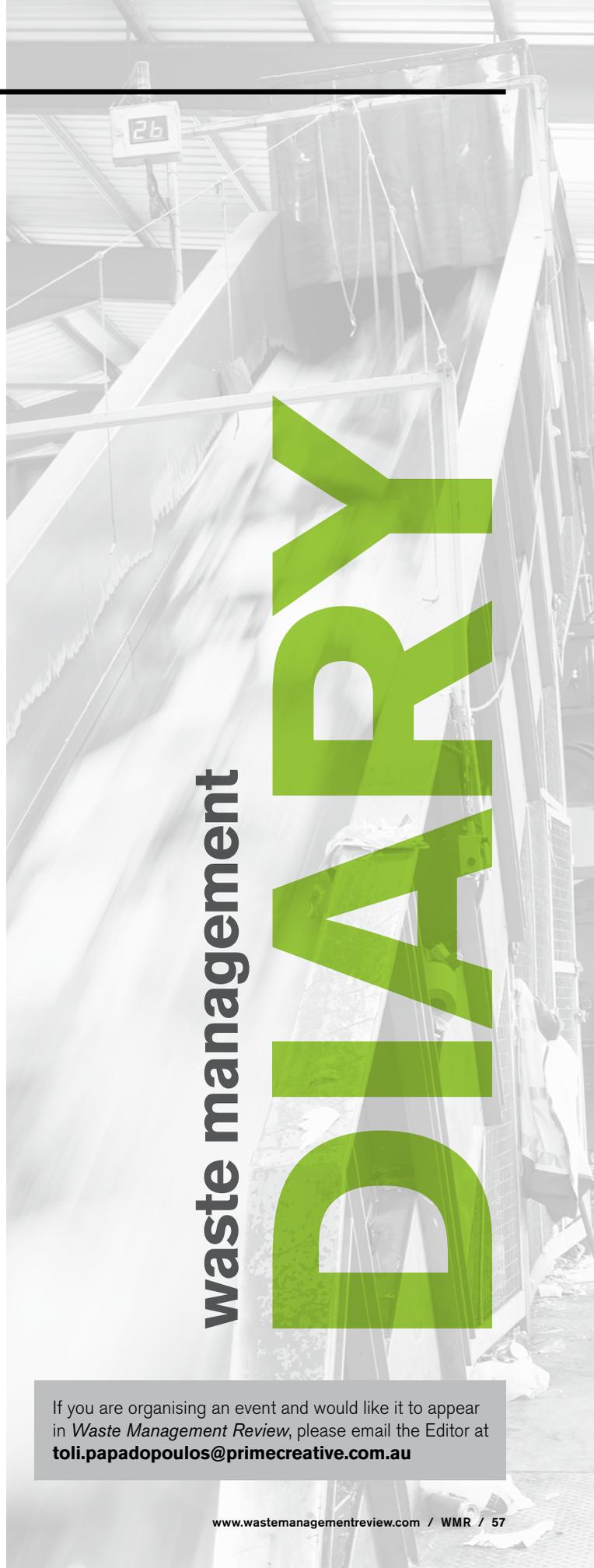


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The key to unlocking an effective circular bioeconomy

ASSOCIATE PROFESSOR BERNADETTE MCCABE, PRINCIPAL SCIENTIST WITH THE NATIONAL CENTRE FOR ENGINEERING IN AGRICULTURE, REFLECTS ON THE ROLE OF BIOENERGY WITHIN A CIRCULAR BIOECONOMY IN AUSTRALIA.

The role of bioenergy within a circular bioeconomy is starting to generate interest in Australia but we need effective waste management strategies to support this.

The underpinning premise of a circular economy, where resources are kept within the economy for as long as possible and waste is eliminated, is not new. But, there are a number of challenges faced by the global bioenergy sector as it transitions from a linear economy to a circular one. The complexity is even greater when you consider the array of wastes which can be categorised as:

- Primary residues – such as agricultural or forestry residues
- Secondary residues from industrial processing
- Tertiary residues including post-consumer residues like food waste

Australia faces some unique challenges in this area but with these come opportunities. While international strategies differ, there are a few recurring themes. So what steps are required to go from a waste-oriented society to a circular economy that includes bioeconomy and biorefining?

Firstly, we need an analysis of the type (primary, secondary and tertiary), scale and dynamics of wastes to understand what feedstocks are available. We need to get a good

understanding of our current baseline in order to identify opportunities. We also need to understand how they differ from region to region.

From theory to practice

We need to assess the technologies deployed in our current management of waste, including landfilling, thermal conversion and biochemical conversion. This includes the level of deployment and how efficient and effective they are at converting waste in order that it remains in the economy as long as possible.

The leap from theoretical and applied research to commercial operation can be a major obstacle for any developing technology or industry. Countries with dedicated bioeconomy research activities often have mechanisms to enable the transition from research to practice.

Knowledge sharing and supply chain connection

Knowledge exchange and capacity building is critical. The bioeconomy is complex – therefore we need to engage our existing networks and integrate them to build new ones. The exchange of knowledge of different kinds and from different forums is one way of doing this. A good start could be to team up bioenergy and waste management.

Australia is a big country. The dispersed location and availability of wastes, together with the necessary processing industries and supply logistics are a limiting factor. Therefore, there needs to be a greater connection between organisations, industries and sections of the supply chain to enable resource and infrastructure sharing.

Strategies for a bioeconomy

The various strategies in place across Australia are a good sign that things are moving in the right direction. But we need to ensure that there are clearly defined objectives and guiding principles in order to guide policy.

From an international perspective, a range of measures exist which can be used to help businesses to innovate, to utilise waste resources efficiently and to capitalise on closed loop systems already in place in Australia.

Elements in the policy mix could include the development of dedicated infrastructure and planning mechanisms, setting and implementation of policy targets promoting the use of waste and, where appropriate production of bio-based products, provision of targeted financial incentives, for instance in the form of, investment aid, tax breaks or start-up business loans, or other market enabling mechanisms, such as product certification or labelling. ■

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