A mark in history

IVECO’s Marco Quaranta on the complex testing behind the company’s latest vehicle.

FEATURES
National Waste Policy analysis
Kwinana WtE plant success story
Mixed organic waste challenge in NSW
WA Waste Strategy outline

PROUDLY SUPPORTED BY:
“I’ve been using Iveco ACCOs for 15 years and I reckon they’re one of the best trucks you can get. They do everything I ask of them and don’t cost much to run – they’re reliable, don’t give me grief and have never broken down. Another great thing about the ACCO is that it’s Australian-made.”
It’s a decision all of us here at KADS Hire are pretty proud of.”
Don Emtsis, Proprietor – KADS Plant Hire

THAT’S COMMITMENT.
THAT’S AUSTRALIAN JOBS.
THAT’S IVECO.

HITTING THE RIGHT TARGET

The WA Government has revamped its waste strategy, with shared responsibilities across government, the business sector and community.

GLOBAL REPUTATION

FLIR’s thermal imaging technology has been helping facilities around the world reduce their fire risk.

SORTING OUT THE COSTS

Lismore City Council is reducing waste to landfill through a new commercial waste sorting facility with more recycling capabilities.

END-TO-END PRINCIPLES

AMCS Group has designed an all-encompassing platform to help waste businesses optimise their costs.

MIXED WASTE CHALLENGE

ELB Equipment is offering a solution to remove contaminants from municipal solid waste for composting.

BATTLING SOVEREIGN RISK

As Malaysia, Thailand and Vietnam all move to crack down on waste imports, Australia and many global markets are now facing new challenges.

SUSTAINABLE SNACKS

Campbell Arnott’s Australia’s Liza Vernalls explains how the organisation is working to boost the uptake of difficult-to-recycle materials.

NO STONE UNTURNED

IVECO’s Marco Quaranta explains the complex testing and manufacturing of the company’s latest iteration of its iconic waste industry truck – the ACCO.

“We don’t even know when Euro6 will be mandatory in Australia, but we already have basically every single product available only in Euro6 or Euro5. So this means we are ready for a future and we don’t even know when it’s coming.”

- Marco Quaranta, Product Manager at IVECO
ALL OVER THE GLOBE, NATIONS ARE RESPONDING TO THE NEED TO boost their domestic capabilities in the face of numerous export bans. 

While Waste Management Review has covered the impact of China’s ban on waste imports extensively, little attention has been paid to other Asian nations such as Malaysia, Thailand and Vietnam.

In recent months, all three nations have moved to restrict waste imports, with many government spokespeople, such as from the Vietnamese Government raising concerns about environmental standards, according to a July statement to Reuters.

The Vietnam Government announced it would stop issuing new licenses for waste imports in August, while the Malaysia Government around the same time revoked 114 import licenses from factories processing plastic waste. Media reports from October indicate the Thailand Government plans to ban imports of e-waste and plastic waste, with plastic waste imports set to be banned over the next two years. Find out more about the issue on page 42.

According to Blue Environment data, Australia exported 4.23 million tonnes of recycled materials with 1.27 million tonnes of this to China. The April MRA Consulting report China National Sword: The Role of Federal Government shows other markets in Asia still show demand for recycle, but the oversupply of American, European and Australian materials has meant prices paid for Australia’s recovered recyclables have crashed.

While global markets for recycling haven’t completely fallen, many nations around the world are taking steps to build domestic capacity.

The French Government, for example, earlier this year announced plans to roll out a packaging tax in 2019 on items that aren’t using recycled packaging. The UK Government in October announced a new tax on the manufacture and import of plastic packaging with less than 30 per cent recycled plastic.

In line with global trends, the Australian Government is also taking further action on setting mandatory targets for recycled content, with more information available on page 18. At a state level, Western Australia is looking to standardise its kerbside collections with all councils in the Perth and Peel areas required to transition to food organics and garden organics by 2025. Read about this on page 48.

As a nation that is arguably learning a number of lessons from Europe’s experiments, Australian governments are becoming acutely aware of the need to support the waste and recycling industry’s future. Only time will tell what the results bring.
AT REPURPOSE IT WE BELIEVE ALL WASTE CAN BE CONVERTED TO VALUABLE RESOURCE.

WE ARE LIVING THIS VISION BY INVESTING IN AUSTRALIAN FIRST TECHNOLOGY THAT CAN CONVERT THIS:

TO THIS:

To learn more contact us at info@repurposeit.com.au
The NSW Government has released a draft of its Asbestos Waste Strategy, which aims to make it tougher to illegally dump asbestos and safer to remove it.

The strategy outlines new measures to close loopholes for transporters and increase transparency of waste generators.

This includes tracking waste vehicles that transport asbestos with GPS devices and increasing the risks and consequences of being caught illegally dumping asbestos.

Penalties for not complying with directions from the NSW EPA could be increased within a six-month timeline, with additional regulatory actions implemented to deter unlawful behaviour. Sentencing provisions would also be strengthened under the changes in the draft, with courts able to determine the monetary benefits gained through illegal business models and included within their sentencing decision.

To make legal disposal of asbestos easier, the draft outlines investigating the removal of the waste levy from separated bonded asbestos waste and implementing additional ways to properly dispose of wrapped asbestos.

The NSW EPA would also work with local councils and the Heads of Asbestos Coordination Authorities to provide education and raise awareness to help change behaviours of householders and licensed asbestos removalists.

NSW Environment Minister Gabrielle Upton said the government wants to make it easier and cheaper to do the right thing, strengthen regulation and penalties, close loopholes and disrupt illegal business models.

“The NSW Government is committed to reducing illegal dumping by 30 per cent by 2020, and this strategy is just one of the actions to fulfil that commitment,” Ms Upton said.

“In particular, we want to make the legal disposal of bonded asbestos cheaper and easier in NSW so the community and environment are safeguarded.”

“Research commissioned by the EPA revealed the cost and inconvenience of legal disposal as major [reasons] why asbestos is being illegally dumped.”

Ms Upton said it is important that the community, local government and industry have a say on how asbestos waste is dealt with.

The draft of the NSW Asbestos Waste Strategy is available here https://bit.ly/2QyODGx, with consultations closing on 20 November 2018.
4 Elements of Voucher Management Best Practice

WEBINAR SERIES

Hosted by Simon Kalinowski
(CEO, Mandalay Technologies)

We will cover:

✓ Auditability
✓ Cost Effectiveness
✓ Fit for Purpose
✓ Analytics

Register now >>
naus.com/voucher-webinars
The NSW Government has revealed a draft of its Circular Economy Policy as part of the state government’s plan to improve its resource recovery methods. The policy draft defines the state government’s role in implementing circular economy principles across NSW and how it can commit to achieving long-term objectives.

Minimising the consumption of finite resources by replacing raw materials with recovered and recycled products is one of the main principles of the policy. Additionally, the policy aims to decouple economic growth from resource consumption by maximising the value of resources through keeping materials in use for as long as possible.

Product design will also play a role to implement a circular economy with an aim of creating long-lasting products that are able to be easily reused, remanufactured and repaired.

The draft aims to extend the life of existing landfills to reduce the demand for new landfills, along with a reduction of greenhouse gas emissions.

Local market for high-quality post-consumer recycled materials will be developed to keep them materials use for longer to reduce dependency on international markets.

It also aims to improve the quality of collected materials through better sorting.

To move away from the “take, make and dispose” status quo, the policy recommends innovating technologies that increase resource recovery efficiency and referencing higher value reuse opportunities.

Creating new jobs in manufacturing, service and resource recovery sectors is listed as a main principle behind the delivery of a circular economy.

The draft sets out focus areas to guide future government action which involve supporting innovation, encouraging sustainable procurement practices for businesses and government, improving recycling systems and making the most of organic resources through food donation or composting.

Mainstream product stewardship will also aim to provide incentives for producers to take responsibility for the management of products at the end of their life.

To establish this framework, the NSW Government aims to incorporate circular economy principles in the revision of the NSW Waste Avoidance and Resource Recovery Strategy in 2019.

A Circular Economy Implementation Plan to be developed by 2020 will also aim to provide timing and direction for the implementation of circular economy principles.

NSW Environment Minister Gabrielle Upton said the policy draft was the beginning of a better way for NSW to manage its waste and resources.

She said NSW was also working with the Federal Government on the development of national circular economy principles.

The Waste Management Association of Australia (WMAA) has welcomed the release of the draft, however it says there is more work to be done on the policy.

The association has urged the NSW Government to set up an organisation similar to Sustainability Victoria or Green Industries South Australia to implement the final policy.

WMAA CEO Gayle Sloan said that all states are preparing or implementing similar strategies, so it is vital that they align and work together.

“WMAA supports the paper’s proposal that the NSW Government will investigate opportunities to incorporate circular economy principles into the Waste Avoidance and Resource Recovery Strategy as part of the five-yearly review process,” Ms Sloan said.

“WMAA commends the government for its support for broadening and strengthening stewardship schemes. This has been discussed time and again, and it is pleasing to see that industry’s feedback has been heard.”

Ms Sloan said WMAA was also calling on government to consider how the waste levy should look like in a circular economy environment, including how collected monies are reinvested in industry to further boost processing and jobs.
North Queensland councils have called on the state government to push back the introduction of the waste levy, and to introduce a differential levy rate system.

The North Queensland Regional Organisation of Councils (NQROC) has made nine recommendations in a submission to the Queensland Government, calling for the levy to be implemented on 1 July 2019 to align with the new financial year instead of the current set date of 4 March 2019.

Another recommendation is the implementation of a differential levy rate system to account for differences in rates for metropolitan and regional areas, which the NQROC says is in line with NSW and Victoria. Alternatively, the organisation recommends the implementation of a specific regional subsidy scheme to cover any hidden costs of the waste levy.

NQROC Chairperson and Mayor of Burdekin Shire Council Lyn McLaughlin said it was important for regional councils to raise their concerns about the new waste levy.

“The need to transport waste to distant recycling markets is one of the hidden costs of the waste levy for regional councils,” Cr McLaughlin said.

“It’s less expensive for the larger metropolitan councils who have recycling facilities close to them. However, transportation costs are a huge issue for regional and rural communities.

“We need a cheaper levy for the regions or the government must assist with the cost of transporting our waste to other parts of the state,” Cr McLaughlin said another recommendation related to how the waste levy zone is determined, and called for Charters Towers Regional Council and Hinchinbrook Shire Council be removed from the proposed zone.

“Right now, population is the only criteria for determining if you are in the waste levy zone. Regional economies are more complex than that and it is our view other factors like local economic conditions and financial sustainability should also be considered,” Cr McLaughlin said.

NQROC Deputy Chair and Mayor of Charters Towers Liz Schmidt said Charters Towers Regional Council was an example of where a population-only approach can be flawed.

“Charters Towers Regional Council is just over the waste levy population threshold, so we are included in the waste levy zone. This ignores the fact that the number of people we provide waste services for is much less than the actual population. We have a large number of rural properties covering an area the size of Tasmania who deal with their own waste,” Cr Schmidt said.

“Then there are the costs of waste management for townships like Balfes Creek, Homestead, Pentland, Greenvale, Hervey Range, Sellheim, Mingela and Ravenswood. Waste costs for these towns are already heavily subsidised by council and are unlikely to ever be self-sustaining.

“A waste levy just adds a greater financial burden which means more cost for our communities. We aren’t like the larger councils of South-East Queensland, but the government doesn’t seem to realise that.”

In introducing its bill in September, Environment Minister Leeanne Enoch said that Queenslanders will not have to pay more to put out their wheelie bin every week, with $32 million committed in this year’s budget in advance payments to Queensland councils.

“We are providing advance payments to councils that covers 105 per cent of the cost of their municipal waste,” Ms Enoch said.

“This means councils are being paid more than the cost of what they actually send to landfill every year.

“Councils will have no reason to increase rates because of the waste levy – we are giving them more than enough funding to cover this.

“In fact, councils could choose to use the extra funds to increase their waste management services.”
FIRE PREVENTION IN WASTE FACILITIES USING FLIR A65 or FLIR A615

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

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

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

Wastech Engineering have been proudly designing, developing and delivering quality solutions for all types of waste and recycling conditions for over 25 years. Contact us to see how we can help with your Baling and Compacting needs today.

Balers
For recyclables of any type

Compactors
For any recyclables or waste of any size

Design. Develop. Deliver
Wastech Engineering have been proudly designing, developing and delivering quality solutions for all types of waste and recycling conditions for over 25 years. Contact us to see how we can help with your Baling and Compacting needs today.

sales@wastech.com.au
Tenders, contracts and grants

**WASTE MANAGEMENT REVIEW** PROVIDES A LIST OF THE LATEST TENDERS, CONTRACTS AND GRANTS AWARDED OVER THE PAST TWO MONTHS.

**GRANTS OPEN:**

**NSW:**
The NSW EPA has opened applications to grants worth up to $250,000 to establish five “Love Food Communities” across the state. Stage one is the submission of an Expression of Interest that was due 19 November 2018 and will be assessed by an independent panel. Final applications must be submitted by 18 March, 2019.

**Queensland:**
Community and not-for-profit organisations can access up to $10,000 to provide infrastructure and equipment for the collection and security of containers at donations points across Queensland for the state’s container refund scheme. Applications close 25 January, 2019.

**GRANTS AWARDED:**

**Victoria:**
The Victorian Government in late October awarded 76 councils a share of $16.5 million to improve the state’s e-waste infrastructure. Funding will go towards upgrading more than 130 e-waste collection and storage sites and help local councils safely store and collect increasing amounts of e-waste.

**South Australia:**
At the beginning of October, the SA Government approved funding for 17 recycling infrastructure projects totalling $3.2 million. The recipients include VISY Recycling (Wingfield) which has received funding to improve its paper and glass quality, Veolia Environmental Services to improve its transfer station in Whyalla and Green Triangle Recyclers for its materials recovery facility upgrade in Mt Gambier.

**CONTRACTS AWARDED:**

**South Australia:**
The Australian Competition and Consumer Commission has authorised a group initiative of SA councils to jointly procure kerbside waste collection services. The councils of Adelaide, Charles Sturt, Marion and Port Adelaide Enfield have been authorised to appoint a single provider for kerbside waste collection services.

In other news, Veolia Environmental Services was awarded a 10-year contract for waste management and disposal by the City of Whyalla in October.

**Western Australia:**
Veolia has signed a $450 million 25-year operations and maintenance service agreement on a large-scale waste-to-energy facility in Kwinana, WA, capable of producing 36 megawatts of electricity – enough to power 50,000 homes. Macquarie Capital and Phoenix Energy Australia are co-developing the Kwinana plant, with co-investment by the Dutch Infrastructure Fund. Infrastructure company Acciona has been appointed to design and construct the facility. The project has been approved by the WA Environmental Protection Authority.

**NSW:**
JR Richards and Sons was awarded a 10-year contract to deliver general waste to Singleton Council, starting 5 November, 2018.

**NATIONAL GRANTS AWARDED:**

**SUEZ:**
Sixteen community groups, schools and organisations from across Australia have secured funds as part of the 2018 SUEZ Community Grants Program, which provides individual grants of up to $15,000. Community recipients include The Macarthur Centre for Sustainable Living, Penrith Community Kitchen Inc and the Australian Foundation for Disability.
No stone unturned

IVECO’S MARCO QUARANTA EXPLAINS THE COMPLEX TESTING AND MANUFACTURING OF THE COMPANY’S LATEST ITERATION OF ITS ICONIC WASTE INDUSTRY TRUCK – THE ACCO.

In what would become a 31-year post with Australian vehicle manufacturer IVECO, Marco Quaranta began his career with the company in 1987 in Turin, northern Italy.

In 1995, the Italian salesperson was married, but had no children and saw an immense level of freedom in travelling the world and a willingness to experience a new culture. In an auspicious moment, a phone call from human resources changed Marco’s life dramatically.

“IVECO Australia was looking for an Italian and English speaker for its dealer network development and other areas. The whole operation was meant to last two years, but as can usually happen, I was offered another position in Asia,” Marco explains.

“I never really considered returning and since then I have been a citizen of the world.”

