A waste levy in QLD
Rick Ralph explains the opportunities for Queensland in updating its waste strategy.
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AN ENVIRONMENTAL EXIT?
The United Kingdom’s exit from the European Union presents both challenges and opportunities for waste management. We speak to international expert Richard Cowell about its impacts.

“THE IRONY OF THE SITUATION IS LOCAL GOVERNMENTS STILL DON’T UNDERSTAND THAT THERE NEEDS TO BE AN EQUITABLE RECYCLING MARKET. THERE IS A GREAT DISPARITY WITH WHAT THE HOUSEHOLD WILL PAY FOR THE COST OF WASTE AND WHAT THE INDUSTRY PAYS.”
-Rick Ralph, Chief Executive Officer of Waste and Recycling Industry Queensland

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Taxing times

MORE THAN SIX YEARS AND MILLIONS OF DOLLARS in unpaid levies later and the Queensland Government has at long last moved to introduce a landfill levy.

The landfill levy issue has been widely discussed over the past few years and Waste Management Review has covered the issue extensively. When we looked at it in the June–July 2017 issue, arguments included that “when the levy was removed, the recycling industry collapsed overnight”, while others focused on whether levies should be collected by governments instead of the private sector to reduce possible stockpiling.

Arguably the principal point of discussion has been the direct link between an increase in interstate waste transport from New South Wales to Queensland and the absence of a levy in the Sunshine State. When the Queensland Government announced in March it will move to introduce a landfill levy and brand new waste strategy, it released its Interim report: Economic opportunities for Queensland’s waste industry. It highlighted that a total of 542,000 tonnes of waste was received at Queensland landfill sites from interstate sources, representing a 68 per cent increase on the previous year.

What is disconcerting is the large number of heavy vehicle truck movements and police observations of fatigued drivers, which was highlighted at an industry forum by the Waste Contractors & Recyclers Association of NSW in February. Off the back of the Queensland Government’s plan, we discuss the economic opportunities for the state on page 14.

Theoretically, a landfill levy should act as a market signal to reduce waste generation and increase recovery, as well as acting as an invaluable source of funding for re-investment into recycling and the broader sector. We’ve seen this notably in NSW, through the Waste Less, Recycle More Initiative.

But, when levies don’t apply in certain regions or are unreasonably high in others, there is always the risk that businesses will avoid them. It’s a situation that is reportedly occurring in Western Australia, according to the newly formed Waste and Recycling Industry Association of Western Australia, revealed on page 62.

The National Waste and Recycling Industry Council has been advocating for quite some time for levy portability – where the levy in place at the waste’s original point of origin remains intact, we discuss in further detail on page 20.

However, despite proselytising all the virtues of a landfill levy, industry does require the right market signals to make recycling happen.

To quote Rick Ralph, Chief Executive Officer of the Waste and Recycling Industry Association of Queensland:

“A waste levy in its own right will not create jobs without the confidence that investments can proceed. The strategy must have clear objectives of what we want to achieve and how we want to get there.”
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**VWMA calls for bin auditing standards**

The Victorian Waste Management Association (VWMA) will be calling on state government agencies and appropriate local government organisations to develop a consistent set of standards for bin auditing.

It hopes the standards will also engage with the community and waste industry. The VWMA notes what can ultimately be recycled is largely dependent on how we decide to generate and dispose of waste. It notes bin audits are a standard practice that enable efficient assessment of kerbside recycling progress.

The VWMA believes the Victorian Government needs to play a greater role in advocating to the public the importance of the waste and recycling sector to help restore public confidence in the system.

Local governments across Australia carry out auditing of bins as standard practice to better understand what is being recycled and what is contaminating recycling bins. Auditing is managed by local government directly, outsourced to a waste contractor or carried out by a third party. The VWMA believes this standard practice provides insights into the areas for waste education and highlights common misconceptions around recycling that can be targeted by future programs and campaigns. However, the organisation argues a lack of community understanding on this practice and waste management more broadly is fuelling a wave of negativity that is eroding public confidence.

“Recycling correctly is still one of the easiest things Victorians can do to help the environment and the economy. But we don’t always get it right,” said VWMA Executive Officer Mark Smith.

He adds that bin audits are an easy and cost-effective way to gauge recycling outcomes.

“Fear mongering and fuelling the fire around this topic is not constructive and does a disservice to the community and may ultimately drive costs up for residents.”

**How many recyclables are affected by the China waste ban?**

Consultancy firm Blue Environment was asked by the Federal Government to analyse the amount of waste being sent to China before the ban on contaminants began.

China’s ban on waste with contaminants of more than 0.5 per cent have led to commodity price reductions, stockpiling and instability in the provision of recycling collection services, according to Blue Environment.

The data showed around 1.25 million tonnes of waste was exported to China in 2016-17, with 920,000 tonnes made up of paper and cardboard, 203,000 tonnes of metal and 125,000 tonnes of plastics.

Blue Environment also reported that 99 per cent of waste from the 2016-17 period was affected by these new restrictions.

According to the data, China comprised the majority of exported materials in plastics and paper and cardboards, making up 68 and 63 per cent of the total recyclable material exports respectively.

Blue Environment said the data should be considered preliminary and may change with further consideration.

The National Waste Report 2018 will present the finalised data.

You can read the full data set here: http://bit.ly/chinarecyclablesdata
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Landfill levy waived for bushfire victims

The Victorian Government has waived the landfill levy to help Victorians in the south-west recover from bushfires. Environment Minister Lily D’Ambrosio announced that the Environment Protection Authority Victoria will work with local councils and landfill operators in the Colac-Otway, Corangamite, Moyne and Southern Grampians council areas to apply the exemption.

The waiver applies to the levy component of the gate price.

The Victorian Government has also announced assistance for the local government areas of Colac-Otway, Corangamite, Moyne and Southern Grampians is being provided through the jointly funded Commonwealth-State Natural Disaster Relief and Recovery Arrangements.

Anyone who has been affected by the bushfires and suffering personal hardship and distress should call the VicEmergency Hotline on 1800 226 226 to find out about the assistance available.

Information on disaster assistance can be found on the Australian Government’s Disaster Assist website at disasterassist.gov.au and the VicEmergency website at www.emergency.vic.gov.au/relief

“We’re doing what we can to help those affected by these devastating bushfires,” Ms D’Ambrosio said.

“We’re helping farmers manage waste from dead livestock and damaged homes, sheds and fencing – so they can focus on getting back on their feet.”

The waiver applies to the levy component of the gate price.
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Entries are now open for the 2018 Victorian Premier's Sustainability Awards, which recognise individuals, communities, organisations and businesses leading the way to a sustainable future.

Example entries from 2017 included a small business that uses new technology to clean without chemicals, a hospital soap recycling program for disadvantaged communities, a new type of energy efficient residential development and a program to rebuild Port Phillip Bay’s oyster reefs.