Around 2006, Marco returned to Australia as National Sales Manager before being promoted to his current role of Australia and New Zealand Product Manager.

“During my career I had the opportunity to change my role every two to three years so I covered 11 roles across different departments – it was like changing jobs without changing the company,” he says.

With IVECO being a subsidiary of CNH Industrial, one of the largest capital goods companies in the world, the opportunities were endless for Marco.

“If I had to decide to redo my career, I would do it exactly the same way.”

Now as Product Manager, Marco collects the requirements of vehicle body builders, including their desired outcomes and positioning in the market and integrates these with current and future regulations and disseminates this to engineers.

Of Marco’s many passions, one was his involvement with the now-retired Lloyd Reeman, known as the pioneer of the company’s iconic refuse collection vehicle – the ACCO. His reasoning is borne out of a fervour and dedication to support local jobs and Australian manufacturing.

“We are one of the last three automotive manufacturers in Australia,” Marco says.

“Being part of a project providing local support to suppliers – 200 employed in our Dandenong factory – to the world of industrial entities is a great source of pride.”

The only thing as strong as his passion for producing rugged and durable commercial vehicles, Marco jokes, is his zeal for an Italian espresso.

POST-WAR FLEET

The venerable ACCO dates back to the post World War II era of 1952 when the International Harvester Company of Australia produced the country’s first locally designed and built truck in the Melbourne suburb of Dandenong.

Originally developed for the Australian army as a tough 4x4 rigid, it wasn’t too long before the truck was redeveloped for the highly demanding and often safety conscious waste industry. In 1972, the “ACCO A” was released, featuring an all-new cabin and proven structure still maintained in the current model of ACCOs.

“It’s one of the few vehicles in the market in the world that has a book
written about it. There is so much passion from the customers,” Marco says.

“Therefore, when I was given the opportunity to lead a project on the new ACCO, that was something really rewarding.”

NEXT GENERATION
In October, IVECO announced the next generation ACCO model would be manufactured at its Melbourne production facility alongside its other truck models – the Stralis X-Way and Stralis AS-L.

The company also revealed the new ACCO would share architecture with the recently unveiled Stralis X-Way, which was designed for vocational and construction applications. Production will commence around February 2019 with orders available now.

IVECO will continue to offer a factory dual control system. With technical validation completed, the company is now consulting with the waste industry to develop a number of body mounting and chassis layouts to suit a variety of bodies. In doing so, extensive efforts have gone into ensuring the new model lives up to the expectations of its predecessor – durability, lean architecture and rugged design, to name a few – while racing ahead of Australian regulations with clean Euro6 engines.

The design of the new ACCO has been shared with engineers around the world, including its largest engineering department in Germany. The new ACCO combines the latest technology from Europe with extensive local testing to ensure it matches rugged Australian conditions and waste industry expectations.

With two prototype units built in Madrid, Spain, the vehicle was initially tested at IVECO headquarters in Turin before being shipped to Australia for further research and development and engineering.

Available in 6x4 and 8x4 configurations, the ACCO will be equipped with IVECO front axles, tapered two-leaf parabolic suspension and rear IVECO 8 bag electronically controlled air suspension (8x4 models also receive front electronically controlled air suspension), with Meritor tandem drive axles featuring active traction control and driver controlled diff locks.

Marco says that one of the strong points of the ACCO through the years has been high quality information sharing with operators and body builders, and the new Euro6 makes no exception. Body builders such as Bucher Municipal, Superior Pak, Solo Resource Recovery and J.J. Richards & Sons have already shared their ACCO compactor drawings with IVECO, which allows the company to adapt its chassis to their requirements.

“Some of them not only are body builders, but they are also operators, so they are contractors of waste collection for councils. They not only know the vehicle layout and performance, but they also understand the world of collection and how a vehicle has to perform in terms of speed, braking, turning circle and manoeuvrability.”

IN-FIELD SIMULATION
Testing has been integral to ensuring the system is equipped for hard-edged Australian roads, with a view of understanding the various conditions and nuances of local community application.

“The new ACCOs have been driven extensively with new innovations like dual control and steering and new cab suspension. We’ve then built two prototypes in Dandenong that have been extensively tested at the Australian Automotive Research Centre in Anglesea, Victoria,” Marco says.

The vehicles go through a demanding stop, acceleration and braking routine up to 2000 times per day, meaning the stress test on the components is much higher than any application. The vehicles are equipped with a power take-off which engages and disengages every time the truck stops.

“We have simulated the application with stop and start hundreds of times a day for almost two months,” Marco says.

In terms of environmental friendliness, the vehicle comes with the latest in Euro6 selective catalytic reduction that has a passive
regeneration particulate filter to prevent downtime, additional fuel consumption and longer interval maintenance.

“We don’t even know when Euro6 will be mandatory in Australia, but we already have basically every single product available only in Euro6 or Euro5. So this means we are ready for a future and we don’t even know when it’s coming,” he says.

“In the past emissions level evolutions meant penalties for the customer in terms of price and efficiency. With Euro6 everything has changed. The manufacturer of a vehicle and engine can no longer perform a technical development with only the emission in mind as the cost of ownership has to stay within a certain acceptable level.”

ACCO models will feature SCR Euro6, Cursor 9 engines between 310 and 360 horsepower and 1300 and 1650 newton metres of torque, with emission control handled via IVECO’s Hi-eSCR system. The engines will be matched to the Allison Generation Five 3200 Series, six-speed fully-automatic transmission.

Aside from the adoption of new cleaner, more efficient Euro6-rated Cursor engines, the new ACCO range has also made significant gains in the area of safety, which, according to Marco, will position the model as one of the safest available in the heavy duty truck market.

Included as standard is adaptive cruise control, anti-lock braking system, electronic braking system, advanced emergency braking system (AEBS), electronic stability program (ESP), axle load indicator, electronic battery cut-out, LED daytime running lamps and rear LED lights. Land departure warning is also a feature. Marco says demand for safety is growing, particularly for vehicles operating within communities at all hours of the day. “The ACCO comes with everything possible and existing for accident prevention,” Marco says.

“The features I see as more important in waste is AEBS as the vehicle is able to calculate the reaction time of the driver, and if the time is too long, the vehicle takes action to brake on their behalf. So this can mean all the difference between impacting at high speed or not impacting at all.”

He says ESP is also important for calculating the centre of gravity around areas such as narrow roundabouts. If the movement jeopardises the stability of the vehicle, the system takes action and recentres the vehicle to avoid rollover. Marco adds daytime running lamps also makes a vast difference to visibility.

Another familiar feature includes three-piece steel front bumper with headlight mesh protection providing added durability and lower maintenance costs if these components are damaged in the field.

ERGONOMICS 101

Inside the cabin, the operator is treated to an ergonomically designed workspace with modern instrument cluster and an intuitive dashboard layout. Marco says access to the cab is easy with the distance to steps well within regulations. The door opens at 90 degrees with a fully adjustable steering wheel.

Additional comfort features include a variety of standard and optional equipment with automatic climate control, ISRI air suspension seat for driver and passenger comfort and heated and motorised mirrors. Marco says the engine has been redesigned for low friction and heat rejection with a turbo charger called variable geometry turbine available in some versions to provide additional fuel savings.

Importantly, IVECO has a network of local dealers and workshops strategically located in key areas, plus the bodybuilders and operators to support its products.

“But not only are we part of this group which holds several operations in Australia, but with the Stralis X-Way and more products coming, the future is secure and viable for the short and medium-term,” Marco says.

In the meantime, Marco says the old ACCO remains a popular choice for buyers and will continue to be so in the coming year. His passion for working on innovative trucks hasn’t changed either, with a bright future ahead in supporting Australian manufacturing and the next generation of safe, environmentally friendly, cost-effective and durable, heavy-duty trucks.
Macquarie is dedicated to supporting the growth of the global green economy. As one of the world’s largest investors in green energy, we have invested or arranged over $A20 billion of capital into renewable projects globally since 2010, including more than 30 waste and bio energy projects across Asia and Europe.

Closer to home, Australia’s first thermal waste-to-energy facility at Kwinana will divert 400,000 tonnes of household, commercial, and industrial waste from Western Australian landfill annually. Macquarie’s ideas, capital and expertise are powering green opportunities globally, and a more sustainable future for Australia.
At the beginning of this year, Federal Government, state and territory environment ministers and the Australian Local Government Association moved to reboot the National Waste Policy.

Ministers agreed the new policy, originally launched in 2009, would include “circular economy principles” highlighting that the policy would be updated by the end of 2018. Submissions to a discussion paper on updating the policy closed in October, with numerous stakeholders providing their views on the necessary action points required.

The draft document highlights the opportunities in domestic management of Australia’s waste. It acknowledges an updated policy will need to set a clear roadmap for collective action by businesses, communities and individuals by designing systems and products to avoid waste, conserve resources and maximise the value of all materials used.

The updated National Waste Policy will also require the preparation of action plans by 2020 to determine and address priorities such as landfill levies, research and development, regulatory and legislative incentives, financial measures and national waste to energy responses. The document indicates action planning will be supported by data and analysis, including a Waste Market Study undertaken by the Department of the Environment and Energy in late 2018. At this stage, it is understood the consultations...
will be presented to the Meeting of Environmental Ministers for review and endorsement in December.

The discussion paper proposes targets such as reducing total waste generation in Australia per capita by 10 per cent by 2030, an 80 per cent average recovery rate from all resource recovery streams by 2030, 30 per cent recycled content across all goods and infrastructure procurement by 2030 and phasing out problematic and unnecessary plastics by 2030. It also proposes halving the volume of organic waste to landfill by 2030 and creating fit-for-purpose and timely data available for individuals, businesses and governments to make informed decisions.

Five core principles underpin the policy: avoiding waste, improving resource recovery, increasing the use of recycled materials, better management of material flows and improving information with a series of questions posed for stakeholders to answer.

**POLICY CONSULTATION**

The Waste Management Association of Australia (WMAA), Australian Council of Recycling, National Waste and Recycling Industry Council (NWRIC) and other stakeholders actively participated in a working group during August to update the National Waste Policy.

Gayle Sloan, WMAA Chief Executive Officer, says the key to ensuring the new policy is successful will be in implementing clear accountabilities and responsibilities.

“We know the 2009 scheme ran out of steam. No-one held government to account and government didn’t hold itself to account,” Gayle says.

“There are 14 strategies under the National Waste Policy, so each one of those will need an action plan. Even within those, some strategies might have four to five outcomes, so all of those will need to be action planned and held accountable with clear timelines, responsibilities and resourcing.

“While it is disappointing that there is no funding on the table to support this document, there is significant investment in this industry already at each state and territory and it may be about how we reallocate that.”

She says that the 2009 National Waste Policy lacked Federal Government leadership around driving recyclables. “For example, making recycled packaging competitive like we’ve seen in France – a 10 per cent reduction, managing standards on what comes into the country, including e-waste,” she says.

Gayle says the Federal Government is now addressing issues that previous governments had not addressed in the now defunct National Waste Policy, including responding to market failures.

In terms of circular principles, Gayle says a national approach is required, while encouraging collaboration at the back and front end of resource recovery to hit the 80 per cent target. “I am encouraged that circular economy principles are on the table. The key to success is going to be engaging with the rest of the semicircle, not just the waste industry and government, but the reprocessors, producers and the purchasers – Woolworths and Coles.”

Gayle Sloan, WMAA Chief Executive Officer

She notes that one of the key issues is the lack of a national proximity principle, which NSW attempted to address but had faced challenges in implementation. Gayle notes the EU has legislated principles where materials cannot move around unless for a higher and better purpose.

“It’s not enough with Queensland’s waste levy coming next year. We don’t want waste to move to regional Victoria, which will have one of the lower levy rates,” Gayle says, adding that the issue of medical waste moving from WA to Melbourne or hazardous waste moving from Victoria to regional SA has gone on too long.

She says the Federal Government needs to clarify the constitutional interpretation of the proximity principle and get advice from the Commonwealth attorney general, which the Federal Government has so far refused to do.

Gayle says she understands the Waste Market Study will be ready by the end of the year. She notes that the National Waste Reports are a good starting point, but stronger national data is needed around material flows and employment which state agencies such as Sustainability Victoria are good at. Overseas, she says WRAP UK has achieved success in mapping material flows.

“The key to success is going to be engaging with the rest of the semicircle, not just the waste industry and government, but the reprocessors, producers and the purchasers – Woolworths and Coles.”

Gayle Sloan, WMAA Chief Executive Officer
Woolworths and Coles,” she says. Gayle notes the 30 per cent recycled content target is in step with the European Union. She says that there is plenty of supply for food-grade packaging, with materials such as PET readily available. Gayle says HDPE faces difficulties in sourcing 100 per cent HDPE for a food-grade product, but between 25 to 50 per cent is not an issue.

“We have integrated suppliers such as Visy who are now providing food grade packaging for plastic, and have done for a number of years,” she says.

“We’ve had Nature’s Organics, a fast-moving consumer goods company that have been doing 100 per cent recycled PET for years.”

**PLANNING**

In its submission to the draft policy, the National Waste and Recycling Industry Council (NWRIC) welcomed the Federal Government’s work. It called for priority to be given to a National Waste and Recycling Infrastructure Plan, 30 per cent procurement of recycled materials to create markets, a common approach to waste regulation and a product stewardship scheme for batteries.

The NWRIC highlighted that to achieve the target of 80 per cent resource recovery and halve organic waste to landfill by 2030, waste and recycling infrastructure capacity will need to be doubled. In addition, it noted a need to renew the existing major infrastructure as unless there is a significant shift in consumption behaviours, and a rapid transition to a circular economy, total waste generated is expected to grow between 60 per cent to 100 per cent by the year 2050.

Rose Read, NWRIC Chief Executive Officer, says the key to doubling infrastructure will be targeting organics composting facilities and waste to energy for residuals. She says an opportunity exists over the next two years to close the gap on non-recyclable materials. In this process, she says long-term planning for landfills is required, with adequate capacity to deal with intractable, contaminated soils or materials that can’t be used.

“There needs to be a National Infrastructure Strategy where the Commonwealth brings together the states to look at what’s needed across the country. We would like to see the strategy completed by 2020 at the latest,” she says.

Rose adds that the strategy also needs to address servicing regional areas in an intelligent and proactive way, as commercially it is a challenge for industry.

“The Federal Government needs to facilitate collaboration between industry and all state governments to come up with a coherent plan that gives our members certainty around long-term investment,” she says.

She adds that this also needs to be developed at in the context of export markets and population growth.

The NWRIC’s submission also highlighted the ongoing issue of contamination in kerbside and
commercial commingled bins. One of the industry’s challenges is the low quality of recovered materials due to poor source separation at the front end and lack of sophisticated processing technologies.

“This is where a common approach to community education by all states is desperately needed. That is why together with our state affiliates, the Australian Local Government Association and ACOR, we kicked off the Recycle Right message earlier this year in response to China’s National Sword,” Rose says.

In the submission response document, the government asks whether different targets should be included in the plan. The NWRIC believes there is a need for a specific waste generation targets for toxic materials which most impede recycling, including asbestos and asbestos contaminated materials.

“There is also a need for consistency across states in the definitions on what are acceptable and not acceptable levels of asbestos in construction and demolition (C&D) waste.” Rose says.

For procurement, she says the Federal Government should take the lead in ensuring recycled materials from C&D and organic waste are being used in road and infrastructure construction, and that states work with local councils to remove barriers to the uptake of these recovered materials in civil works.

In fulfilling its vital role, the NWRIC believes the Federal Government must allocate additional resources to implement the policy and give it higher priority by appointing a Waste and Recycling Commissioner.

Rose says she envisions the commissioner as not only ensuring the implementation of the policy, but driving collaboration across states and industry, and reporting on progress annually to the Meeting of Environment Ministers. Furthermore, she says they could establish the National Waste Account, prepare the biennial National Waste Report and ensure the delivery of the Product Stewardship Act, including the outcomes of the current review and promote the transition to a circular economy.

Rose says the biggest disappointment in the draft policy is the 2025 deadline for a battery stewardship scheme. NWRIC believes it should be in place by 2020 and mandatory. She says batteries should be included under the National Television Computer and Recycling Scheme if manufacturers can’t agree to a voluntary approach approved by the competition regulator.

CIRCULAR PRINCIPLES

In its submission to the National Waste Policy, University of Technology Sydney’s Institute of Sustainable Futures (ISF) agreed the targets and strategies in the draft proposal were a good start, but could go further. ISF’s key point is that the current proposal’s inclusion of circular economy principles is minimal, despite acknowledging the importance of a circular economy in its preamble.

The ISF’s submission notes that the policy is focused squarely on recycling – and while this is definitely a circular activity, it only cycles materials at end of life after intensive reprocessing. Jenni Downes, Senior Research Consultant at the ISF, explains that a truly circular economy is one where Australia’s whole systems of production and consumption are transformed to restore and maximise the value of products and materials. She says this is achieved through innovative design, durability, sharing, reuse, repair, refurbishing, remanufacturing, recycling and energy recovery, all while minimising resource use, emissions and waste.

To enable a circular economy, the ISF proposes the appointment of a commissioner for the circular economy to be a recognisable focal point for industry and government to ensure data is available to track progress. It also proposes to adopt an overall measure of the transition to the circular economy, such as a resource productivity target, which compares raw material consumption against gross domestic product. Furthermore, the ISF wants to ensure the metrics and approach to targets are designed carefully to assess progress in both relative and absolute terms and take account of external factors.

To ensure many of these policies are implemented, the key point for Jenni is that they are adopted in partnership with state and territory governments, with clear responsibilities, at the Meeting of Environment Ministers.
Researchers from Monash University are developing methods of unlocking the value from uneaten parts of fruit and vegetables to return their value to the economy.

In a spur-of-the-moment purchase, you buy a mango at your local green grocer. They’re in season, it was cheap and it supports Australian farmers. Unfortunately, in a situation all too common, that mango sits in the fruit bowl and goes off.

As it is scraped into the bin, that mango joins the 3.1 million tonnes of edible food that is thrown away every year by Australian households, according to the National Food Waste Strategy. That $2.50 piece of fruit has become part of the $20 billion loss to the economy.

While discarded food waste from households is a major contributor to the food waste issue, wastage occurs across all steps of the supply chain, according to the strategy. The report says the commercial and industrial sectors waste 2.2 million tonnes of food, which can result in lost revenue from significant waste disposal charges and lost business.

Falls in market prices, spoilage due to improper temperature control and poor stock management are just some examples the strategy says can create food waste. Researchers from the University of the Sunshine Coast also found up to 87 per cent of undamaged, edible tomatoes were rejected and – in some cases – not even financially worth harvesting.

To help farmers turn this waste into a profit, researchers from Monash University’s Food Innovation Centre and School of Chemistry have joined forces with the Indian Institute of Technology Bombay to extract high value components from biomass.

Known as biomass valorisation, the process uses the entire fruit or vegetable to provide value for the grower or manufacturer.

Monash University is working with farmers and businesses to increase the number of potential market opportunities for products made from this upvalued food waste.

The research aims to be implemented across the supply chain. Farmers could retain value from their harvested fruit and vegetables that do not meet supermarket aesthetic standards, while processing plants and distribution centres could capture the byproducts or the stock.

Tony Patti from Monash University’s School of Chemistry, says that the byproducts of fruits such as mangoes, pineapples and pomegranates can be used for higher value applications instead of compost or animal feed.

“Currently, mangos are mostly used for their flesh, with their skin, seed and husk being disposed of. However, the pip from a mango has a high amount of wax which could be used to make surfboard wax,” he explains.

“Pineapples are also a rich resource of byproducts, with the stems being rich in the enzyme bromelain, which has the potential as a meat tenderiser or for some therapeutic agents and vitamins. Only half of the actual fruit is eaten, with the rest being thrown out.”
Pomegranates have also been identified as a potential source of valuable byproducts, as their peels can be used to produce biodegradable polymers and are rich in pectin, a food additive used as a gelling agent. The seeds are also rich in omega-3 fatty acids, which could be captured and used to create vitamin supplements.

Often these resources are discarded at a processing plant, where the flesh of the fruit is used to create juices to be used in certain salads and recipes. However, because the plant produces a pure source stream of biowaste, it can potentially be captured to make high value products.

Tony says that collecting a single stream of biomass creates additional potential to then use it in the pharmaceutical, cosmetic and pet food industries to provide more value to the seller than if it were to be sent to compost.

"Using this research, food and agricultural companies can tackle costly waste challenges, improve their environmental footprint and create a sustainable business that takes full advantage of growing demand in domestic and export markets for high-quality products," Tony adds.

"When there is a high volume of pure stream byproduct, you have the perfect opportunity to capture it and divert it from the waste stream. In some cases, the food processing centre can become a sort of biorefinery, similar to how the petroleum industry produces a range of products from crude oil.

"The same concept applies to food production. For example, if there is a processing plant that is only using the flesh of the pineapple in tins, it would be able to exploit the skins, cores and stems to extract additional value."

Researchers are currently investigating the potential benefits of components of fruits and vegetables that are shared between Australia and India’s climates, including mango, pineapple, pomegranate, soy beans, spent coffee grounds and almond ash.

Chemical company Axieo has also collaborated with Monash University to research additional solutions to extract silica from rice husks and ground glass to create lightweight, low-carbon bricks that are resistant to fire and termites.

Tony adds that the waste industry could be vital to ensuring the research is able to translate into the economic benefits, providing the infrastructure necessary for the collection and transport of the waste.

"This research relies upon good science and engineering across multiple disciplines, but where green and sustainable chemistry principles are central."
Robots have inspired human imagination for decades, with science fiction writers exploring the endless possibilities of automation in film and literature. Some depictions are bleak dystopias, such as the Terminator franchise where humanity is at war with the machines. Others explore the possible benefits of robotic technology and how it can improve our lives.

In 2008, Pixar released the light-hearted film WALL-E, a cautionary tale that warns against consumerism and the misuse of the planet’s natural resources. The story follows a waste compactor robot that spends its time on Earth managing waste. While it may seem like the far-off realm of fantasy, automation is much closer than some might think, as it is already being implemented in industries across the globe.

To help shape national policy in preparation for this technology, the Australian Centre for Robotic Vision released Australia’s first robotics roadmap. Leaders in industry, academia and government across key sectors of the Australian economy helped shape the roadmap, which quotes an AlphaBeta report showing automation could deliver a $2.2 trillion dividend to the economy over the next 15 years if businesses are encouraged to accelerate their uptake of new technologies.

Sue Keay, Centre Chief Operating Officer, says robots also offer significant safety benefits for the waste sector. “Automated technology allows workers to remove themselves from potentially dangerous areas. This is particularly useful for tasks which involve the movement of heavy materials,” she explains.

“By allowing robots to handle the more dangerous and dull work, there is a much lower chance of injury on the job. Automated technology has the capability to sort through recyclable materials faster than a person can, which allows processes to become more efficient. This can have flow-on effects such as an improved recycling rate and reducing waste to landfill.”

Sorting technologies are already being used to assist recycling. Notably, electronics manufacturer Apple has designed a robot called Daisy that is able to deconstruct iPhones and separate their components. Daisy is able to break down around 200 iPhone devices in an hour, separating the materials to make recycling them significantly easier. According to Apple, for every 100,000 iPhones it deconstructs this way, it is able to recover 1900 kilograms of aluminium, 770 kilograms of cobalt and 970 grams of gold.

While sensor technology has become more advanced, there are still some technological obstacles facing robots. In particular, researchers are still attempting to overcome issues involving moving around and manipulating objects. Sue adds that a significant amount of waste could be saved from landfill if robots were able to identify potential recyclables at the landfill itself.

“Potentially, we could see robots being used at landfill or waste drop-off points which can scavenge through the incoming waste and identify recyclable or valuable materials that can be diverted. Robots could then collect and transport them as well.”

One of the first major implementations of robotics in Australia’s recycling industry was the installation of Finnish company ZenRobotic’s three-armed robot recycler at a material recovery facility in Melbourne. The robot sorter uses sensors and...
artificial intelligence to identify items on a conveyor belt, which are then separated by the robot. This machine can run 24/7 and each gantry is able to pick 3000 objects per hour.

ROBOTS ON THE ROAD
The roadmap defines a robot as an autonomous machine that can move within its physical environment and manipulate objects, and includes-self driving cars.

Queensland’s Department of Transport and Main Roads estimates that 20 per cent of state’s fleet will be autonomous between 2034 and 2045, with that number increasing to 100 per cent between by 2057. This uptake of automated vehicles has the potential to lower transport costs and directly improve productivity in Australia while improving services available to regional areas, according to the roadmap.

Additionally, it found regional waste and recycling facilities would feel the flow-on effects from the reduced transport costs and could decentralise, creating regional technology clusters.

Sue says that while robots do have the potential to affect the job market in Australia, a smooth rollout of robots could actually lead to an increase in jobs. “Development of robotics could potentially make our current jobs safer, more satisfying and creative. With an ageing workforce, our standard of living could be threatened if we aren’t able to keep improving our productivity by 2.5 per cent every year,” she says.

“From our research, we have found that robots seldom replace jobs, and, in fact, create new ones. While they may in the short-term impact the industry, overall there will be a net increase in the amount of jobs.”

Australia is currently ranked 18th in the world for global automation by the International Federation of Robotics, but there is the potential for it to become a leader by encouraging different industries to collaborate.

Sue explains that this technology may be closer to becoming a reality than once thought, although it is difficult to pin down a rollout date.

“We tend to overestimate how much we can achieve in five years and underestimate where we’ll be in 15,” she explains.

“Prototypes are likely to be rolled out within five years, as we already have a lot of the technology required. Now, the industry just needs to fine-tune the manipulation technology and begin implementing robots within all sectors, including waste.”

AUSTRALIA’S LARGEST FREE NATIONAL E-WASTE RECYCLING PROGRAM.
TechCollect is Australia’s only industry-funded, not-for-profit, free e-waste recycling and collection program. We are committed to the highest standards of recycling and are a trusted partner of many local governments and communities across the nation. We can help you with your e-waste recycling needs. Call 1300 229 837 or visit techcollect.com.au to learn more.
FEATURED TOPIC – E-WASTE

Gathering momentum

THE AUSTRALIA AND NEW ZEALAND RECYCLING PLATFORM REVEALS ITS GOALS AND PLANS TO IMPROVE E-WASTE RECYCLING FOLLOWING SIX YEARS OF OPERATION.

Since 2012, the Australia and New Zealand Recycling Platform (ANZRP) has collected more than 130,000 tonnes of e-waste, and recycled enough steel to build another Sydney Harbour Bridge.

It collects this metal from e-waste generated through its free national program TechCollect, which also gathers high quality plastic, glass and rare metals such as gold.

TechCollect was established in response to the Product Stewardship Act and National Television and Computer Recycling Scheme (NTCRS), legislation that obligates companies that import or manufacture computer or televisions to fund the recycling of their end-of-life products.

In the past 12 months, the program continued to expand its collection network across the country including the establishment of new sites servicing the needs of Indigenous communities in Arnhem Land.

The ANZRP released a white paper in 2017 that reviewed the NTCRS and offered 31 recommendations to the Federal Government to enhance the scheme’s scope, increase e-waste recycling education and provide greater transparency based on the learnings gained from the TechCollect program.

One of the obstacles the NTCRS faces is its relatively limited scope. Under the scheme, personal computers, tablets, computer monitors, peripherals such as mice, keyboards, printers and scanners and all televisions can be recycled.

While there is no federal definition of e-waste, it is generally considered across the states and territories to be any device with a cord, plug or battery. This means small household electronic items such as gaming consoles, digital cameras or stereo systems are not covered under the scheme.

Warren Overton, CEO of ANZRP, says these items contain significant amounts of high-value components that could be incorporated into the existing collection infrastructure.

“In Australia, we have a collection network in place with 293 sites around the country that could be used to further increase the amount of e-waste we can recycle.”

“If you can increase the scale of collection, it will reduce the unit cost of recycling,” he says.

“Expansion of our scope and further investment in consumer education has the potential to increase how much materials we would be able to collect.”

ANZRP has analysed accessibility of the scheme, breaking down its collection locations to find where it could potentially be improved. A significant portion of the collection points are operated in conjunction with local government authorities, which it says are critical to providing residents with e-waste recycling services.

Other permanent collection sites are located throughout a network of retail organisations, close to the point of sale for electronic items, and this network has significant potential to expand.

Maturing Australia’s recycling infrastructure is recognised as being one of the most important steps to achieve ANZRP’s annual material recovery target of 90 per cent.

Warren says that plastic is the biggest issue for e-waste recyclers as changes in the export market due to China’s implementation of the National Sword policy has made it difficult to identify appropriate markets that will process the material responsibly.

“While we’re able to collect e-waste, if recyclers can’t sell the materials it creates issues across the supply chain. State governments are doing well when it comes to capital grant funding for Australian processing, but we need the infrastructure in place to close the loop.”
While some recyclers were waiting for the Australian recycling markets to open, others are assessing waste to energy facilities or resorting to landfill as they were unable to stockpile due to insurance and licence restrictions.

Transparency was also considered a key part of the future of the scheme, with the ANZRP recommending to the Federal Government to perform downstream vendor audits to ensure waste is going to the appropriate facilities.

Warren says after the ABC’s second season of the War on Waste, there was a significant increase in inquires how and where e-waste was being recycled. “It’s important that consumers know where their waste is going, which is why we undertake independent audits of our recyclers.

“We are also establishing a system of GPS tracking similar to how they were used in the War on Waste to ensure e-waste is being recycled appropriately. Our efforts are ensuring recovered materials are being put back into the manufacturing supply chain so that fewer natural resources, including rare earth minerals are needed.”

GLOBAL GROWTH

New Zealand introduced similar e-waste collection legislation through its 2008 Waste Minimisation Act that detailed the possibilities of a product stewardship scheme for the country. To assist the New Zealand Government to improve its e-waste recycling rates, ANZRP is rolling out an international pilot program.

Warren says the pilot would be an excellent chance to take the organisation’s experience it gained from collecting Australia’s e-waste.

“We have extensive experience handling collection in all types of communities in Australia, from metropolitan sites, to regional, rural and remote communities across large geographical distances,” Warren says.

The pilot will involve establishing collection sites, recycling processes and organising the logistics of the scheme.

ANZRP aims to use its international members to ease the rollout through practices that can be used across both countries.

The organisation intends to develop capacity and interest in e-waste recycling so that New Zealand can establish its own e-waste product stewardship scheme.
With Christmas just around the corner, Australians are expected to begin a spending spree on gifts, food and festivities.

In 2017, Australians were predicted to spend $50 billion for Christmas, according to the Roy Morgan Research Annual Pre-Christmas Sales predictions.

Galaxy research commissioned by Gumtree found that more than $600 million worth of these gifts are expected to be Christmas duds, amounting to more than 20 million unwanted gifts.

These unwanted gifts often end up being re-gifted or gathering dust with 53 per cent of people disposing of at least one Christmas gift, according to the Australian Institutes’ paper on Unwanted Christmas Presents.

Hawkesbury City Council estimates households produce 30 per cent more waste over the Christmas period. This tends to be made up of discarded packaging, torn up wrapping paper, food waste from uneaten food and organic waste from Christmas trees.

Andrew Glover, a Research Fellow at RMIT, says e-waste is a significant waste stream that is generated over the Christmas period as consumers begin receiving upgrades to electronic devices, such as phones and televisions.

“Often when receiving a new laptop or phone, Australians want to dispose of their old technology,” Andrew says.

“It can be convenient for a household to dispose of their old electronics in the general household bin instead of recycling them, especially when there is likely already a significant amount of waste generated alongside it.

“Councils have a role to play in reducing this waste, as they provide e-waste collection and vital community education,” he says.

E-waste can pose potential risks if sent to landfill as the materials can contain hazardous materials that could cause harm to the environment and human health.

Services such as the Recycling Near You website can help to make it easier for residents to recycle material correctly by directing them to nearby e-waste collection points to dispose of it if council collections are not available over the Christmas break.