The 2018 Premier’s Sustainability Awards categories are:
- Built Environment
- Community
- Education
- Environmental Justice
- Environmental Protection
- Government
- Health
- Innovative Products or Services
- Small and Medium Enterprises
- Large Business

Environment Minister Lily D’Ambrosio said the awards are an opportunity to recognise Victorians who are leading the way in sustainable practices across all sectors.

“We know that more and more Victorian businesses, not-for-profit organisations, community groups and government programs are implementing sustainable practices,” Ms D’Ambrosio said.

“Many Victorian organisations are nation leading in their sustainable practices and I encourage them to enter the Premier’s Sustainability Awards this year to inspire others to think more creatively about the work that they do.”

Sustainability Victoria Chief Executive Officer Stan Krpan said the awards celebrated sustainability not for its own sake, but the flow on effects that are felt right throughout the community.

“We have an incredible depth of sustainability talent in Victoria – they’re saving energy and resources, developing and applying new technology reducing and re-purposing waste, regenerating natural and man-made environments, and saving threatened species,” he said. “This work leads not only to environmental good, but to other tangible benefits in terms of increased productivity, reduced costs, many community benefits and enhanced reputation.”

As well as awards in each of these categories, the Premier will personally select two overall winners for the Premier’s Regional Recognition Award and the Premier’s Recognition Award. Entries close on Thursday, 7 June.

For more information on the awards criteria, visit the Premier’s Sustainability Awards website: www.sustainabilityawards.vic.gov.au
The NSW Environment Protection Authority (NSW EPA) has said that it anticipates the regulation for its proposed minimum standards for construction and demolition waste will be made in June of this year.

Consultation on the draft Regulation and Standards for Managing Construction Waste in NSW closed in December 2017. The NSW EPA said it received approximately 50 detailed written submissions from a variety of stakeholders raising a range of complex issues and concerns with the potential impacts of the changes.

“The EPA has carefully considered the submissions and is currently reviewing the draft Regulation and Standards to ensure that these issues and concerns are appropriately addressed so that the changes achieve their intended outcomes while minimising adverse impacts for stakeholders and the environment," the agency said outlining its position.

“While the EPA cannot set a firm date for the changes to be legislated, we can advise that they will not come into effect before 30 March 2018.”

According to NSW EPA, there are a number of steps required for the changes to be legislated:

• a better regulation statement must be prepared outlining the case for legislative reform
• advice on legal and regulatory implications of issues raised during consultation must be obtained
• proposed changes to the Regulation and Standards must be finalised to enable legislative re-drafting
• the proposed changes must be reviewed and the Regulation re-drafted by the Government’s Parliamentary Counsel’s Office
• the final package is presented to the Minister for the Environment for her consideration and decision
• the Governor, on advice from the executive council, makes (or declines to make) the regulation.
The NSW Government has announced it will release a $47 million package to support local government and industry in response to China’s National Sword policy.

China is the largest importer of recyclable materials from Australia, and the new policy restricts the types of waste that will be accepted.

A one-off package is planned to respond to this. It is funded by the Waste Less, Recycle More initiative and aims to provide short-, medium- and long-term initiatives to ensure kerbside recycling continues.

The funding will allow councils to offset extra costs associated with kerbside collections, improve council tendering processes to increase production and use of recycled products, and fund community education to reduce recycling contamination.

The package also includes $9.5 million for industry and local government to invest in infrastructure projects to find new uses for recyclable materials and reduce the amount of unrecyclable materials at the end of the process.

Guidelines have been set in place to ensure applicants seeking funding address the National Sword policy, represent better value for money and demonstrate benefits for the community.

Recycling facilities can also apply to the Environmental Protection Authority (EPA) to temporarily vary their stockpile limits, with facilities being assessed to demonstrate appropriate safety measures remain in place.

NSW Environment Minister Gabrielle Upton said the NSW Government is committed to working with the recycling industry and local councils to ensure it continues having a strong kerbside recycling system.

“I have met with industry and government stakeholders to hear first-hand about how we can address the current global challenges to the recycling market in NSW,” Ms Upton said.

“The short-term need for increased stockpiles of recycled material during this critical time must be balanced with the safety of the community and the environment.”

An inter-government taskforce is also being established to urgently progress a longer-term response to National Sword in partnership with industry and councils.

“I have also written to the Federal Environment Minister to urgently progress the work on this issue and the long-term solutions at a national level.”

The Australian Council of Recycling (ACOR) welcomed the NSW Government’s recycling package.

“In the context of the unprecedented impact of China’s new settings on Australia’s recycling system, the NSW Government package can help relieve short-term pressure while also building longer-term resilience for the recycling system. That’s an important step forward to ensuring that recycling can continue to deliver job and environmental benefits for NSW residents,” ACOR CEO Pete Shmigel said.

“It is good to also note that the NSW Government is urging a national approach and we will be calling on all ministers to adopt an Australian Recycling Resilience Plan to future-focus our industry and drive toward a circular economy that makes fullest use of what comes out of our homes and onto our kerbs.”

“It’s time to shift from ‘crisis’ mode to claiming recycling’s potential as a major national industry of the future.”
Supermarket giant Woolworths has announced its supermarkets will no longer provide shoppers with single-use plastic bags from 20 June 2018.

The move also effects its BWS, Metro and Woolworths Petrol stores, where group wide more than 3.2 billion plastic bags are handed out each year.

Woolworths Group stated last year that it would end the use of plastic bags by the end of June 2018 in states where a ban had yet to be implemented.

Woolworths Group Chief Executive Officer Brad Banducci said the company felt strongly that this was the right thing to do.

“Our teams have been working hard behind the scenes to accelerate the rollout of this plan so we can start making a positive impact on the environment as quickly as possible,” Mr Banducci said.

“We know this is a big change for our customers and store teams, and we need to do all we can to make the transition as seamless as possible for both.

“To this end, we have a dozen supermarkets across Australia going single-use plastic bag free from today. We’ll closely monitor feedback from customers in these stores and apply any lessons we learn to our national rollout on 20 June.”

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The major supermarkets Coles and Woolworths last year moved to ban single-use plastic bags from their stores.
In 2014, the Queensland Government developed its Waste Avoidance and Resource Productivity Strategy. The strategy set targets for improving resource recovery and recycling rates and reducing waste to landfill, with a plan to report on progress every three years. But the strategy was never widely taken into account, as there were no substantive action plans to realise its lofty goals. The situation was obfuscated by a change of government – which left the plan sitting in limbo for a few years.

**THE OLD PLAN**

The original strategy sets objectives for waste avoidance and minimisation, reuse, recovery and improved recycling and management, treatment and disposal. It provided a snapshot of Queensland’s strengths and achievements as of 2014, including 784,000 tonnes of construction and demolition (C&D) recovered, one million tonnes of organic waste recycled and 84 per cent household access to kerbside recycling.