Andrew says that increasing awareness of drop-off point locations is important for residents, as convenience is key to encourage recycling.

“Motivating residents to recycle requires more than just advertising where the drop-off locations are. Offering some kind of incentive beyond just goodwill can be an excellent motivator.

“It can be in the form of a small gesture such as a voucher for local business that helps support the collection of e-waste.

“Another effective method some councils have used is a community e-waste drive, where residents can drop off their materials. These can make recycling feel like a community effort but require good event planning.”
management as long lines can lead to people losing interest,” he explains.

The City of Sydney used this method to collect almost 90 tonnes of e-waste in 2017, recycling around 95 per cent of the raw materials recovered. In a recent event at the Sydney Park Nursery Depot, the council attracted 1558 individual e-waste drop offs, with half of the participants reporting it was their first time attending such an event.

E-waste drop off sites often see a spike in activity over the Christmas period, with recycling service TechCollect reporting its monthly collection increases by around 50 per cent over the holiday season.

Warren Overton, Australia New Zealand Recycling Platform CEO, says constant reinforcement across all sections of the community is important to ensuring household e-waste is collected properly over the holidays.

“Christmas provides an excellent opportunity for councils and business to encourage households to think about their waste. Councils can work with schools for sustainability education, while retailers and business can advertise collection sites within retail centres,” he explains.

“E-waste recycling information at the point of sale can take advantage of the increased foot traffic in stores and potentially lead to return customers after Christmas who are looking to recycle their old electronics.

“Councils will need be aware of the Christmas shutdown that many recyclers undertake, especially because they will still need to receive the incoming waste. Ensuring the council facilities have the appropriate collection infrastructure is vital to being prepared for holidays,” Warren adds.

As workers plan for the holidays, Christmas can also be a time of reduced workforce for councils. This can make it logistically difficult to handle the increased waste that is generated by households.

Andrew adds that encouraging residents to reduce waste should be a priority when it comes to education.

“Disposing of electronics through hard waste collections can often risk the items being damaged or vandalised, which can cost a significant amount to clean up,” he says.

“Encouraging residents to pass on their older and still working technology is often better for the environment, especially if it can be sold online second hand, given to an elderly relative or to a service such as Freecycle.”

Christmas can produce an influx of e-waste as consumers opt for newer products and services.
Q. What are some of the challenges surrounding collection and recycling, particularly with Hobart’s growing population?
A. Currently, the greatest challenge is identifying local and national markets for recycling and material reuse.

Tasmania’s geography means there are significant costs and emissions associated with transporting materials off the island for processing, and the further material has to go to get to market, the worse it gets.

Hobart has its challenges associated with collection of material from built up areas with large numbers of multi-unit developments where kerbside space is limited, and roadways are narrow.

Q. Which bin system do you use and why?
A. The standard residential council service is a weekly 120-litre waste bin, a fortnightly 240-litre recycling bin and a fortnightly 240-litre garden waste bin. The smaller waste bin encourages residents to think about the items being placed in the bin to avoid filling it with recyclable materials. The collection of recycling and garden waste occurs on alternative fortnights, which provides the residents with continuity of collections.

Q. What has been working particularly well over recent years for the council in terms of waste management/recycling services?
A. The development of the City’s Waste Management Strategy 2015-2030 has provided structure and direction to waste management in Hobart. It details and prioritises over 90 actions to reduce waste and aims for zero waste to landfill by 2030.

Under the strategy, the city has increased the level of waste auditing and data collection, allowing programs to be developed for targeted waste types. Following audits showing the amount of garden waste in residential bins and ultimately landfill, the city introduced a kerbside garden waste collection service in 2015 which has been a great success, removing around two kilograms from the average waste bin with virtually no contamination.

Q. How do you ensure what is recyclable is clear to residents?
A. The people of Hobart have historically been very good recyclers. Typically the contamination rate is around 4 or 5 per cent which compares very favourably to the national averages. People know about the usual items like paper, metal, cardboard, but the difficulty is keeping residents informed about what is recyclable and what isn’t and that comes from the increasing and changing range of plastic packaging. It is important to make sure information is correct and up to date.

We are developing a comprehensive searchable database for residents to obtain detailed recycling and recovery information for around 300 products, which will help alleviate any confusion over product recyclability.

Q. Is there any modern technology the council is utilising and/or would like to use that would make collection more efficient?
A. The city has a dual-pact rear loader collection vehicle that has a split compactor that enables collection of two separate waste streams at once. Its main function is to service the public litter bins in the city, where it can empty the public waste and recycling bins in one visit, significantly reducing travel times and reducing fuel usage and emissions.

The city is about to install two underground waste and recycling compactors in the commercial business district (CBD) area – an Australian first of its kind. The units will remove many bins from the laneways in the City of Hobart is working with surrounding councils to develop a waste infrastructure plan.
CBD and improve collection efficiencies for the city and around 100 businesses.

Q. Many states like QLD, Victoria and NSW have waste strategies in addition to statewide infrastructure plans. Does council believe either of these plans would help drive waste diversion in Tasmania?
A. A dedicated and adequately resourced waste strategy and infrastructure plan would certainly assist in driving waste diversion in Tasmania. However, it needs to be coupled with a waste levy to ensure the plans can be implemented at a level that generates substantial outcomes and incentivises recycling programs over waste disposal.

The state government is taking on board the issues affecting the waste industry presently and looking to explore waste management priorities for Tasmania. The city has developed its own Waste Management Strategy and is also working with the 11 other southern Tasmanian councils to develop a waste infrastructure plan.

Q. How do you see waste management evolving in Tasmania and how do you keep pace with change?
A. Waste management has been evolving for some time, and the community expectations that materials are recovered and recycled is constantly increasing. Hobart residents want avenues to recycle – they are not tolerating the continuation of materials being landfilled. We need to keep finding sustainable solutions to enable this to happen, which can be tricky on a small island state.

Advancements in technology will present themselves in the field, widening the range of recycling programs, but design process must also change, to design out obsolescence, incorporate recyclable product and ensure recyclability of products at the end of their life.

Q. How does council manage to keep costs down while managing waste management targets?
A. The city recognises that most recycling programs cost money. However tapping into initiatives such as federal product stewardship programs, like paint, help to reduce the financial burden.

Finding efficiencies in services, such as using a split compaction vehicle, have created significant resource savings that can offset the cost of other recycling programs. We also have a differential pricing structure at our Waste Management Centre, which rewards customers as they can deliver clean separated recyclable material at around half the rate of landfill. This reduces our expense in sorting material for recycling at the site, creating efficiencies and also more recycling and waste diversion.
When new forms of resource recovery arrive in Australia, it is critical for the project’s proponents to obtain a social license to operate – not just with the community, but also across all project stakeholders.

One project that has, and continues to, develop that social license is Australia’s first large-scale waste to energy (WtE) facility to be built in Kwinana, WA. This was demonstrated by the variety of stakeholders, including governments, that have backed the plan.

October this year saw the landmark announcement of financial close on the project, meaning it can move from development to construction. Macquarie Capital and Phoenix Energy Australia are co-developing the Kwinana plant, with co-investment by the Dutch Infrastructure Fund. Infrastructure company Acciona has been appointed to engineer, procure and construct the facility, with the 36-month construction period commencing in October. Veolia will operate and maintain the facility under a 25-year agreement.

Notably, the $698 million project was approved by the WA Environmental Protection Authority (EPA) and received $90 million from Federal Government specialist financier the Clean Energy Finance Corporation. A further $23 million in grant funding has been provided by the Australian Renewable Energy Agency.

The facility will be able to process 400,000 tonnes of household, commercial and industrial residual waste per year. It is expected to produce cost-competitive base load power and contribute to grid stability in WA’s South West Interconnected System. Operations and maintenance of the facility will commence by the end of 2021.

Christopher Voyce, an Executive Director in Macquarie Capital, says the relationship between government, stakeholders and the community was integral to securing EPA approval and contracts.

“We’re conscious that WtE technology of this type is new to Australia. What we’ve found is that it’s vital to bring all of the relevant stakeholders along on the journey to understand the new technology, including all levels of government, residents and the community,” Chris says.

Keppel Seghers moving grate technology used extensively in Europe will be implemented in the plant, which is expected to reduce carbon dioxide emissions by 400,000 tonnes per year.

Macquarie has a longstanding international track record in energy, including renewable energy, as an adviser, financier and developer. Chris says WtE is a sector in which Macquarie has substantial expertise. For example, in Korea, Macquarie established ReClean, which treats 540 tons (490 tonnes) a day of food waste to produce compost, animal feed and bio-diesel.

This expertise has been applied to the Kwinana project with an eye for the nuances of the Australian market. Having invested debt and equity in more than 20 waste and biomass projects across the globe, Macquarie has developed relationships worldwide with financiers, engineering, procurement and construction contractors, technology providers and operators.

Chris says Macquarie is able to work through any technical and commercial issues to reach consensus, all while satisfying the requirements of its partners, including lenders and equity.

He says that one of the attractive qualities of the Kwinana project was that the councils involved saw WtE as the most appropriate strategy to achieve landfill diversion in a location that had received widespread community support.

“From a stakeholder standpoint, we entered this project at about year five of an eight-year development process, so part of our due diligence was to make sure the proper community consultation and environmental approvals had been sought and obtained,” Chris says.

“We felt Phoenix [Energy] had done a good job of generating community support, working with the state to obtain the right environmental approvals and councils to ensure the project was meeting their needs as well.”

As a key investor in the project, Chris says Macquarie’s aim is to set the project up for success in the construction period through to commissioning and operations.
“It is a long process. You have to really start with building the social license to operate and then maintaining it through construction and into operations. To that end, as part of the project, we are planning for an education centre to educate local communities and schools on what the project is doing and its benefits,” Chris says.

While building stakeholder and community support is vital, Chris stresses the next important factor to a project’s success is working with high quality delivery, technology supply and operating partners, praising the reputation of all stakeholders involved in the development process.

Chris adds that the technology and plant design was chosen as it was flexible enough to withstand potential changes in the waste stream as state and local government policies may evolve over the life of the project. He says this has been demonstrated in Europe over several decades as WtE plants using the technology can adjust their processes in line with contemporary environmental legislation.

Chris says the Keppel Seghers moving grate technology has been deployed more than 100 times globally and with an established supply chain in the Asian region is well placed to supply into Australia.

“Moving grate technology is able to deal with variability in the composition of waste, while being able to operate reliably.

“This is particularly important given the municipal solid waste and commercial and industrial waste the project is targeting and the changes in waste composition that will inevitably occur as recycling practices improve over time,” he says.

Furthermore, Chris says when the project is operating at capacity it will prevent more than 400,000 tonnes of carbon dioxide being emitted each year, the equivalent of taking 85,000 cars off the road. It will do so by capturing energy from waste in a controlled environment, while crowding out higher carbon emitting sources of electricity generation.

He notes that the WA Government established Kwinana as a strategic industrial area to ensure industrial land close to the Perth metropolitan area with access to road, rail and port infrastructure and suitably buffered from residential areas was available for projects such as the Kwinana WtE project.

With its first major investment in Australian WtE making swift progress, Macquarie Capital is now looking to expand on its capabilities across other innovative projects.

Chris says the team will continue to keep a close eye on upcoming projects that are economically viable and follow the waste hierarchy, seeing potential in organics and further WtE projects.

“We’re looking for investment opportunities that provide strong and sustainable long-term cash flows. So that’s the lens through which we will view future opportunities,” Chris says.
Over the first week of Queensland’s container deposit scheme, Containers for Change, more than five million containers were collected.

Similar to NSW’s Return and Earn, the scheme provides Queenslancers a 10-cent refund for each valid container collected and returned at an over-the-counter depot, reverse vending machine, or at a mobile or pop-up refund point.

The scheme has rolled out across the state, from the Sunshine Coast to Mount Isa. In Toowoomba and Goondiwindi, waste company E&E Waste is an authorised refund point operator. It is responsible for collecting, counting and sorting eligible containers and handling their transport to a processor.

With a more than two-hour drive between the two towns and a significant number of rough regional roads, E&E Waste needed to upgrade its fleet with a vehicle that could handle the journey.

Shane McGuire, owner and founder of E&E Waste, says the hookloader and truck needed to be able to carry up to 15 tonnes of glass in its bins.

“We decided to go with a Volvo for the truck as we have six Volvos already and we like how they operate and handle. For the hookloader, we decided to go with Palfinger. I’d heard about them at a recent truck show, and they had a solid reputation for being reliable,” he explains.

“We needed a custom designed vehicle, but we didn’t have the time to chase each part, which is why Palfinger’s turnkey solution was so important to us. They made sure to handle all the busywork, which gave us the time we needed to focus on our own operation.”

Palfinger supplied E&E Waste with a T22A DINO Hookloader mounted on a FM13 Volvo, a 22-tonne unit that can handle a 15-tonne payload, specifically designed for bins with low clearances.

The hookloader is made up of high-tensile steel to reduce its weight and long-term fuel costs. Each part of the hookloader has been cast to help increase its longevity and robustness with an articulated arm to allow for low loading and reduce load sliding.

Glen Woodrow, Palfinger National Account Manager – Hook and Skiploaders, says Palfinger had analysed and researched the preliminary specifications of the vehicle to ensure it would be a good fit for E&E’s fleet.

“We have an intimate knowledge of what is required especially as hookloaders are often tailored to suit their individual application. We conducted audits on the bin fleets and looked at each type of bin that E&E Waste would handle, their target weight capacity and the type of vehicle the hookloader would be attached to,” he says.

“One important factor that went into the design of the vehicle was...
its intended environment. Everything from its rear bar to the mudguards is heavy duty so it can travel through arduous locations across an enormous area.”

The hookloader is also equipped with a Loadrite weighing system to accurately measure the truck’s payload and a Bergero hydraulic roll tarp to keep the load covered and meet regulations.

Safety features include a six-camera system for additional visibility while operating the hookloader and high-powered LED worklights located at the back of the cab and on the bumper bar.

Glen says the design of the hookloader will allow it to collect a broader range of bin designs that a standard hookloader wouldn’t be able to pick up. “One of the customised additions on the vehicle is the two-position road train rated Ringfeder that has been designed to allow it to tow a 45-foot semi-trailer and a smaller 20-tonne trailer for other equipment,” he says.

Engineering and manufacturing company Obadare worked closely with Palfinger and E&W Waste to build the custom ring feeder.

The design of the ring feeder needed to account for the bins, which are manufactured by different companies, so avoiding clashes in the final design was vital. 3D computer aided design models were used to fulfil the specific requirements of the client.

Adrian Gustafson, Obadare Engineering Manager, designed the Ringfeder and says the collaboration and communication from Palfinger and E&E Waste were critical to getting the design right.

“If there were any potential issues, we were able to locate them early on and update them, so the final product would be able to handle the rigorous workload and its environment,” he says.

Because Palfinger is part of the Gough Group, E&E Waste is able to take advantage of its service partner network.

Glen says there are 37 locations which are equipped with factory-trained servicing and spare parts support from Brisbane to Port Hedland and everything in between.

“With Gough Palfinger service locations in both Toowoomba and Goondiwindi, E&E Waste can be confident it will be supported when and where its required.”
AMCS GROUP HAS DESIGNED AN ALL-ENCOMPASSING PLATFORM TO HELP WASTE BUSINESSES OPTIMISE THEIR COSTS IN A PERIOD OF DISRUPTION.

Australia’s waste management industry continues to undergo rapid change.

As China has been the market for more than a quarter of Australia’s recyclables, the decision to stop sending 24 categories of solid waste offshore at the beginning of 2018 had a direct impact on the commodity price of recyclables. MRA Consulting’s China National Sword: The Role of Federal Government report shows China’s withdrawal from trading recyclables has resulted in lower prices for paper and plastic.

The higher costs have placed additional pressure on recycling processors and their contractual relationships with local governments. Earlier this year, in February, the National Waste and Recycling Industry Council warned that without urgent action to address market changes, Australian recycling contracts could face default. In the ensuing months, some local government and materials recovery facilities underwent contract renegotiations.