It set targets to achieve by 2024 such as reducing general waste by 1.8 tonnes per person per year, 55 per cent of commercial and industrial waste recycled, up from 42 per cent in 2012-13, reducing waste to landfill by 15 per cent, down from 4,675,000 tonnes and setting individual measures for problem
or priority wastes.

The strategy said that within a year of its release, the Queensland Government would assess how many industries and sectors have developed action plans in order to review the effectiveness of this voluntary approach. It was required under Chapter 2 of the Waste Reduction and Recycling Act 2011 to be regularly reviewed through public consultation, including within two years of commencement and at three-year intervals.

A Queensland Government Action Plan was due for release in 2015 which would detail the government’s short to medium term waste reduction actions and priorities and flag the development of actions over the long term. But in an unprecedented occurrence, the one-term Liberal National Party was wiped out in January 2015 and replaced by the Australian Labor Party – led by Annastacia Palaszczuk under a minority government. With the Newman Government having just repealed the landfill levy in its own term of government, no decisions were made by the Palaszczuk Government to publicly release a new waste strategy or introduce a landfill levy. That is, until after Queensland Government election in November 2017, where Labor was returned to government with a majority of two seats.

According to Rick Ralph, Chief Executive Officer of industry association – Waste, Recycling Industry Association of Queensland (WRIQ), the original strategy was rolled out in haste. “The document was rushed at the end of the LNP Government term. It was never fully completed and never adopted by anyone,” Rick says.

Dr Georgina Davis, Founder of consultancy firm The Waste to Opportunity Enterprise and Adjunct at the Australian Rivers Institute, Griffith University, says that the biggest issue was the fact that the development of industry action plans were not mandated and there were no legally binding targets. As a result, the waste and recycling industry was the only one to develop a plan out of a range of other sectors invited to contribute, including retail, mining and tourism. Georgina was part of the Regulatory Working Group and Rick was a member of the Steering Committee which collaborated on the original Queensland Waste Strategy.

“We had a set of aspirational targets where we wanted to go, but there was no roadmap to achieving this,” Georgina says.

“At the time, we were also not confident about some of the data analysis and baseline data we had here in Queensland.”

A NEW WAY FORWARD

In March this year, the Queensland Government announced it was working on a comprehensive waste strategy which Ms Palaszczuk said would set the direction of waste management in the state – providing clarity and certainty for investment and business planning. This announcement came with a plan to introduce a landfill levy – which would stop Queensland from becoming a “dumping ground” for interstate waste – as waste from interstate sources increased by 61 per cent in 2016-17, according to the 2017 Recycling and Waste in Queensland report. It is not yet known what the cost of the levy will be.

In New South Wales, the metropolitan levy is $138.20 a tonne and the regional levy is $79.60. This has resulted in thousands of tonnes of waste being carted to Queensland, which, in some cases, has been sent to landfill. The Queensland Government responded to this issue with a three-month independent investigation into waste transportation in the state by Justice Peter Lyons QC that sought to understand the financial, economic and regulatory drivers giving rise to the problem. The final report was due by the end of 2017, but was not publicly released until March this year as the government was in caretaker mode.

“Following the findings and recommendations from Justice Lyons’ report, my government is developing a comprehensive waste and recycling strategy that will stem the tide of incoming interstate waste and set the direction for sustainable waste management in Queensland,” Ms Palaszczuk said in March.

“We will also establish a Stakeholder Advisory Group, with representatives from industry, to help develop Queensland’s waste management framework.” Ms Palaszczuk said the results of public consultation and feedback from the Stakeholder Advisory Group would inform the specifics of the levy arrangements. The Advisory Group, which comprises representatives from the Local Government Association of Queensland, the Australian Council of Recycling, WRIQ and others, will provide strategic advice to inform the new waste strategy. It will report to government by mid year.

According to Queensland Treasury Corporation’s Interim report: Economic opportunities for Queensland’s waste industry, which was publicly released in March and completed in July 2017, 10,000 tonnes of waste is going to landfill in the state/region. Data derived from the 2016 Australian National Waste Report shows Queensland’s waste recovery rate of 48 per cent is the second lowest of the eight states and territories. In 2016-17, 45 per cent of headline waste was recovered (9.8 million tonnes), with a 7.1 per cent increase on the previous year – greater than Queensland’s population growth of 1.3 per cent. The interim report shows that to reach the national average recovery rate of 61 per cent,
Queensland needs to recover an additional 1.5 million tonnes of waste – a 34 per cent increase.

The interim report acknowledges the foundational element with any high recovery rate is a landfill levy which sends a market signal to reduce waste generation and increase recovery and support reinvestment in the sector. The report focuses on highlighting the current performance of industry, while pledging to look at the outcomes of other jurisdictions and the key instruments (market-based and regulatory) adopted in jurisdictions with higher recovery rates.

It also wants to identify the drivers of any difference in investment and employment by looking at different regulations and policy settings and identify any possible barriers to investment. Acknowledged by the 2016 National Waste Report is the low cost of disposal to landfill, a lack of source-separated infrastructure and limited infrastructure for mixed wastes.

Successful jurisdictions are adaptive to changes in behaviour and unintended consequences, it notes, arguing that some European jurisdictions are removing landfill levies as positive waste management practices are seen as entrenched.

**ANOTHER LANDFILL LEVY**

Georgina says that while it will be up to Queensland treasury to model an effective landfill levy, any taxation needs to be designed appropriately to account for unintended consequences.

“My concern is that an ill thought-out landfill tax may further incentivise waste to energy solutions in the short term with inadequate consideration of other technologies,” she says.

“I am not against energy from waste – I believe that it is viable for particular waste streams and at appropriate scale, but these factors need careful consideration not to impact other material recovery solutions. If we are not careful, increasing thermal recovery can stifle innovation in alternative technologies.”

In terms of structuring a waste policy, Georgina says that targets can help drive outcomes within a policy, but suggests a target based on carbon emitted would be a smarter way of measuring progress, as opposed to the industry standard of volume and weight diverted from landfill.

“If we looked at carbon as a metric as opposed to simply percentage volume recovered by weight, it may make sense from an environmental point of view to bury larger amounts of currently non-recyclable soft plastics in landfill,” she says. She adds that it may act as a carbon sink and store the materials for possible treatment at a later date – assuming the technology is available or raw material market prices increase. She says this may be more environmentally sound and economically viable than transporting them long distances and incinerating the materials.

“We are facing complex and challenging issues going forward. One policy or regulatory tool alone will not fix the problem.”