Among these challenges, many councils were in 2018 faced with the difficulty of absorbing any potential losses to prevent increasing rates.

To ensure that these costs are absorbed with minimal disruption, collection and recycling businesses can take advantage of the latest software. AMCS Group, a supplier of waste and recycling software, offers a range of systems to make business improvements ranging from contract pricing to eliminating revenue leakage in places not immediately noticeable, to compliance, staff training, administration and planning and fuel savings.

For example, route optimisation can help reduce vehicles on the road by ascertaining the best use of resources for a collection company’s fleet, while also reducing carbon dioxide emissions. Auditing and automating pricing can eliminate the possibility of fraud – safeguarding a business against any potential breaches. Standardisation can ensure a business flows seamlessly with no breakdown in processes or lost revenue due to mixed-up paperwork or rekeying data. In meeting the challenges of new waste management rules and regulations, exporting documents with waste directives and legislation can support compliance.

To help support the end-to-end process, AMCS Group bundled all these areas under one platform. The AMCS Platform is an enterprise-grade platform that runs in the cloud. It aims to drive automation and delivers end-to-end standardisation and optimisation of a company’s business processes, resulting in sizeable cost savings.

The modern, scalable platform bonds industry-specific software with robust optimisation capabilities, ingenuity and on-vehicle technologies.

The AMCS Platform covers areas of the waste industry ranging from municipal to commercial and industrial, construction and demolition wastes, recycling and materials recovery facilities.

For municipal waste collection,
AMCS offers route planning, vehicle technology such as weighing and RFID, summer and winter services and customer service support. The platform provides real-time visibility of the collection service progress, providing access to customer and service data to allow incoming queries to be handled on the spot. The result helps to minimise call-out costs and customer service levels. To further reduce interaction with call centres, the AMCS Digital Engagement platform and customer portal provides a customer-facing, self-service solution. In-cab and vehicle solutions can be tailored to suit the individual municipal functional requirements and budget.

AMCS’ commercial and industrial and construction and demolition waste services can be used for frequency-based services as well as on-call services. The system uses intelligent optimisation to enable its customers to extract maximum value from their available budgets. AMCS supplies a proprietary certified weighing system for waste collection that integrates fully with the AMCS waste management solution for pay-by-weight or recycling monitoring programs.

In terms of recycling services, AMCS covers a solution for recycling, material trading and international exports of raw materials. This comprises inbound management, including material grading and recording contamination, in addition to stock management and recycling processes. The system can manage outbound streams, including material sales and trading.

The AMCS platform integrates with a large variety of weighbridge indicators in real time, eliminating weigh ticket data double entry. For materials recovery facilities, AMCS Enterprise Management covers the entire process, including grading inbound material and recording contamination.

Michael Bates, Head of AMCS ANZ, says the AMCS Platform predicts actions while supporting the ongoing transformation of the waste industry.

“The AMCS Platform covers the entire chain. It’s about extracting the most value from every process to deliver results in efficiencies – that’s how you make significant cost savings,” Michael says.

“When choosing software, companies can go for solutions that address specific issues versus the end-to-end process of course. But keep in mind, an end-to-end solution will make the biggest impact in terms of process improvements.”
With a harbour that sees more than 500 million tonnes of iron ore exported from Australia, the Town of Port Hedland is deeply connected to the mining industry.

Located in WA’s Pilbara region, the town is relatively isolated. As is the case with many regional communities around the country, the nearest town, Karratha, is a two-and-a-half hour drive away.

Christopher Adekunle, the Town of Port Hedland Council Manager for Waste Operations, says when he arrived at the town, there were significant opportunities for improving the organisation’s waste management practices.

“Mining is the primary concern of the town with a lot of the community making their living through the industry. When the mining boom was in full swing, there was not a great deal of focus on best practice waste management,” he explains.

“When things calmed down, the council analysed with a view to identifying where improvements could be made. One of the biggest challenges we faced as a regional area was implementing a kerbside recycling service when there was no infrastructure to support it.”

Christopher moved to Port Hedland in 2017 with 16 years of experience in the waste industry. He had learnt strategic waste and resource recovery methods for landfill diversion in previous roles at Veolia and the UK Government’s Department for Environment, Food and Rural Affairs.

He relocated to Port Hedland to transition into an operational focused role with the council. At the time, the council was facing issues with non-compliance of its landfill asset, significant problems with illegal dumping, non-compliant tyre stockpiles and no kerbside recycling program.

As a result of the mining boom, the landfill had significant legacy issues in the form of more than 70,000 waste tyres. This was a significantly higher volume than their licence allowed and was encroaching on the boundary of the landfill area.

Christopher says the ideal way of handling the tyres would be to recycle them, but it was not economically viable due to the lack of local infrastructure and extreme distance from the market leading to high transport costs.

“Our solution was to shred the tyres and partially bury them at the edge of the landfill. This means we’re able to recover them if the economic factors in the Pilbara make it more viable to recycle them or use them for a potential waste to energy fuel source.”

The Town of Port Hedland built a business case with data gathered from...
Mandalay Technologies’ platform to look at solutions for addressing the issues facing the landfill.

“By accessing the data, we were able to analyse our current practices and found they were not good enough to match the amount of waste we needed to process. We then looked at ways we could improve our methods of resource recovery and material compaction,” Christopher explains.

“The weighbridge software allowed us to track every transaction, assisting the council to identify materials and to organise the volumes of waste inbound and improve our landfilling processes.”

Data from the weighbridge software are stored on the cloud, meaning the council can access the information from kilometres away, allowing for improved communication and access to landfill operations, budgeting and land use.

Christopher says that the council has been able to improve on cell development and footprint management through this data analysis.

“Prior to leveraging this data to improve our landfilling process, the landfill was expected to expire in less than six years. In less than a year, we’ve been able to improve the lifespan to 16 years,” he says.

Data has been critical to supporting a business case for implementing kerbside recycling services, as well as the development of a Community Recycling Centre that will provide residents with access to a transfer station, reuse area and as a future site for a container deposit scheme depot.

Using data gathered from Mandalay, the Town of Port Hedland was able to demonstrate the economic benefits of implementing a kerbside recycling service, despite the distance to markets. The council plans to use the software to track disposal volumes and deliver community engagement initiatives and are looking for a service that can provide real time images to assist in solving issues during the collection. Christopher says Mandalay has helped the Town of Port Hedland by providing them with the necessary data to support waste management strategies that have been employed by councils in similar locations around Australia.

“With our regional neighbours located hours away, it imposes certain economic challenges, which is why it is beneficial to learn from other regional councils in similar situations and adopt what has worked for them.”

Christopher says the council is now in the process of hiring a community engagement officer who will work closely with residents to get them excited for the new services.

“By taking advantage of the technology we have on offer, the council and our community can really focus on establishing excellent waste management that is in line with any other metropolitan area.”
Mixed waste challenge

ELB EQUIPMENT IS OFFERING A SOLUTION TO REMOVE CONTAMINANTS FROM MUNICIPAL SOLID WASTE FOR COMPOSTING FOLLOWING THE EPA NSW’S RECENT ANNOUNCEMENT ON MIXED WASTE ORGANICS.

In late October, the NSW EPA announced it would stop the restricted use of mixed waste organic material on agricultural land. According to a statement by the then NSW EPA Acting Chair and CEO Anissa Levy, the restricted use of the mixed waste organic material had been permitted on the basis that it provided beneficial reuse of waste. She said extensive independent research commissioned by the EPA found that it no longer passed that test, with limited agricultural benefits and a potential risk to the environment from contaminants such as plastic and glass.

The announcement also revealed the EPA would cease its use on plantation forests and mining rehabilitation land until further controls can be considered. As a result of its decision, the EPA revoked the Resource Recovery Exemption and Order.

As the organics recycling industry responds to the decision, technology supplier ELB Equipment has been liaising with its clients to provide them with a timely solution.

Christopher Malan, Managing Director of ELB Equipment, says the key customer base affected by the decision are those dealing with red bin waste.

“Because the applications for it are already, by nature, limited due to the lack of source separation and potential contamination that exists, mine site rehabilitation in particular was an attractive method for disposal of this material as the sensitivity to the product was generally lower,” he explains.

Christopher says the concerns surrounding the revocation were borne out of small particle contaminants such as metal, glass and plastic – noting that Europe leads the way with its landfill redirection and recycling, in spite of a compost standard that places exacting screening measurements and cleaning requirements on small particles.

Christopher says that one of the challenges is that it becomes harder and harder to remove particles from the waste stream as they become smaller.

To help processors meet the ongoing challenges of quality compost, ELB has continued to supply the latest in technology from Komptech – a technology developer of mechanical shredding, composting, screening and separation products.

“Europe has had more and more exacting standards for processors to meet and as they’ve gone along, technology providers such as Komptech have stepped up to that challenge and provided newer and more innovative technologies to deal with the issues,” Christopher says.

Komptech’s latest technology has the ability to screen out glass, plastics and metals. Furthermore, by December 2023, all EU member states will be required to implement separate biodegradable waste collection, according to draft legislation. At the same time, he concedes their source separation is generally superior.

Christopher says that one of the challenges is that it becomes harder and harder to remove particles from the waste stream as they become smaller.

To help processors meet the ongoing challenges of quality compost, ELB has continued to supply the latest in technology from Komptech – a technology developer of mechanical shredding, composting, screening and separation products.

“Europe has had more and more exacting standards for processors to meet and as they’ve gone along, technology providers such as Komptech have stepped up to that challenge and provided newer and more innovative technologies to deal with the issues,” Christopher says.

Komptech’s latest technology has the ability to screen out glass, plastics and metals. Furthermore, by December 2023, all EU member states will be required to implement separate biodegradable waste collection, according to draft legislation. At the same time, he concedes their source separation is generally superior.
received significant interest from its customers regarding the product since the EPA announcement. While units have yet to be released by ELB in Australia, the machines have been used in Europe extensively.

He stresses the challenges of extracting small particles, noting that the Komptech technology is no silver bullet and requires a holistic approach to solving the problem. “If you start at the beginning with a view that at the back end of this, the densimetric table is going to be doing its work, to try and remove the particles, you can make it work,” he says.

Craig Cosgrove, Komptech Sales Manager, says the machine is a proven solution for handling materials with contaminants over two millimetres, with pre-screening critical to reducing volumes and drying ensuring the product doesn’t bind up in the machine.

Prior to entering the densimetric table, the material goes through a number of clarifying stages to remove larger contaminants, including a preliminary composting process to dry the material to ensure moisture does not exceed 30 per cent.

Once the material arrives to the machine, it is pre-screened to a size of 10 to 15 millimetres via drum or star screening. The resulting fines are screened for contraries with one or more air separator tables.

The tables are tilted vibration plates with two-millimetre apertures so that anything smaller can fall through the screens. An air current is passed upward through the screens and out through fans, extracting the plastic, films and lighter materials. The stream then passes through a cyclone which removes dust and fine particle organic matter, allowing the plastic to continue onto bins where it’s collected. As the tables vibrate, they are also on an angle so that the lighter material rolls up the screens in one direction, while the glass and other inert materials tend to roll down in the other direction.

Craig says the total throughput is 12 tonnes per hour, which is why a total solution is important.

Once the process is complete, material fines that passed through the screening and cyclonic filters are reunited with the organic material, resulting in a clean organic process to return to the composting process. Contaminants such as sand can be further recycled, with any remaining residuals going to landfill.

Christopher says ELB Equipment views its relationships with its customers as important partnerships. With eight branches across Australia and New Zealand, the company is on hand to provide ongoing support to its customers with service technicians and parts on shelf.

In spite of any challenges ahead in NSW, Christopher notes the problem is surmountable with the right partnerships, including with the EPA, technology providers and the community.

“We would encourage anybody out there with concerns about this decision or would like some advice on how they can modify their process to better comply with EPA regulations or give them some other avenues for disposal to call us and we can discuss options and provide case studies on what’s being done overseas,” he says.

---

FLOWCHART - INSTALLATION FOR COMPOST REFINEMENT

20 t/hr compost
0.4 t/m³
0 – 80 mm
Moisture: max. 40%

10 to 12 t/hr
< 20 mm

8 to 10 t/hr
> 20 mm

>20 mm Sand

>20 mm Sand

Densimetric table

Compost feeder

Drum screen 18/45

The mobile densimetric table has been used extensively in Europe.
Battling sovereign risk

As Malaysia, Thailand and Vietnam all move to crack down on waste imports, Australia and many global markets are now being faced with a need to look to their own domestic processing capabilities.

China’s ban on 24 categories of solid waste dramatically changed the landscape for the western recycling market.

Countries such as the US, UK and Australia have all had to respond to the change in markets after being given notice in the middle of last year that the ban would take hold in 2018. It follows previous customs import inspections through China’s Green Fence Program – an initial crackdown on scrap loads. The ban on contaminants with 0.5 per cent or more took effect on 1 January 2018.

But since then some pockets of the recycling commodities trading market have merely turned to other countries such as Malaysia, Vietnam and Korea. In the UK, data from HM Revenue and Customs, a non-ministerial department responsible for tax collection, showed that UK plastic waste exports to Malaysia tripled in the four months following the ban.

NEW WASTE CRACKDOWNS

But as recent months have shown, even many of the replacement countries are cracking down. Earlier this year in...
August, the Vietnamese Government issued a statement highlighting the need to “prevent waste from entering Vietnam to keep the country from becoming a dumping site”.

The government announced it would stop issuing new licences for waste imports in a bid to tighten illegal shipments.

Malaysia also tightened its restrictions by revoking the import licences of 114 factories that process plastic waste as they were requested by the country’s Housing and Local Government Minister Zuraida Kamaruddin to lift their environmental standards.

Thailand in June issued an order prohibiting imports of electronic and plastic waste, with seven companies authorised for e-waste imports and 26 allowed to import plastic waste prohibited from making further imports. Imported items stored at ports have also had to go through further inspections. Local media reports indicate that the Thai Government will ban imports of e-waste and plastic waste, with plastic waste imports to be banned over the next two years and no specific date set for e-waste.

As at June, about 33,565 tonnes (37,000 tons) of e-waste had been imported to Thailand this year and an additional 108,862 tonnes (120,000 tons) of plastic waste. In the US, scrap plastic exports dropped by 94 per cent after the ban took hold, according to US Government export figures.

In a sign the issue has escalated further, the Malaysian Government’s Science, Technology and Environment and Climate Change minister Yeo Bee Yin indicated in a Fairfax Media report in late October it would be taking further action to solve its waste problem. Minister Yin told Fairfax Media the country would do its “very best to ensure that Malaysia not be the plastic rubbish bin of developed countries”.

“I am calling out to these countries and other countries too, we have a problem. We have to solve our own waste [problems] in our own backyard. It’s a message we wish to convey internationally. [And] it is not only plastic waste, but also e-waste,” Minister Yin told Fairfax Media.

Prior to freezing the import on plastic waste, from January to June, Fairfax reported that Malaysia had received 195 million kilograms from the US, 104 million kilograms from Japan, 95 million kilograms from the UK and 34 million kilograms from Australia.

**SOVEREIGN RISK RISES**

To get a sense of the impact on the waste industry, Waste Management...
Peter Schmigel, Chief Executive Officer of the Australian Council of Recycling, tells Waste Management Review that sovereign risk in the international recycling market is increasing.

“It appears that basically they’ve (Malaysia) gone from tightening up their local restrictions and expectations around their own kind of recycling plants to now looking at the supply to those plants and setting up new kinds of provisions and restrictions on that, including Australia,” Peter says.

“It comes at a tough time. We’re already being confronted with the reality of China. If some of the alternatives to China are harder and harder to access that places more and more pressure on kerbside recycling.”

Peter says that ACOR is looking into the matter and its impact on members.

“The overall trend is those global markets are getting tougher to access. This is just another indication of that and another reason why we have to get serious about domestic capability.”

He says that a number of members in response to China’s ban were diversifying their brokerage and export arrangements into other parts of Asia.

“Based on existing supply chains and historical commercial relationships some of them were finding that easier and some were finding that harder. Some of these organisations are more integrated into East Asia and some less.

“Right across the membership and industry people are saying to themselves we need to do something and we need to look to our stakeholders to do something with us to ensure that our reliance isn’t on these global markets.”

Peter notes the businesses had always been diversified but many of these sovereign risks had affected commodity prices.

“There’s no doubt that some of these things are in the negative territory (commodity prices). I would estimate in the last financial year, NSW alone, the (recycling) industry has probably been $40 million in deficit when it comes to kerbside recycling commodities.

“A lot of these companies are smart and have actually budgeted for losses because they anticipated this cycle. But there’s only so many years that you can budget for a loss before you start to say should you be in this business or not be in this part of the business?”

He says that most of the material being exported in Australia is paper, noting that sufficient technological capacity exists onshore for such processing, with some additional investment required to clean the material to go into paper mills.

**ONSHORE CAPABILITIES**

MRA Consulting’s discussion paper released in April this year China National Sword: The Role of Federal Government indicates that China had been the world’s largest importer of recycled paper and plastics. It shows Australia exports about 60 per cent of its recovered fibre and 20 per cent of
I am aware of three projects and I am not aware that any of them have significant government support.”

He notes that France has also introduced lower tax brackets for businesses in 2019 producing recycled plastic over virgin materials – a policy which will help support the domestic market.

**PLASTIC IMPACT**

David Hodge, Managing Director of Plastic Forests, has seen the impact of the various government bans on the local plastics industry. He says that he’s had discussions in recent months with Chinese recyclers that had been processing up to 5000 tonnes of plastic per month, but now moved a number of their factories to the UK and Korea. He says that Chinese recyclers had noted anecdotally, months prior to the Malaysian Government’s import licence revocation, that the nation would be closing its doors. India, the ninth largest importer of the world’s plastic waste, has also not issued any plastic licenses over the last three years, according to media reports.

“You can’t export plastic film easily into China, which has resulted in a shortage of recycled resin now in China.

“This ban has driven prices and demand for recycled resin up globally, but more importantly it’s driven demand for resin from South East Asia up enormously because there’s much lower energy and labour costs than in the western world,” David says.

David says that when it comes to recycling plastic film, Vietnam and Korea emerged as options, but Vietnam was one of the first to shut down due to the overwhelming of its ports’ capacity. Malaysia, he says, has tighter controls, with import licences suspended.

*The Chinese import ban and its impact on global waste trade research paper published in the journal Science Advances earlier this year showed an estimated 111 million tonnes of plastic waste will be displaced with the new Chinese policy by 2030. East Asia and Pacific countries have accounted for 75 per cent of global plastic waste imports since 1988, according to the research. OECD members contribute to 64 per cent of all exports, with the research suggesting that the trade of plastic waste occurs largely between OECD and East Asia and Pacific countries.*

David says Plastic Forests had received numerous requests from Chinese and Hong Kong businesses seeking recycled resin.

He adds that he’s had a number of meetings in the past few months with major Australian waste management companies that were all looking at local processing.

David notes that local markets for HDPE resin exist, as do recycled PET resin, which is in particular high demand. He says that demand for recycled LDPE and LLDPE resin is weak, due to a shortage of value-adding manufacturers.

One of the key issues for resin, David says, is price competitiveness on the international market.

“The problem is that the resin price is so cheap that by the time you pay Australian wages, electricity and environmental standards, unless you’re super efficient, there’s only a couple of businesses in Australia with the scale to supply resin to China.

“In Australia, it’s hard enough being a manufacturer – let alone being a manufacturer of a commodity item. Unless there’s going to be tax, power or employment breaks, we are going to have to look at how we seriously address the local end markets for the hundreds of thousands of tonnes of plastic that are now stranded here with nowhere to go.”
The Federal Government’s target for all Australian packaging to be 100 per cent compostable, recyclable or reusable by 2025 aims to spur additional action from manufacturers and suppliers of local products to rethink their strategies.

But many organisations, such as Campbell Arnott’s Australia, have been quietly achieving in the background.

Campbell Arnott’s Australia has spent decades honing its sustainability strategy and boosting the recyclability of its materials, including partnerships with REDcycle, which processes traditionally hard-to-recycle soft plastics.

As a member of the Australian Packaging Covenant Organisation (APCO) since 2010, and signatory to its Sustainable Packaging Guidelines (SPG), Campbell Arnott’s Australia has been working with its suppliers to develop a consistent sustainability strategy. Between the two brands Arnott’s and Campbell’s, the organisation has a positive story to tell.

Earlier this year, Campbell Arnott’s Australia won an APCO Award for Outstanding Achievement in Packaging Design.

Liza Vernalls, Packaging Director Asia Pacific at Campbell Arnott’s Australia, says that materials the company uses in production, such as cartons, corrugated board and cans are all recyclable.

“We are looking to the 2025 commitment and feel that we are pretty close to achieving elements already because most of our packaging is already recyclable,” Liza says.

Liza says the company extensively reviews its structural packaging before committing to the design and development stage, ensuring the most efficient use of materials. This applies to not just its consumer packaging, but also at a business-to-business level.

She says maximising the palletisation of materials is also a key element of the SPG review to ensure Campbell Arnott’s Australia can reduce the number of trucks on the road across its distribution network. In 2017, the company redesigned its corrugated boxes to reduce their weight and inbound delivery frequency.

“Over the years we’ve reviewed up to 100 per cent of packaging to date as they’ve come through on various projects,” Liza says.

Liza says that there is an additional assessment of the process at the gate to ensure the materials align with the SPG.

With refresher training conducted every two years, Campbell Arnott’s Australia is working continuously to drive packaging efficiency across its supply chain.

As one of Australia’s largest suppliers of snack food, it is also important that Arnott’s Australia products end up in the recycling stream. For this reason, Liza says that the company also plans to include the REDcycle logo on the next iteration of its packaging to boost consumer participation.
consumer awareness of the material’s recyclability. She says that Arnott’s Australia also actively participates in APCO’s Soft Plastics Working Group, which is currently looking at the composition of soft plastics and whether they could one day be part of kerbside recycling on a larger scale.

It is also working on upgrading all of its artwork to the Australasian Recycling Label (ARL) to provide clear guidelines on the recyclability of materials. Liza says she anticipates all material will be transitioned to the ARL over the next two years.

“This will alleviate a lot of the confusion on recyclability. We’re looking at a transition over the next two years and what we’re starting with is our new product development, or where we have a graphics or design update,” Liza says.

She anticipates the first ARL-labelled product will hit the market in May next year.

**RECYCLED MATERIAL SOURCING**

In the meantime, Arnott’s Australia is working within the constraints of the market to ensure its materials are recyclable. For example, Liza says that one issue with soft plastics is that the films can contain metal, while Arnott’s Australia packaging is either single layer or lamination and contains no metal.

In addition, while materials such as PET are recyclable, Liza says they can be difficult to come by, but the company sources these materials to the best of its ability.

Due to food safety and material availability, Campbell Arnott’s Australia’s recycled procurement policy only applies to certain materials, which will continue to be evaluated in future tender opportunities. However, by making changes such as switching to PET sleeves on PET bottles and using recyclable PET trays in its in-tray biscuit range, Arnott’s Australia has reduced its flexible film to landfill by 95 tonnes.

“We ensure our biscuit trays are clear PET. We don’t use coloured PET because we know from visiting recycling centres that that can be an issue in terms of discarding the waste,” she says.

“We would love to use more recycled PET in our bottles. However, there is a lack of availability at the moment.”

Liza adds that there is no recycled material that can be safely put into laminates, but the company is working with its packaging supplier Amcor to understand and continuously investigate in this area. Amcor is also working to the 2025 target.

When it comes to Campbell’s packaging, Liza says many of the company’s materials have been designed for recycling, including cans and PET bottles.

With four manufacturing sites in Australia, including in Queensland, South Australia, Victoria and NSW, the company has reduced its onsite waste to landfill by 90 per cent since 2010. To further reduce its waste to landfill, Campbell Arnott’s Australia is looking at opportunities for onsite soft plastic recycling and other materials, such as pallet wrapping.

But the challenges are ongoing for the company as it seeks to continuously look for improvement in packaging sustainability.

“We’re understanding and digesting what the 2025 goal means for us and fully supportive and aligned to how we get there,” Liza says.
After reviewing its waste strategy earlier this year, the WA Government released a draft Waste Strategy 2030. In a WA first, the highly comprehensive document sets mandatory targets and a consistent approach to collection and waste education.

Developed in consultation with the WA community, industry and government, the document comprises objectives, targets and headline strategies across avoidance, recovery and environment protection. It is currently undergoing a second round of consultation with feedback to be provided to the state’s environment minister, according to statutory authority the Waste Authority WA.

In avoidance, the document calls for a 10 per cent reduction in waste generation per capita by 2025 and 20 per cent by 2030. In recovery, it calls to increase material recovery to 70 per cent by 2025 and 75 per cent by 2030, while recovering energy only from residual waste.

To protect the environment, the target comprises no more than 15 per cent of waste generated in Perth and Peel being landfilled by 2030, while disposing of all waste at better practice facilities. A 10 per cent gap between material recovery and landfilling has been included for energy recovery, as distinct from 75 per cent material recovery.

In 2014-15, WA generated more waste than people in other Australian states and territories while disposing of the second highest amount of waste to landfill. Furthermore, Western Australians had the equal second lowest rate of resource recovery at 48 per cent, up from 34 per cent in the nine years to 2014-15.

According to the strategy, the poor performance partly reflects some of the unique characteristics of WA such as its geographical size, isolation from markets, vast regional and remote areas and heavy reliance on mineral and resource industries.

The headline target of the new strategy is effectively to deliver a harmonised kerbside collection system that includes food organics and garden organics (FOGO) in all Perth and Peel regions by 2025 provided by local governments with funding support from the state.

Marcus Geisler, Waste Authority Chairman, highlights in the strategy that the waste management sector is in a transitional phase and will require clear direction and guidance going forward that may include more directive approaches over voluntary ones.

**SHARED RESPONSIBILITIES**

Speaking with Waste Management Review, Marcus says one of the issues of the previous strategy was it focused heavily on municipal solid waste – which is only 25 per cent of WA’s waste stream.

Marcus says the current government was able to see the need for a modern strategy which focuses on a shared responsibility between federal, state and local governments, the waste industry, business sector and the community, individuals and households. He says the new strategy has mandatory targets and leads by example with the state government taking action.

“With the new strategy, we split strategies and actions between the waste generators and the waste managers and I think that’s a first in Australia,” he says.

The strategy divides the various responsibilities up into the community, local and state government and industry. When broken down by stream, the new strategy introduces a target of 70 per cent commercial and industrial (C&I) waste recovery for government and industry by 2020, which increases up to 2025 and 2030. For construction and demolition (C&D) waste, the
target is to increase material recovery to 75 per cent by 2020. For municipal solid waste recovery, the community target is to increase it to 65 per cent in Perth and Peel by 2020 and 50 per cent in major regional areas.

OVERARCHING GUIDELINES
Developing statewide communications to support consistent messaging on waste avoidance, resource recovery and appropriate waste disposal behaviours was another headline strategy.

“The only way to get consistent messaging is if you have a consistent collection system, because otherwise you have all these various messages out there and it’s just confusing,” Marcus says.

“All the materials recovery facilities for the yellow lid bin have now agreed on an acceptance list, so we’re moving towards a consistent collection system with colour coding for the yellow lid, red lid for residual and lime green for food and garden organics. That has to be in place in metropolitan areas by 2025 and that’s a state government commitment.”

Community campaigns such as Own Your Impact WA, a statewide education program, will be rolled out to reduce waste generation over the long term, with a goal of influencing the major waste generators such as supermarkets.

Marcus says that the Waste Authority has also spoken to materials recovery facilities (MRF) operators in collaboration with Western Australian Local Government Association (WALGA) to use the same list in their local government tenders.

He adds that this consistency will go a long way to reducing household contamination, while noting that additional funding may be provided to MRFs to upgrade their existing infrastructure.

“We’re largely aligned here – all the MRFs have optical sorters. There were eight MRFs in WA and now there’s only three left because all the material outside of metro is baled and brought to the Perth MRFs.”

Marcus says that getting all Perth and Peel councils onto FOGO also supports a consistent approach to waste management in the state.

According to Lynne Craigie, President of WALGA, to meet all of the targets for municipal solid waste, councils will need effective programs and other support mechanisms. She cites programs such as Love Food Hate Waste as effective at achieving waste avoidance, while noting programs could be funded by greater levy hypothecation.

“For the resource recovery and landfill diversion targets, the association is recommending that, as a priority, the state government models feasible configurations of infrastructure, programs, engagement and service delivery in both metropolitan and non-metropolitan areas to ensure that the targets in the strategy can be achieved,” she says.

Turning to the headline Perth and Peel FOGO target, Lynne says that while local government is supportive of better practice approaches to kerbside collection, the state government needs
to be mindful of existing contractual arrangements.

“Local governments that have entered into waste to energy contracts have questioned if and how the adoption of a FOGO system is to be enforced, and how this will then impact on their existing tonnage commitments and contractual obligations,” Lynne says.

“The business case and end markets for FOGO systems need to be identified and communicated. From discussion with the sector, it is suggested that the target for FOGO should include the Bunbury Harvey region, as the majority of those local governments already have this system in place.”

**RECYCLATE PLANNING**

The strategy also focuses on implementing sustainable government procurement practices that encourage greater use of recycled products and support local market development.

Funding will be provided to promote the recovery of more value and resources with an emphasis on focus materials, while reviewing the scope and application of the waste levy to ensure it meets the objectives of the Waste Strategy 2030. Marcus says that more news on the levy evaluation will be expected shortly, with the environment minister currently receiving advice on a future pricing structure.

The new strategy also looks to review and update data collection and reporting systems to allow waste generation, recovery and disposal performance to be assessed in a timely manner.

To improve planning, the government will undertake a strategic review of WA’s waste infrastructure, including landfills by 2020, to guide future infrastructure development.

“"We want to adopt a needs-based approach and how we can make sure there’s land close to where waste is generated, with buffers available there then industry can work the rest out,” Marcus says.

Lynne says that WALGA supports sustainable procurement in local government, including the use of recycled construction materials in civil works and will continue to encourage local governments to support reuse and reprocessing of recycled materials.

The waste strategy will be supported by an action plan that will outline specific actions to be implemented to achieve its objectives. The strategy will be reviewed in five years while the action plan will be reviewed on a more regular basis. Local governments will also be required to implement their waste plans to align with the strategies.

“Under the WARR Act 2007, part four division three, local government waste plans have to align with the strategy, which, for example, has FOGO as a policy, and approved by the CEO of the Department of Water and Environmental Regulation. If the waste plan doesn’t align with the strategy, the CEO can knock it back,” Marcus says.

Lynne says the association is recommending the state government actively engages stakeholders in the development of the supporting documentation for the strategy, including but not limited to an action plan, better practice guidance, waste infrastructure plan, data strategy and investment strategy.

Adam Johnson, WA State President at the Waste Management Association of Australia, welcomes the clarity in the strategy and clear expectation across all stakeholders in the supply chain.

“It doesn’t push all the responsibility onto the industry or local government. It shares it well and is not particularly contentious,” he says.

According to Adam, one of the challenges of long-term planning for waste processing and recycling facilities in WA is the fact that current infrastructure is consolidated to the south of Perth, with that in the north reaching its end of life.

“The growth of Perth is to the north, so there does need to be some work in that space. It’s not too difficult to resolve because the councils to the north are much larger, so we are dealing with a small number of councils,” Adam says.

“There’s also a need to look outside the metropolitan Perth and Peel area to look at how we step up regional centres, as there are only a handful of facilities in the towns and we need to look at what infrastructure they require.”
Adam adds that this will likely mean more FOGO recycling so it’s about introducing a third bin.

**BEST PRACTICE**

In terms of energy recovery, the policy states that it is preferable to landfill disposal but should only be applied to residual waste and defined as waste which remains following the application of better practice source separation and recycling systems.