Georgina supports a greater focus on domestic re-manufacturing to give certainty to individuals wanting to establish recycling businesses in Queensland and those already operating. According to Georgina, the response to China’s National Sword, a ban on contaminant imports of more than 0.5 per cent, has been to store materials in the hope of a downturn or to meet Chinese product specifications. She sees this as a short-term
solution and in advocating for local manufacturing, believes rising electricity costs need to be addressed.

“We need to be putting pressure on governments (state and federal) to address the rising cost of electricity. Our sorting facilities and technologies depend on it as do our ability to access viable domestic markets with our products (recyclate),” she says, adding that considering a suite of policy tools in the waste strategy will ensure secondary resource markets become independent of volatile commodity prices – a particular challenge for Queensland as a smaller market, but nevertheless requiring innovation.

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<table>
<thead>
<tr>
<th>Priority waste stream</th>
<th>Example</th>
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| Plastic waste                 | • Agricultural plastics  
|                               | • Packaging waste                                    |
|                               | • Plastic bags                                        |
| Organic waste                 | • Green waste                                         |
|                               | • Food waste                                          |
|                               | • Hospitality                                        |
|                               | • Food processing                                    |
| High volume wastes            | • Concrete                                            |
|                               | • Treated timber                                      |
|                               | • Plasterboard                                       |
|                               | • Batteries                                           |
| Regional impact waste         | • Mining and resources development                    |
|                               | • Mattresses                                          |
|                               | • Orphan agricultural and veterinary chemicals        |
| Complementary national product| • Fluorescent lights                                  |
| stewardship measures          | • Used tyres                                          |
|                               | • Used oil                                            |
|                               | • Televisions and computers                           |
|                               | • Mobile phones                                       |
|                               | • Agvet chemical containers                           |
for a minimum proportion/amount of recycled glass in aggregate and road-building materials as an example.”

Rick says that strategically, WRIQ is trying to work with government to get the right policy and regulatory settings for the state. He says industry requires specific actions, including what its expectations are and how to meet its waste and recycling targets.

“We need to provide some security as far as procurement and generating a greater take-up and reuse by state, federal and local government in all their projects in recycling content,” he says.

Queensland has a population of 4.7 million – but three million live in its south-east, which covers only 1.3 per cent of the state. Therefore its large size, which is more than double that of NSW, combined with a sprawling population in decentralised coastal communities or vast areas of low-population regional areas, creates logistical challenges for managing waste.

Rick says that the bulk of the population is effectively down the east coast in provincial cities, but these cities are typically four hours apart. He says the waste and recycling dynamics in Queensland are fundamentally different to NSW, Queensland, Victoria or even South Australia.

Georgina says the tyranny of distance is a common industry issue, but the opportunities lie in being smarter about how waste is managed, such as replacing long-distance transport with more optimal solutions, which could be, for example – carbon storage of sorted materials in landfill.

While a landfill levy is slated in Queensland, Rick notes gate fees are already relatively high in some parts of the state.

“Everyone says Queensland has the cheapest landfills. That may be true in south-east Queensland, but you go north to the sunshine coast and gate fees of $120/$130 and above are the norm,” Rick says.

“The irony of the situation is local governments still don’t understand that there needs to be an equitable recycling market. There is a great disparity with what the household will pay for the cost of waste and what the industry pays.

“People can still get rid of a trailer load of rubbish for like $7.50, but a truck or commercial ute load taking waste to a transfer station has to pay $130 a tonne.”

Debate also surrounds the categories that the levy applies to, which Waste Contractors and Recyclers Association of NSW Executive Director Tony Khoury in March argued should apply to all categories of waste, including municipal, commercial/industrial and construction/demolition waste. Tony also noted if a Queensland waste levy is to be truly effective, it should at least be the equivalent of the NSW Regional waste levy, currently $79.60 per tonne. In Queensland’s interstate waste investigation, Justice Lyons recommended a general levy on all waste disposed of at landfill in Queensland, which the report says is supported by the Queensland Government.

Rick says some areas in Queensland are running out of landfill space, while others have more void space but suffer distance issues.

He says a policy framework that supports industry confidence and waste infrastructure is important now more than ever, particularly as Queensland waste company Austin BMI proposed a development application for a new landfill at Ipswich, which has been met with some community opposition. The proposal would see a former disused coal mine at New Chum converted into a new landfill and waste transfer station.

The landfill would initially process 650,000 tonnes of C&D waste each year, rising to more than a million tonnes a year over the 18 to 20-year life of the site.

Ipswich City Council is the assessment agency for the BMI Group’s application. In early April, close to the time of publication, Planning Minister Cameron Dick issued a notice to Ipswich City Council advising of an intention to make a Temporary Local Planning Instrument to suspend part of their Planning Scheme, affecting new or expanded waste facilities in the Swanbank and New Chum industrial area and taking effect for two years.

C&D waste volume has increased by 59 per cent since FY2008 – which is suspected in the interim report to come from interstate.

The decision comes as landfill sites close and are rationalised across the state. The state government’s interim report indicates that since council amalgamations in 2008, 87 landfill sites have been closed, are in the process of closing or been converted to a transfer station.

Rick says a major issue in Queensland is that the business environment at
present is not conducive to supporting further resource recovery or necessary landfill infrastructure.

“If we can’t get a C&D landfill licence, what chance do we have of getting other critical projects up, including waste to energy?

“BMI’s proposal is nowhere near as big as a couple of the licenced facilities. It is to handle C&D waste to Queensland and yet it is classified as a ‘megadump’. The conversation should be about the importance of, and the role of, landfill.”

Rick notes the commentary surrounding the proposal has been highly emotive rather than focusing on the benefits the facility would bring.

“With the community attention and the political attention, it’s going to be very difficult to get anything licenced. Certainly in south-east Queensland, unless you’re willing to spend hundreds of thousands of dollars with the Planning and Environment Court. If you wanted to turn on new assets today, it would take you three to five years,” he says.

“State government is going to let the judicial process take hold, but it’s going to be subject to appeals and amendments.”

Rick believes while introducing a landfill levy could be a viable solution for the state going forward, the government first needs to establish the policy and strategic framework first, adding that the lessons of the past cannot afford to be repeated.

“A waste levy in its own right will not create jobs without the confidence that investments can proceed. The strategy must have clear objectives of what we want to achieve and how we want to get there.”

The interim report also acknowledges levies form part of a broader solution to improve resource recovery, noting the highest performers of resource recovery have been the ACT and SA – with levies of $10-26 a tonne and $77 a tonne respectively.

“The whole conversation about interstate waste has completely overshadowed the opportunity for Queensland. We’ve lost focus on that conversation – waste has always come north to Queensland from the border down to Coffs Harbour. At the same time, waste has been sent south for incineration, but hopefully common sense will prevail once we agree on the new policy framework. I think in the fullness of time, things will settle down.”

Rick notes that the levy is not paid by the industry, but ultimately is passed through to waste generators and then by industry usually ends up into state general revenue coffers.