Marcus says that best practice is subject to change as it reflects the government of the day, with FOGO currently the signature policy of best practice. For example, waste to energy facilities, he says, should have in their contracts that they can only receive material from best practice source separation, which must also be adhered to by local governments.

He says he is keen to learn from Europe’s experiences and not end in a position where waste to energy facilities create perverse outcomes regarding the potential for material recovery or an undersupply of recyclate volumes.

“A lot of governments will be in a position if they don’t manage their processing plans carefully where they cannot move to a FOGO system because they’ve committed their volume to a 20-year contract and we’ve tried to overcome that. However that risk is currently low [in WA] because if there’s only one waste to energy facility, we can always coordinate waste from other residual waste sources to ensure true residual waste feeds only,” Marcus says.

**RECYCLABLE CONTRACTS**

Marcus notes that local and state governments are huge buyers of waste-derived materials and have to lead by example. He says specific targets for recycled content and materials in government contracts will be included in the action plan for year one.

“For example, Main Roads will have a target of using 200,000 tonnes of recycled material next year. Government procurement departments will have specific commitments.”

Marcus says that mandatory data reporting will be introduced with the legislation being updated by the state government.

Lynne says that it is important to avoid duplication in developing the waste data strategy as local governments have indicated reporting essentially the same data sections to different sections within the Department of Water and Environmental Regulation.

“The association supports the suggested approach, in the previous consultation, to develop ‘approved methods’ of reporting with training to assist prior to implementation,” she says.

While the waste strategy will be reviewed in the future, Marcus notes that it’s important to set a clear agenda while, at the same time, not being too stringent.

“This is a 10-year strategy in a very fluid market, which is why we are in a transitional phase. You want to have something that gives good guidance but not too rigid, because you need flexibility and innovation,” he says.
FLIR’s thermal imaging technology has been used in facilities across the globe for fire prevention. From warehouses to recycling sites and waste to energy facilities, protecting one’s site from damage is integral to keeping insurance premiums down.

According to Sean Towner, Sales Manager at FLIR Systems Australia, while CCTV cameras can monitor smoke or flames, the disadvantage is that by the time these are observed fire has already set in. Furthermore, a small amount of grey smoke against a grey background will not immediately be noticed.

FLIR’s thermal imaging cameras take the process of fire prevention a step further by providing an early warning response to hot spots that are detected. This is important for all types of sites, in particular those that contain contents prone to spontaneous combustion or are highly flammable.

Sean says the end result is potential savings in the hundreds of thousands of dollars – all the while preventing structural damage by identifying imminent fires at an early stage.

TECHNOLOGICAL ADVANTAGE

Thermal imaging cameras reveal hot spots on a remote video or PC monitor in real time, telling the viewer the precise temperature and location of those spots. The smart cameras can also be programmed to set a temperature at which an alarm signal is generated with multiple target spots and alarms available.

The technology is effective as it allows operators to convert thermal radiation emitted by objects into a thermal image calibrated to a temperature scale. The images are usually unseen to the human eye and can be sent to a digital storage device for analysis.

Sean says that the advantages of the technology are that they need no light whatsoever, the devices can see through smoke and also give an alarm before a fire breaks out. Furthermore, the ability to monitor a large area, produce good contrasted images and guide a fire extinguisher system to minimise damage also provide a high level of support for operators. He says that minimal maintenance is required.

BIOFUEL MONITORING

In Stockholm, Sweden, Söderenergi – the Swedish energy provider for southern greater Stockholm, acquired a FLIR A615 thermal imaging camera to service one of the nation’s largest biofuel co-generation plants.

The facility needed to monitor large woodpiles for spontaneous combustion, as it required a constant supply of biofuels such as forestry waste and wood chips to ensure the plant ran smoothly. The facility burned biofuels to produce combined heat and power.

Regular inspections by visual monitoring and temperature probes allowed the company to previously spot upcoming heat development and prevent fires. However, this approach took many man-hours to do so reliably and thoroughly.

In 2015, Söderenergi issued a tender for a reliable fire prevention and monitoring system and was won by Termisk Systemteknik – a distributor of FLIR cameras.

As part of the installation Termisk installed 12 fixed FLIR A615...
automation cameras to detect hot spots and early fires across an eight-hectare area. Claes Nelsson, Product Manager at Termisk, says the FLIR A615 is one of the proven FLIR cameras that the company likes to use in many of its fire detection projects.

Olle Ankarling, Plant Manager at Söderenergi Nykvarn, says the company risks losing its permit by not being able to control fires or prevent them from breaking out.

“Unfortunately with biofuels you cannot exclude risk entirely, even if all operations are performed by the book. That’s why we need to have a monitoring system to give us an early alarm,” he says.

“It is a very reliable camera and its high resolution enables us to reduce the number of cameras needed to scan the whole area which makes it very economical,” he says.

Claes says the information coming from the thermal imaging cameras is continuously combined with wind, temperature and precipitation data from a weather station.

“This allows the operators of the fuel terminal for example to see how long certain types of fuel can be stored. This is invaluable information for Söderenergi, which allows them to work much more efficiently.”

WASTE TO ENERGY FUNCTIONS

In Hamburg, Germany, high-tech company m.u.t GmbH chose FLIR Systems A40-M fix-mounted cameras as part of its waste to energy system. The cameras were installed in all of its waste bunker installations as the facility uses an incinerator to convert solid household waste into energy to provide heating and power to households in the area. As waste bunkers can be hazardous for the operator and the environment, the stored waste has to be permanently moved, mixed and turned by crane operators.

The thermal camera offers a spectral range of 7.5 to 13 micrometres allowing it to look through smoke and dust. Its 320-by-240-pixel uncooled microbolometer detector provides thermal sensitivity and clear infrared imaging.

One FLIR A40 camera mounted on a pan tilt and placed in appropriate protective housing was able to inspect a surface of up to 2000 square metres. The camera registers the surface temperature of the waste, comparing it to the maximum temperature defined by the waste bunker operator.

The m.u.t engineers divided the bunker surface into zones that depended on the size of the waste bunker. The camera checks every subsequent zone and its FireWire output provided temperature information and infrared imaging to the crane operator’s monitor screen in real time.

The operator was able to steer the camera from his working place. Three alarm levels marked by visual as well as sound alarms warned the crane operator of substantial temperature differences on the waste surface in a particular zone. The waste was then mixed and turned, transferred to another zone or carried directly to the oven for combustion.
Located in the Northern Rivers region of NSW is the Lismore Recycling Recovery Centre, the heart and hub of local waste management services.

The site handles over 100,000 tonnes of waste per year from Lismore City Council and surrounding councils, redirecting as much as possible from landfill. However, around 20,000 tonnes of commercial and industrial (C&I) and construction and demolition (C&D) waste were still being sent to landfill.

Each tonne sent to landfill was costing the council around $81.30 through the state’s waste levy, money that the council would have preferred to use on improving the local community and providing economic opportunities for residents. The materials recovery facility (MRF) at the site sorted through recyclables. However, it required additional infrastructure to handle an increased amount of C&D and C&I waste that was being collected.

A large transfer station shed had been used to sort the C&D and C&I waste by hand and with a bobcat – a process that didn’t allow the council to redirect enough recyclable waste from landfill. Waste from three different streams was being collected at the site, but the council lacked the necessary sorting machinery to process it efficiently.

Kevin Trustum, Lismore City Council’s Commercial Services Business Manager, says the council performed research and audits to find the best way to go about improving the site’s sorting output.

“We went out to tender with a specific location on the site in mind, a large shed that would house a processing plant next to the transfer station,” he explains.

“Four tenders were submitted with a variety of different options and technology.

“We selected Wastech Engineering to build the sorting facility as it provided the council with the optimal combination of technology.”
To assist in its construction, the council received more than $1 million in funding from the NSW EPA’s Waste Less, Recycle More initiative, funded by the NSW waste levy.

Wastech’s system uses a combination of mechanical screening to filter the waste via a two-stage trommel that removes any fines, often made up of dirt and fine construction waste, from the inbound material. Removing the fines makes sorting the material easier and cleaner, and reduces contamination in the products sorted.

The incoming material is then further manually sorted by 10 to 12 staff members, who are able to extract significant amounts of paper, cardboard, plastics, aluminium and clean timber for recycling.

An overband magnet and air knife is located at the end of the system that removes any ferrous metals and light fraction from the residual waste stream.

With the creation of additional jobs, Lismore City Council has been able to provide additional employment for community members living with a disability through its partnership with not-for-profit disability service provider House With No Steps.

The service has helped people living with a disability find employment at the Lismore site since 2014, providing them with valuable skills and experiences in the workplace.

“We took their needs into account and made sure the sorting facility was user friendly. Thick rubber mats and air conditioning have been installed to keep workers on their feet comfortable,” he adds.

The plant is connected to the site’s solar system which provides renewable energy to the MRF. The council aims to set up an 80-kilowatt system for the sorting facility on the roof of the shed to help run the plant during the day, with an estimated energy saving of 50 to 60 per cent.

Kevin says construction of the sorting facility was reasonably fast, taking only a few weeks to set it up in the designated area on site.

“Wastech Engineering’s construction was efficient, and they had a great relationship with council at all levels from their sales to their maintenance department.

“If ever there was an issue, all we needed to do was get on the phone and they offered exceptional levels of repair and advice,” he says.

The sorting facility is now up and running after being completed in early October. Lismore City Council has performed trials with different waste streams to gather data and confirm how the sorting facility will work. An estimated 10,000 additional tonnes of waste are expected to be redirected from landfill as a result of the facility.

Kevin says the support from the NSW Government and EPA was vital to the council, as it otherwise would not have been able to fully support the improved infrastructure.

“It’s important for regional centres to ensure we can continue supporting the community and creating jobs,” he says.

“We’re always looking at ways to reduce the amount of waste that needs to be sent to landfill, which this sorting facility helps us achieve.

“In future, we could look at possibilities to tackle household waste or the use of waste to energy to reduce mains power usage.”
Global Resource Recovery offers a complete solution for recycling and recovery of glycol, including coolants, into new products.
It has established two recovery facilities, located in Laverton North, Victoria and East Arm (Darwin), Northern Territory with associated partnership Australia-wide to receive waste glycol, including coolants, to process for recovery, among other waste streams.
Glycol refers to a series of chemicals that consist of monoethylene glycol, diethylene glycol, propylene glycol and triethylene glycol that are used for protecting against freezing and regulating heat. For this reason, they are widely used in combustion engines to protect the engine from freezing, while at the same time protect against corrosion and sustain overall engine heat balance by removing heat. They are also used in the liquefied natural gas (LNG) industry to prevent freezing of hydrates and to prevent corrosion.
Global Resource Recovery has developed a process known as the Glycol Sustainable Recovery (GSR) that takes coolants and LNG waste glycol and removes water and other impurities. The recovered glycol between 95 to 99.5 per cent purity is recycled into new coolants or reused as raw material in various industries.
The sustainable process helps industry meet its environmental footprint obligations, while saving disposal and raw material costs.
In addition, Global Resource Recovery also specialises in neutralisation of concentrated acids and alkalis, recycling lubricating oils, treatment of industrial wash waters and sludges and management of hazardous chemicals.

**COOLANT AND GLYCOL RECYCLING**

Global Resource Recovery has developed a process known as Glycol Sustainability Recovery (GSR).

**BRENTWOOD LS50CF SEPARATION PLANT**

The Brentwood LS50CF recovers food or liquids, steel and packaging from rejected canned or packaged foods.
The company has combined several of its technologies to arrive at a solution that recovers 95 per cent of the can contents with zero steel contamination and cleans the steel cans ready for sale as clean steel scrap. The packaging is also collected.
Materials are loaded onto an infeed hopper which transfers them on a feed conveyor into a Brentwood AZ50HD shredder where the steel cans are shredded, releasing most of the contents. The shredded material is then fed through a specially designed Food Separation Screw Feeder equipped with high-pressure water sprays allowing the food or liquids to be separated from the cans. A series of magnetic separation systems work to remove any small steel items and discharge these to a suitable container.
The large steel content is processed further to separate non-ferrous materials, paper or plastics that are diverted to a separate collection bin. The clean steel is sent on a discharge conveyor and delivered to a scrap bin.
Highlights of the technology include the Brentwood designed and manufactured Dual Shaft Shredder featuring high torque and slow speed cutting action for low maintenance costs. The shredder also has hexagonal shafts for superior strength and endurance. The plant itself has a production rate of up to 40 tonnes per hour with steel recovery of up to four tonnes per hour.

**Contact**
Contact: Graham Badman
Phone: (02) 4271 7511
Email: sales@brentwood.com.au
Website: www.brentwood.com.au
Two years after launching its first model of the MAC/2 generation, MACPRESSE, a leading manufacturer of bale presses from Italy, added the MAC107/2 to the MAC/2 series. Through the MAC110/2, MAC108/2 and MAC107/2, the Italian manufacturer has made numerous improvements to the well-performing MAC/1 series. The MAC107/2, in particular, is designed for medium production capabilities at a low cost. According to Australian distributor CEMAC technologies, the previous MAC/1 series was widely acclaimed by MACPRESS customers across the globe due to its high capability, reliability and low energy consumption. Building on this reputation, the MAC/2 series makes these machines more efficient and easier to use and allows for considerable output improvements.

A range of features ensure this success, including enhanced hydraulics boosting the output of the machines, while the high efficiency IE3 electric motors achieves up to 30 per cent energy saving. At the same time, the XL channel design with 1.5-metre extension allows for considerably better backpressure. For these reasons, the MAC107/2 provides up to 30 per cent higher densities for cardboard and 15 per cent for plastics. The enhanced main cylinder mounting, redesigned bale cutting system and better maintenance accessibility considerably improve the service life of the machine. Larger hopper dimensions and revised counter pressure cylinders are other areas where the machine has been significantly improved. At the same time, MACPRESSE maintained their design advantages for all machines with boltable Hardox protection on all wear surfaces.

The heavy-duty Baler PC24 HD Galvanized is designed to handle difficult recyclables such as aluminum cans and PET bottles. It’s capable of processing recyclable types such as aluminium and tin cans, plastic bottles, expanded polystyrene, hard plastics and textiles. Available through Australian distributor, Wastech Engineering, the galvanised vertical baler uses a one-step process for baling and draining of plastic bottles and aluminium cans, with a built-in reservoir to capture residual liquids. One of the highlights of the Danish supplied Bramidan technology is the high press force of 24 tonnes that produces extremely dense bales. For example, aluminum cans are baled so dense that they don’t need to be tied off. Bale weights of up to 55 kilograms for aluminium cans and 105 kilograms for plastic items can be achieved. The flap door also allows easy loading of materials into a completely closed chamber. An option for a regular painted model instead of galvanised is available.

In terms of noise, the baler boasts a low reading of about 62 to 64 decibels. According to Wastech Engineering, this is impressive when compared to the decibel reading of a refrigerator – on average 50 decibels.

Contact
Contact: Eric Paulsen
Phone: 0455 920 888
Email: eric.paulsen@cemactech.com
Website: www.cemactech.com

Contact
Contact: Alan Barclay
Phone: 1800 465 465
Email: abarclay@wastech.com.au
Website: www.wastech.com.au
In June 2017, Cleanaway won a major contract to manage and operate four Brisbane resource recovery centres from 1 July 2018.

The sites collect more than half a million tonnes of metal, timber and abrasive hard rubbish per year from municipal self-haul and kerbside collection, along with green and general waste.

To ensure it could service the requirements of the new contract, Cleanaway acquired $22 million worth of trucks, trailers and heavy equipment.

As part of this upgrade, the company also purchased new wheel loaders and bulldozers that could handle the harsh materials and putrescible waste at the sites.

Eight new machines were purchased from equipment manufacturer Liebherr-Australia, including two dozers to manage waste at the larger sites and six front end wheel loaders of various sizes to aid resource recovery operations.

Paul Findlater, Liebherr-Australia National Key Accounts Manager – Earthmoving & Material Handling Division, says Cleanaway needed machines that could work efficiently and perform in a harsh waste industry.

“The machines needed to be suitably guarded and protected against foreign material including timber, metal and glass that they would be working in,” Paul says.