“We have to be confident in its design that anything that is actually used as an economic instrument supports the industry and it doesn’t just become a general revenue,” he says, adding that there has to be a bi-partisan approach to waste policy in the parliament.

“Otherwise, where is the certainty? One party will come in and make one decision and another will overturn it – that is counterintuitive to what we want to do. It’s happened before and must not be repeated this time around.”

Craig Johnstone, Local Government Association of Queensland spokesperson, said at the time of publication it was still developing the details of its stance on the government’s plans to introduce a waste levy.

“Our general position is that any waste levy should not apply to household waste kerb collections and that in our talks with the government to date, we have been emphasising that it should be looking at how it can move towards ensuring a zero-waste future for Queensland,” they said.

The Queensland state opposition did not respond to questions by Waste Management Review.

The government was unable to comment on specific questions regarding the landfill levy structure, as it is subject to discussion by the Stakeholder Advisory Group. We asked them if the waste levy would include a regional and metropolitan price and if it would apply to all categories of waste, including municipal, commercial and industrial and construction and demolition waste. The government remained tight-lipped on the question of why it took them an entire term to establish a new waste strategy and plan for a waste levy.
NMI Approved Side and Rear Lift Systems

BOTEK LEGAL FOR TRADE dynamic scales do not slow down the approved manufacturers lift cycle, like some other systems do. The weighing takes place in less than one second in the first part of lift cycle and less that one second in the part of the lift cycle. It does not interrupt the cycle of even the fastest side lift truck. There is no time penalty at all in the time of the waste collection run, especially critical on routes that have very high loading demands on route.

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Automatic collection registration means that each collection of a container is automatically registered by the refuse collection vehicle and reported in real time to the office with time, place and any possible deviations. The system involves quality assured collection work and brings about the possibility for high quality and precision in administration and customer service.
E everyday items often contain a number of chemicals, most are harmless or even beneficial, but what happens when these chemicals are found to be a possible threat to human health?

Asbestos was an example of this. It was a popular fireproofing material, and can still be found in houses built before 1990 – before its deadly effects were discovered.

Removing and disposing of these substances and chemicals can be tricky, and if the chemical is already present in the waste stream it makes it even harder to manage.

Chemicals and substances that manage to go undetected cause issues, as often they are widespread and their impacts on health may be unknown.

Per- and poly-fluoroalkyl substances (PFAS) are a group of man-made chemicals that have been heavily used for household and industrial applications since the 1950s. They are found on items like non-stick cookware, fabrics, furniture, carpet stain protectors, food packaging, some industrial processes and in firefighting foams.

Following evidence of their widespread detection in
environmental samples, they are considered an emerging contaminant by the global regulatory body, the Stockholm Convention.

Due to their heavy usage, it is still unknown if the most common and well-studied PFAS chemicals, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS) are dangerous to human health, according to the PFAS Health Effects and Exposure Pathways report released by the Australian Government Department of Health.

The report says existing studies on animals have found that PFAS may be linked with issues in the immune system, liver, reproduction, development and benign tumours after prolonged exposure at relatively high levels. However, no existing studies have found a causal link between PFAS exposure and health effects in humans.

Exposure to humans occurs through everyday contact with dust, water and with products containing PFAS. Food consumption tends to be the most common route of exposure as some PFAS can accumulate through the food chain, according to the Australian Health Protection Principal Committee PFAS factsheet.

PFAS are absorbed through the gut but aren’t metabolised or broken down inside the stomach and are slow to be removed from the body.

Due to their chemical structures, PFAS can travel long distances in air and water currents.

The people of Williamtown in NSW were shocked to learn that the nearby Royal Australian Air Force had contaminated the local wetlands with PFAS, according to a release from the NSW Government Department of Health.

The chemicals had slowly worked their way through the soil to the groundwater underneath the site. Surface water samples taken from nearby waterways were found to contain high levels of PFOS, one of the PFAS used in firefighting foams.

To assist organisations and companies cleaning up and handling PFAS, the heads of all state and territory Environment Protection Authorities (EPA), alongside the Federal Government, released a National Environment Management Plan (NEMP).

The plan aims to explain how to properly handle and clean contaminated sites and methods for safely destroying the chemicals. It also has guidelines for what levels indicate the need for action, provides information on what action should occur, techniques for sampling and measuring PFAS concentrations, how to transport and handle the waste and future research to support the plan and any revisions.

Before it was released, there was no consistent guide or direction for communities like Williamtown that had been affected by PFAS contamination.

The standards set within the plan offer guidance, but could be problematic in the short term for those in the industry taken by surprise by PFAS.

EPA Victoria, under direction from the Heads of EPA, organised and ran consultation sessions in capital cities across the country and more than 80 written submissions were collected for the plan.

LANDFILL AND PFAS
PFAS can enter the environment from landfill sites that accept waste containing PFAS through ground and surface water via sewer discharges and leachate movement, the Australian Health Protection Principal Committee report states.

The NEMP outlines how to manage and handle PFAS within landfill.

Christie Gallen, PhD Candidate at the University of Queensland, has studied the incidence of PFAS in landfills.
According to the plan, accepting PFAS contaminated materials is a commercial decision for the landfill operator and must be approved by the environmental regulator.

It also says that site by site assessment is needed to determine whether a landfill can accept waste that contains PFAS.

WHAT THE RESEARCH SAYS
Christie Gallen, PhD Candidate at The University of Queensland, has studied the presence of PFAS in Australian landfills to understand which chemicals in the PFAS family are in the Australian solid waste stream, as well as in water treatment plants.

Her research involved testing 35 landfills across Australia which voluntarily participated in a leachate sampling and analysis program.

“We conducted two landfill leachate and waste water treatment sampling campaigns in 2014 in partnership with the Department of the Environment. It was the first time any PFAS analysis had occurred in landfill leachate, and we conducted it on different types of landfills, in terms of their size, age, waste type accepted and geographical location,” Christie says.

“We detected PFAS in every landfill that we tested, in both operational landfills and closed ones. We found that there was a relationship with the age of the landfill and the amount of certain PFAS detected in their leachate.

“Newer landfills had higher concentrations of PFAS in the leachate we studied. There are a number of possible reasons for this. For example, older landfills might have undergone a flushing effect where the PFAS inside them had already been depleted, but it’s hard to tell, as we never know how much PFAS is there to start with.”

Christie says the items where PFAS chemicals were often used may also have an effect on the connection between the age of the landfill and contamination level.

“From the year 2000, PFOS was phased out of use. Before that time, there was a lot more PFOS floating around, mostly on longer use products like carpets or furniture fabrics.

“If someone was to buy a carpet from 1990, they might not replace it for a couple of decades, so even though these chemicals have been phased out of use for years, they would be only entering the waste stream more recently,” Christie says.

“The landfill waste type also seemed to have a relationship with the amount of PFAS. On average, construction and demolition waste landfills had a higher concentration in their leachate.”

“We’re starting to get this simplistic picture where we can expect these PFAS concentrations to be popping up in landfills. But because every landfill is unique, it’s difficult to come up with hard and fast conclusions.”

According to Christie, the problem with PFAS is the fact that they’re naturally persistent and resist breaking down in the environment or the human body. The fact that they are also relatively mobile and persist for a long time in the environment can make clean-up operations difficult and expensive.

“There are some methods developed to remove PFAS chemicals from water and possibly leachate, but still leaves the question of what you do to handle the PFAS once it’s been extracted,” she says.

“By moving it into one place, it does make it more manageable to handle and compartmentalise, but they are still very difficult to destroy. They can be destroyed at high temperatures, but that’s still a challenge as there are not many facilities in Australia that can do that.”

“Destroying PFAS is a very specialised process, which would require a high energy input to dispose of large amounts. That makes it expensive to deal with, and though there are some small experimental methods of disposal, there’s very little employed on a large scale.”

Christie says new detection methods
are in progress, with a smartphone app-based portable sensor to detect PFOA that reads a sample based on extract colour, but these methods haven’t been widely adopted yet.

“At the moment, there’s no guideline that dictates a specific type of disposal method for PFAS contaminated leachate that I am aware of,” Christie says.

She says leachate contains a cocktail of other chemicals like flame retardants, metals and pesticides, adding that we’re still just learning the extent of PFAS in landfill leachate.

“First, we need to establish the PFAS profile or fingerprint present in the leachate before we can work out what to do with it.

“Then, you can move to practical questions with what’s the most cost-effective and practical method of remediation, who pays for it and all the things that come along with that,” she says.

THE LOGISTICS OF MANAGING PFAS
Colin Sweet, Chief Executive Officer of Australian Landfill Owners Association (ALOA), says that there is a logistical issue with the new guidelines set in place.

“Nobody has released information on what quantity and what exposure is dangerous to human health. It leaves us in a position where we don’t really know what the criteria are,” Colin says.

“If we look at the report, you can see that the limit for acceptance is seven micrograms per litre in the Australian Standard leaching procedure leachable concentration. How do you test for that with incoming waste?

“Bearing in mind that the biggest landfill in Sydney takes in around 3000 tonnes of waste a day, that’s about 500 truckloads of material. In order to make sure we’re not accepting PFAS contaminated waste, we’d need to take samples from each truck, wait for the test results, and then decide what we want to do with it.”

Colin says because PFAS is so common in household products, it’s difficult to determine what trucks may be carrying contaminated waste.

“If a truck has picked up rubbish from 50 different shops or factories, or if someone has thrown out carpets or furniture, it’s almost impossible to tell without testing. And if the test shows that the load is contaminated, where does it get sent to then?

“Landfills aren’t generating PFAS. It just comes into the facilities and goes out. It appears in the leachate that then needs to be disposed of. In a closed and capped landfill, you’ve also somehow got to manage the leachate that may contain PFAS, even if you’re not taking any more.”

“The topic has just been lumped onto the landfill industry.

“We need to know with respect to what levels of PFAS are in water treatment plants and what can be considered reasonable.”

Landfill operators are given recommendations by the plan on how to properly handle PFAS. The plan says that leachate should be collected in a sump and pumped to a storage location, usually one that is suitably engineered or a lined evaporation pond/tank. If PFAS is detected in high levels, options for treatment and remediation or destruction should be considered and implemented to prevent PFAS distribution to the environment.

Colin says that the current plan’s restrictive guidelines are an issue for leachate management and require practical limits.

“Some landfill owners reinject discharged leachate, while some have to discharge it into sewerage and satisfy the containment treatments. If it’s up to the liquid treatment operators whether they accept PFAS contaminated material, where does the leachate get discharged?”

Colin says he welcomes science-based regulation to ensure PFAS contamination is treated appropriately and says ALOA is establishing its official position on the plan in its current state.

“We support the banning of nonessential PFAS contaminated materials and products and support the regulators in their efforts to try and minimise PFAS in the supply chain.

“We also support the destruction of PFAS through thermal technology, and the implementation of a national standard for landfills,” he says.

Alex Serpo, Policy Officer at the National Waste and Recycling Industry
Council, says PFOS is a sleeper issue for landfills across Australia.

“PFOS is analogous to asbestos in terms of its overall national impact, perhaps not as deadly, but it’s a similar kind of problem. It’s longstanding, it’s toxic, it’s difficult to destroy,” Alex says.

“It was used as a fire suppressant – and thus was designed specifically to be difficult to destroy. Currently there are only a few treatment options, one of which is a plasma arc owned by ToxFree, which is an effective way to treat PFOS.”

“Existing stockpiles of PFOS should be identified and treated as the first step in the most environmentally sound manner possible.”

Alex believes that the states should coordinate a response in regard the effects of PFAS in landfills and that clear guidance should be set that takes into consideration infrastructure management and planning across private industry and local governments.

“Infrastructure need a realistic plan, enforceable standards and time to adapt to new regulatory requirements,” Alex says.

Alex says the major issue with PFOS is land contamination. Existing contaminated land issues need to be addressed while landfill standards can come later.

“From a waste management perspective, technology should be used to destroy the existing stores, then an economically and technically realistic plan needs to be put in place for landfill. The industry will need funding, time and government support to apply that correctly.”

Nial Finegan, Chief Executive Officer of EPA Victoria, says PFAS are just one possible pollutant that will require management by any landfill operator.

“EPA will require landfill operators to manage the pollution for which they are responsible and provide management plans to show how they will achieve that and contain PFAS on site as much as possible,” Nial says.

“Under the NEMP, each jurisdiction will be developing further specific advice with respect to landfills licensed to accept PFAS contaminated material.”

Nial says the body of evidence regarding PFAS and their impacts on human health is growing.

“The Commonwealth Government has advised that ‘research has not conclusively demonstrated that PFAS are related to specific illnesses, even under conditions of occupational exposure,” he says.

“It should be noted that as PFAS are highly mobile and persistent in the environment, Environment Protection Authority Victoria takes a cautionary approach about actions to protect human health.

“The Commonwealth Government has advised that ‘research has not conclusively demonstrated that PFAS are related to specific illnesses, even under conditions of occupational exposure,” he says.

“It should be noted that as PFAS are highly mobile and persistent in the environment, Environment Protection Authority Victoria takes a cautionary approach about actions to protect human health.

“Table 6 in the NEMP provides a guideline for landfill acceptance criteria which is based on national data, for example the Stockholm Convention, and may be modified by each jurisdiction to reflect specific landfill requirements,” Nial adds.

Nial says landfill operators are responsible for managing the waste they accept.