“The wheel loaders in particular were fitted with solid tyres to prevent punctures disabling the machines as they carry out their daily tasks when driving over the waste,” he adds.

Additional armour and guarding has also been added to the machines, with the track dozers having a protected undercarriage and extra plating to protect internal systems from damage.

The vehicles use a hydrostatic driveline configuration which aims to provide an efficient method of transferring power from the engine to the drivetrain which provides improved fuel economy for the machines.

Paul says the environment in the areas where the machines would be working was often hot, dusty and dirty, which is why they were designed to operate in elevated temperatures.

“The machines are resistant to overheating thanks to a wide fin spacing of the heat exchanges and the automatic reversing engine fans,” he explains.

“Radiator intake guarding and a self-purging fan helps to keep foreign materials away from the radiators, while also ensuring they are kept as clear and clean as possible at all times.”

Fire is a potential risk in any hot environment near flammable materials. All it could take to start a fire is a spark from metal hitting metal or combustible materials reaching hot surfaces, which is why a fire suppression system was fitted into each of the machines.

If the system’s sensors detect a fire on, in, or near the machine, it will shut down the engine and can then douse itself in water to protect the
Ben Arthur, Cleanaway Alliance Operations Manager, says one of the most important benefits the vehicles offer is low noise output.

“The wheel loaders are working mostly indoors in a tin shed in close proximity to our staff and customers. Even though the vehicles are just metres away, there is relatively little noise and almost no issues with reverberation, helping create a pleasant working environment,” Ben explains.

“On top of this they’ve also got the latest generation of Tier IV final engine emissions.

“There’s no soot or discernible odour, meaning air quality in the workplace is cleaner and less time needs to be spent cleaning grime.”

Comfort was also a priority for Cleanaway as operators could be spending hours at a time working inside the vehicles. Air conditioning and ergonomic seating helps to keep the cabin pleasant when temperatures outside potentially reach more than 45 degrees Celsius.

High-powered LED lighting have also been installed on the vehicles to maximise visibility and safety in the indoor, dusty environment.

Ben says that Liebherr-Australia’s specialised waste offering for the vehicles had impressed the team at the site, who had considerable experience with what a wheel loader or bulldozer would need to handle.

“The staff were impressed by the durability of the modified vehicles and confident they could withstand the common damage from the materials they handle,” he adds.

“The vehicles are relatively easy to maintain with easy-to-reach access points for inspections and repair if needed.”

Liebherr-Australia operates in all major cities around Australia with the exception of Darwin, meaning they are able to provide support with Cleanaway on a national level.

Ben says that Liebherr-Australia also provides full service and maintenance on the machinery through a contract maintenance agreement with Cleanaway.

“Liebherr’s team in Brisbane have been responsive and worked alongside us to rectify any teething issues we had. We’re very happy with both the machines and the service we’ve been provided.”

Contact: Liebherr-Australia
Earthmoving & Material Handling Division
Phone: 02 9852 1800
Email: em-sales.las@liebherr.com
Website: www.liebherr.com.au
PRODUCT SPOTLIGHT – MATERIAL HANDLERS

**JCB 525-60 TELEHANDLER**

The compact JCB 525-60 telehandler was designed for high productivity and safety with easy maneuverability. With a six-metre lift height and large lifting capacity of 2500 kilograms, the telehandler is ideal for loading and unloading heavy materials. The telehandler has a lift capacity of 800 kilograms at 3.5-metre forward reach and 2500 kilograms with the boom retracted or 1750 kilograms at full height. It is available through equipment supplier JCB Construction Equipment Australia.

The maneuverable machine offers a height of 1.89 metres and a width of 1.84 metres, with a compact wheelbase, large steering angles and tight turning circle. Hydrostatic transmission ensures operators can achieve precise machine movements even in cramped spaces.

For an ergonomic operator environment, the machine offers a large automotive design cab with a wide access door. The intuitive control and instrument layout applies single-lever joystick controls, a seven-speed fan heater with air-conditioning and a cab or canopy option to suit the environment.

Safety is supported by a patented Adaptive Load Control, reversing alarm, hose burst check valves on boom lifting cylinders, an optional load guard on JCB Q-fit carriage and a range of other features. Livelink telematics comes as standard to further increase security with effective fleet management. For serviceability, all daily checks and grease points are easily located at ground level on the JCB 525-60 telehandler. Because the 525-60 telehandler’s wear pads use a dry lubricant system, they only need servicing every 500 hours.

**SENNEBOGEN E SERIES MATERIAL HANDLER**

The SENNEBOGEN E Series Material Handler range has been purpose built for the waste and recycling industry, with the 817/818/821 models available in mobile, tracked, stationary and electric configurations. The models comprise operating weights ranging from 17 to 24 tonnes and reach capabilities of eight to 12 metres. The 817/818/821 model range is suitable for the application of hanging and rotating sorting grapples.

SENNEBOGEN and its products have built a strong reputation throughout the world and continue to lead the industry with an exceptionally strong design, performance and low operating costs. The German-built E-Series machines have been designed with a focus on environmental issues such as low noise and exhaust emissions. In addition, the material handlers are able to be customised to suit a multitude of unique applications.

Pacific Materials Handling is proud to be supporting the SENNEBOGEN range in the waste industry and looks forward to building on an already strong 13-year relationship as the national dealer, supplying and supporting well over 200 SENNEBOGEN machines locally to many customers that require exceptional service support.
NOMINATIONS
NOW OPEN 2019

WOMENININDUSTRY.COM.AU

SPONSORED BY

PROUDLY PRESENTED BY
THIS YEAR HAS BEEN AN INCREDIBLE YEAR OF PROGRESS IN SUSTAINABILITY FOR AUSTRALIA’S PACKAGING MANUFACTURERS, WRITES AUSTRALIAN PACKAGING COVENANT ORGANISATION CEO BROOKE DONNELLY.

Looking back on 2018, it’s clear that the year has been bookended by two significant moments for Australia’s waste and recycling industries. In January, we saw the fallout begin from China’s National Sword policy, an announcement which has since triggered a domino effect of similar policies around the world. Now, as the year draws to a close, so too does the consultation process for the proposed National Waste Policy. The process represents the first significant review of our national approach to a consistent and sustainable path for Australia’s recyclable waste for several years and is an exciting opportunity for the industry.

Like the broader industry, 2018 has also been an incredible year of progress for the Australian Packaging Covenant Organisation (APCO) community.

In April, Australia’s environment ministers announced the landmark 2025 recycling target and, in the process, endorsed APCO to lead the charge on creating Australia’s 100 per cent reusable and recyclable future for sustainable packaging.

Then in September, we hosted an event at Pact Group headquarters in Melbourne to announce the second tranche of targets alongside the Hon Melissa Price, Minister for the Environment. It was fantastic to bring together so many key players from government and industry, and welcome leaders across packaging, retail, logistics, manufacturing, recycling and waste management.

The 2025 targets have also driven many of the other activities conducted by the APCO team throughout the year. In June we launched the Towards 2025 discussion paper, providing members and industry with an overview of our proposed approach. The discussion paper was in turn supported by the Towards 2025 consultation process, workshops and question and answer sessions – all opportunities for industry to have an active voice in how we bring these targets to life.

As a result of this process, we have...
now shared our draft strategic plan with government for consideration. We are excited to continue to constructively work with members to develop an appropriate way forward on the 2025 targets – and many thanks to everyone who has taken part in the consultation process to date.

June saw the launch of our first brand audit in five years to ensure as many businesses as possible are meeting their sustainable packaging obligations. As a key APCO initiative, the brand audit will enable us to bring as many organisations as possible on the journey of reaching our 2025 target. Since starting the process, the APCO member base has grown by more than 60 per cent.

The launch of the national packaging targets in September also coincided with the ministerial launch of the Australasian Recycling Label. A program we developed in partnership with Planet Ark and PREP Design, the labelling system was designed to help consumers better understand how to recycle packaging. I’m delighted to say that at the time of writing, the scheme had been adopted by more than 60 organisations, with 100 also using the PREP design tool.

The year has also seen some incredibly exciting developments and progress from within the APCO member base.

In August, we once again brought industry together for the annual APCO awards to recognise Australia’s sustainable packaging leaders. This year’s awards showcased achievements from a wide range of industries, with 13 sector categories, including manufacturing, retail, transport, technology, hospitality and pharmaceutical, and four excellence in packaging awards.

The evening’s standout performer was Detmold Packaging, which took home the coveted Sustainable Packaging Excellence Award, commended for its collaboration with customers and researchers to work towards sustainable packaging. Other standout recipients included Campbell Arnott’s Australia (Outstanding Achievement in Packaging Design Award), which in 2017 implemented mandatory sustainability training for its internal packaging team, and the Australian Postal Organisation (winner of the Outstanding Achievement in Industry Leadership Award), which now has a 100 per cent recyclable packaging range, following the introduction of a take-back scheme and the adoption of the Australasian Recycling Label.

Industry has also been quick to show its support for the 2025 targets. In April, Nestlé announced its ambition to make 100 per cent of its packaging recyclable or reusable by 2025, and in October joined forces with other businesses and governments in signing The New Plastics Economy Global Commitment at the Our Ocean Conference. Pact Group also announced its own 2025 targets, including plans to eliminate all non-recyclable packaging and offer 30 per cent recycled content across its packaging portfolio.

Finally, members have also made exciting progress in the fields of research and development. This year Unilever announced the launch of its CreaSolv technology, a pilot plant for a radical recycling process that could address the billions of plastic sachets produced by a wide range of industries. In 2018, Unilever Australia and New Zealand also announced plans to introduce post-consumer recycled HDPE plastic for bottles of Australian-made home and personal care brands such as OMO, Dove, Surf, Sunsilk and TRESemmé.

Dell has made big steps in breaking the cycle with plastic packaging by creating the world’s first commercial-scale, global ocean-bound plastics supply chain. The scheme includes processing plastics collected from beaches, waterways and coastal areas and using them within product packaging. The initial pilot project will start by keeping 7000 kilograms of plastics out of the ocean.

Finally, Kathmandu continues to have great success with its line of Repreve clothing – where recycled bottles are collected, flaked, treated and turned into a workable, recycled polyester fibre. Between 2017 and 2018 alone, 6.9 million bottles were recycled into Repreve clothing.

This is just a small snapshot of the remarkable work that’s been done both here and around the world in the fight to improve packaging sustainability. It’s also a clear indication that industry is stepping up to the mark when it comes to reducing packaging waste. There’s still a lot of work to be done, but here’s to another exciting year of progress and development from the APCO community.
SORTING AND SEPARATING

Waste Management Review’s February issue highlights the latest innovations in sorting and separating and how they aim to support increased productivity for recycling and materials recovery facilities.

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

PARTICIPATION IN THE PROMOTIONAL FEATURE INCLUDES:

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

BOOKING DEADLINE: WEDNESDAY 19 DECEMBER 2018

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

www.wastemanagementreview.com.au
A SHIFT IN BUSINESS PRACTICES WOULD SUPPORT A SIGNIFICANT INCREASE IN PROCUREMENT OF RECYCLABLES, WRITES MATT GENEVER DIRECTOR RESOURCE RECOVERY AT SUSTAINABILITY VICTORIA.

Compelling proposition

A lot more thought goes into the art of buying stuff than it used to. In the old days, you’d pretty much choose whatever could get the job done for the cheapest price. Thankfully, over the past decade most organisations (government and private sector) have moved toward a “value for money” measure, which encourages procurers to think about things other than cost, such as quality, knowledge transfer and product longevity.

More recently we’ve seen a whole raft of new terms coming into play, like sustainable procurement, ethical procurement and social procurement. These concepts take the thinking further still and are starting to permeate across the procurement fraternity.

I was fortunate enough to hear procurement expert Matthew Taylor speak at a recent forum and was immediately taken by his description of sustainable procurement as “reimaging value”. This is not about charity, this is about using the power of procurement dollars to deliver social and environmental outcomes.

THE $600 BILLION QUESTION

Talking about the “power of procurement” can be a bit nebulous at times, right up until the point that you put some numbers around it. Procurement in Australia is worth around $600 billion per annum, which equates to about a third of our total gross domestic product. A third! That means that more than 30 cents in every dollar moving through our economy is attached to some form of procurement.

So how do we leverage all of this spending to drive change? Well, its actually not that hard and just requires a slight change in the way organisations think. Most organisations have some sort of corporate social responsibility (CSR) goal – something they want to achieve above and beyond just ‘business as usual’. These same organisations will likely invest money into programs or activities to try to achieve those goals. What if, rather than having a separate CSR program that costs money, organisations used their own procurement power to leverage those same outcomes?

Take the Federal Government. The Commonwealth has a significant focus on stimulating Indigenous economic development and growing the Indigenous business sector and decided to link these objectives directly into its procurement goals. The Indigenous Procurement Policy was introduced in 2015 and has thus far awarded some $594 million in contracts to Indigenous-owned businesses, delivering on both procurement outcomes and social objectives.

PROCUREMENT FOR CIRCULARITY

All levels of government have supported the waste and recycling sector in developing “end-of-pipe” solutions like recycling infrastructure and kerbside collections, but the critical gap in our current resource recovery sector is now on the demand side. There just simply aren’t enough viable, local markets for the amount of material the recycling sector generates.

The sheer value of Australian procurement suggests that if government and business could take the required steps, we could generate end markets for every piece of material in the current system, from plastics and paper to e-waste and tyres.
An exponential shift using the procurement lever would not only benefit the recycling sector but likely build a much-needed bridge between recycling and remanufacturing.

The former has traditionally been driven by the materials being collected and the need to find something to do with them. The latter on the other hand is driven inversely, by customer needs and then redesigning the recycling sector to ensure that those materials can be provided as raw inputs.

Depending on the size of the shift, procurement has the potential to close the loop even further. As local and international markets search for the inputs required to meet demand, behaviours upstream will inevitably change. Take our wide range of packaging plastics as an example. If the demand for recycled PET and HDPE blossoms, there would likely be a natural “pull” of more PET and HDPE into the packaging stream, ultimately displacing those polymers less likely to be recovered.

**REMOVING BARRIERS**

It’s not enough just to talk about sustainable procurement for recycled materials, it needs to be supported by actions on both the supply and the demand side. Procurement will absolutely catalyse change but government and industry need to work closely together to remove the key barriers that currently exist.

On the supply side, the industry needs to ramp up to ensure that recycled products and materials can be manufactured at scale and to the required quality and performance standards. Equally, government needs to ensure that specifications support recycled materials and are backed by the required testing and approvals to ensure they can compete on an even playing field.

On the demand side, government at all levels need to support internal change, ensuring that procurement practices, goals and objectives are enablers and not barriers. This will take some doing. Our experience at Sustainability Victoria tells us that this needs genuine planning, ensuring that each department, agency and even major project is clear on the opportunities for procuring recycled products and materials and how to realise these.

Personally, I couldn’t be more excited by this prospect. A shift of just one per cent of Australia’s likely infrastructure spend over the next four years into the recycling and remanufacturing sector would see an additional $1.5 billion in revenue. Now that’s what I call value for money! ■

The use of recycled plastics in procurement, including PET and HDPE remains topical.
Ready for anything: Big shredding chamber with two 2.8 m long counterrotating toothed drums for active feed

Clean power: Caterpillar® diesel engine with the latest exhaust scrubbing

Made to order: Adjust the degree of shredding by a simple change of the screen basket or the entire screen basket cartridge

Top drive efficiency and functionality: Mechanical direct drive with overload protection, reversing and automatic gear change

Clear and easy to use: New user interface with logical menu guidance and visualization of all functions

LESS FUEL, MORE POWER.
THE CRAMBO DIRECT | DUAL-SHAFT SHREDDER
Gough Palfinger Australia delivers and supports the world-leading Palfinger range of innovative lifting, loading and materials handling solutions for land and marine applications. We provide highly transportable and agile logistic solutions for the waste industry.

Contact the team to find out more:

1800 HOOKLOADER 1800 466 556  |  PALFINGER.COM.AU

Gough Palfinger Australia - Head Office: 66 Industrial Avenue, Wacol, Queensland 4076