“How they determine PFAS levels in incoming waste will be one of the challenges they will be required to meet,” he says.

“Appropriately licensed landfill operators will require to test waste loads as per their licence requirements as per current requirements.”

“As per the NEMP, there are multiple alternative management and treatment methodologies available for the management of PFAS contaminated materials.”

Nial says the EPA holds those responsible for creating pollution to account.

“If sites have high PFAS levels they will be expected to demonstrate how they will manage it, that their plan is viable and provide the results that show it is working.”

The Heads of EPA, in collaboration with other groups, will continue to develop the plan and update it by mid-2018, with the first formal review expected five years later. Ecological guideline values and criteria for soil and waste reuse and for water authorities is expected to be completed by June 2018. The plan will also be supported by guidance notes on the requirements for preliminary treatment and remediation trials, the process for site prioritisation and containment and protocols for data sharing along with a range of other measures.

Research activities to characterise PFAS in trade waste/sewer systems entering wastewater treatment plants will be conducted. This will aim to assist in identifying the relative contributions of industrial sources discharging to trade waste, including landfills, in the total PFAS load.
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Harmonisation avoids ‘perverse’ outcomes

WASTE MANAGEMENT REVIEW SPEAKS TO ALEX SERPO, POLICY OFFICER AT THE NATIONAL WASTE AND RECYCLING INDUSTRY COUNCIL, ABOUT THE HARMONISED GOVERNMENT POLICY REQUIRED TO GROW THE WASTE AND RECYCLING INDUSTRY.

Q. The National Waste and Recycling Industry Council (NWRIC) supports the establishment of a simple, integrated national system for the identification, classification, treatment, disposal and monitoring of waste items. Given individual differences in geography and interstate markets, how practical is it to harmonise all laws and regulations governing waste management?

A. Harmony is important where it avoids a perverse incentive or business cost for no benefit. The obvious example of a lack of harmonisation is Queensland’s lack of a landfill levy (with a policy now being laid out), which led to unnecessary waste transport to Queensland. In this instance, we have suggested levy portability – that means the levy follows the waste. It’s already in place inside NSW and WA. It could be used in south-east Queensland if a levy is applied only to a smaller geography. It’s a tool designed to solve problems.

Another example of disharmony is the different way the states track waste or license facilities. We congratulate the Heads of Environment Protection Authorities (HEPA) group which is currently working on harmony at the behest of Environment Ministers. Industry stands ready to assist.

A. Should there be a government body to assist the integration of standards such as data integration? Perhaps similar to what Transport Certification Australia does with telematics?

A. Data is important for transparency, investment and enforcement. The use of Global Positioning System tracking on trucks is a useful enforcement tool. In partnership with the Waste Contractors and Recyclers Association of NSW, the NWRIC supports the establishment of a national government database of waste and recycling service providers. This would protect and raise standards in landfill, recycling, processing and transport and give EPAs the power to enforce these standards.

Further, we support that all waste facilities, regardless of size, be EPA licensed. We’d like to see the Australian Bureau of Statistics Waste Accounts program restored.

Q. To what extent do planning regulations, development applications, environmental impact assessments and licensing rules need to align with one another in the states and territories? Do more strict policies in some states in any way impede growth in others?

A. The key issue here is protecting sites to process waste into a resource and landfill, as it is essential for the protection of public health. In Victoria, we’ve seen both high construction and demolition recyclers and organics composters shut down due to site encroachment. If we want resource recovery, we need protected resource recovery sites.

In this regard, we’re calling for all states to develop 10- and 30-year waste and recycling infrastructure plans. We’re pleased to see important work done by Victoria and more recently South Australia with its Waste Resource and Recovery Infrastructure Plan.

NSW has begun with its ‘infrastructure gap analysis’, (Waste
and Resource Recovery Infrastructure Strategy 2017-21) but more work is needed. Tasmania needs any kind of statewide recycling and waste plan – we’d be happy to assist.

Q. Should infrastructure planning account for China’s policies such as National Sword? What work will NWRIC be doing in 2018 to stimulate infrastructure demand and demand for recyclable materials?

A. Right now, materials recovery facilities are under immense business pressure. We have made suggestions for immediate, short, medium and long-term responses. In the immediate term, we welcome the $47 million package from the NSW Government and the $13 million package from the Victorian Government. Other states could follow. A focus on commercial recycling will be important. In the long term we need to develop fuel manufacture and energy recovery capacity – as well as greater domestic markets for recycled products.

Q. How does the Safeguard Mechanism exactly hinder the regulation of landfills?

A. While the Emissions Reduction Fund allows the Federal Government to provide financial incentives for emissions reduction under carbon abatement contracts, there are programs within it which do not align with the waste industry. The Safeguard Mechanism is one of these, as it regulates landfills by establishing emissions baselines.

The Safeguard Mechanism, which was open for public comment until March 2018, has sought views on the approach from transitioning landfill facilities away from historical baselines. However, as a general principle, we believe landfills should be excluded from carbon taxes. Where landfill gas is additional to business as usual, then it should be eligible for Australian Carbon Credit Units. There are many reasons for this. The principle reasons are emissions from landfill are difficult to measure accurately and emissions are delayed.

Further, greenhouse control programs may even create perverse financial incentives, such as rewarding facilities which have landfill fires. For example, where there is a landfill fire, greenhouse emissions fall as burning biomass is carbon neutral, but clearly this isn’t a good outcome. Further, the imposition of carbon prices on landfills tends to distort the market, lifting prices at some facilities but not others – which can lead to additional waste transport. Conversely, the best outcome is more waste in fewer, higher quality facilities. Finally, greenhouse emissions from landfills are inaccurate to measure, meaning taxing them is problematic.

Q. Council believes that open and competitive markets are the key to furthering the nation’s waste and recycling capacity. What market incentives are holding the industry back and which ones should be more readily embraced?

A. The issue here is local government owning waste processing or collection businesses – or mandating that commercial waste collection is done by council. No commercial operators will go into business against local government. Where there is a government monopoly, innovation will stagnate and large-scale recycling will be absent. The best outcome is a productive and close relationship between local government and industry – where everyone puts serving the public interest first.
TIM CUMMINS, COORDINATOR RECYCLING AND WASTE MANAGEMENT BAYSIDE CITY COUNCIL, EXPLAINS THE CHALLENGES AND OPPORTUNITIES FOR WASTE IN THE SOUTH-EAST MELBOURNE LOCAL GOVERNMENT AREA.
Q. What are some of the challenges surrounding collection and recycling, particularly with a large municipality such as Bayside?
A. The biggest challenge is the current situation with recycling following the introduction of China’s National Sword policy and higher standards for recyclables. This is placing considerable pressure on recycling processors with higher costs potentially being passed onto councils and ratepayers. With so many differing stories in the media about this situation, it also has the potential to confuse residents and cause them to change their recycling behaviours.

We are encouraging Bayside residents to continue to do the right thing and keep separating household waste and recycling while also emphasising the importance of avoiding waste in the first place.

Q. How do some of the landfill closures in the south-east impact on the City of Bayside?
A. The closures are creating increased pressure on the remaining landfills as well as requiring our collection contractors to travel greater distances to dispose of waste. This is potentially increasing delays in truck turnaround due to more traffic. The closures highlight the importance of reducing our reliance to landfill by increasing diversion and investigating alternative waste treatment.

Q. Which bin system do you use and why?
A. Bayside City Council uses a two bin system with an optional third – one for domestic waste, one for recycling and an optional green organics bin with a one-off charge. Domestic waste is collected weekly, while recycling and green organics are collected each alternate fortnight.

Q. What has been working particularly well over recent years for the council in terms of waste management/recycling services?
A. We changed from two bulk clearances of hard waste per year to a book on demand service in 2012. This was well received by residents and works really well. We’ve also introduced recycling stations at our Corporate Centre in Sandringham and at the Beaumaris Library where residents can dispose of globes, fluoro tubes, mobile phones, chargers and different types of e-waste, as well as soft plastics.

Q. How do you ensure what is recyclable is clear to residents?
A. Bayside residents have a great record when it comes to recycling with relatively low contamination levels. But there is always room to improve and our environmental sustainability team is constantly developing new programs such as our successful ‘Don’t Feed the Bin’ campaign focused on reducing the amount of food waste going into the domestic waste bin.

We are also working to create awareness within the community about waste avoidance. This includes encouraging residents to change their purchasing behaviours, such as avoiding products with excessive packaging, saying no to plastic bags and only purchasing what you need. All of this can have an impact on what goes into the bin. Whenever residents are unclear on anything in regards to waste or recycling, they can always refer to our website or contact us and someone is always willing to assist.

Q. Is there any modern technology the council is utilising and/or would like to use that would make collection more efficient?
A. We are always looking at ways to make collections more efficient and work closely with our contractors to...
explore any improvements. Vehicle tracking has proved to be useful, particularly for identifying any trends or possible missed clearance.

Q. Where do you see waste and resource recovery heading in the future in Melbourne?
A. The future has to include looking for alternative waste treatments and trying to move away from reliance on landfill by exploring more sustainable options. This includes investigating technologies that have proved successful in treating municipal waste overseas and adopting them for Australian conditions and markets.

A positive outcome of the current challenges in recycling is an increased focus on replacing the current single use model with a more circular economy – prioritising recycled material products nationally, which is currently not always the case. We need state and Commonwealth governments to take an active role in this.

Q. What do you look for in a successful tender and how do you go about it?
A. Bayside City Council’s procurement decisions and initiatives are based on clear and transparent evidence, informed economic, financial and environmental and social considerations.

Q. What are the main opportunities for the City of Bayside for increasing diversion of materials from landfill/increased resource recovery?
A. We are looking at the possibility of expanding our existing green organics collection service to incorporate food organics. Our bin audits have shown that significant quantities of food waste are going into the general waste bin and ending up in landfill. With the introduction of a food organics and garden organics (FOGO) service, we can divert a large proportion of this food waste from landfill.

We will also continue to run education programs to promote sustainable purchasing behaviours and waste avoidance to reduce the amount of waste our community creates in the first place.

Q. How does the council manage to keep costs down while meeting waste management targets?
A. We work closely with our contractors to manage services within agreed contracts to get the best result for residents, while also working to meet our waste management targets and sustainability objectives.
RECYCLING EQUIPMENT

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As waste collection is often collected based on volume, what the customer throws in the bin directly impacts the profitability of the waste contractor.

However, a contemporary approach known as weight-based billing provides real-time data on the billing of waste management services for front and rear loaded bins in the commercial and industrial sector. The idea behind this method is to incentivise recycling and discourage landfill through clearer price signals with accurate measurements of waste.

The National Measurement Institute (NMI) is responsible for approving weight-based billing technologies, and under its regulations, if using equipment such as a weighing instrument to determine how much to charge a client, it needs to be approved by a licensed technician.

Paying by weight means the user is the one who will end up paying – a stark contrast to traditional methods of individual contracts based on bin size, how often the bin is emptied and the specific waste. As a result, those who recycle or reduce their waste could end up paying far less for their disposal.

Phil Carthew, Managing Director of manufacturer and supplier E-Max Australia, says individual bin weighing to analyse the waste stream of customers isn’t always a profitable
solution. BOTEK has worked in partnership E-Max for the past five years in Australia, supplying them with legal for trade solutions.

Phil says BOTEK is one of the only providers that offer a complete streamline package. The company provides NMI-approved weighing systems for all side and rear lift trucks, including a recent application with the NMI for front lift trucks. Phil says once the application is successful, E-Max will offer the most accurate and robust system on the market.

Dynamic bin weighing, such as weight-based billing, comes with a host of challenges that first need to be overcome and integrating all the necessary equipment is vital.

BOTEK’s radio-frequency identification devices (RFIDs) are able to capture a significant amount of real-time data and help to ensure there is accurate bin-to-customer identification, which makes the system more efficient.

AGGREGATING WEIGHT, BIN AND VEHICLE INFORMATION
BOTEK has released its Evolution tool to plan, optimise, execute and report collection work. It does so through dynamic bin weighing and automatic collection registration. Each collection of a bin or container is automatically registered by the refuse collection vehicle and reported in real time with location and time of pickup, noting any possible deviations.

The system uses quality-assured collection work to bring about higher quality and precise administration and customer service.

Evolution tracks customers, containers, vehicles and drivers, aiming to do so in a simple and comprehensive manner. In addition to tools for route planning and optimisation, it allows users to follow the collection work to get an overview of all vehicle routes with an estimated time of arrival.

The system also allows users to quickly move containers between routes or coordinate between several vehicles.

Phil says route management in Evolution is dynamic and simple to manage. For example, if there are frequent changes in the collection day for a container, all routes affected by this are updated automatically, even if the route is already planned and dispatched to one or more vehicles.

All collections, even outside the route, are recorded and shared via the server so the collection status is updated in vehicles that have the container on their route. This makes it easy to plan for the office and for drivers to share routes and information during the collection process.

CHANGING LANDSCAPES
The Chain of Responsibility laws, which are undergoing changes in mid-2018, mean that if you consign, pack, load or receive goods as part of your business, you could be held legally liable for breaches of the National Heavy Vehicle National Law – even if you have no direct role in driving or operating a heavy vehicle.

This has had a top down effect on waste and how it is transported, says Phil, with directors, senior managers, supervisors, drivers and customers who overload bins and trucks only a part of the picture.

“The landscape of the transport industry will change as of mid 2018. The trick will also be understanding what weighing equipment will aid loading and axle group mass compliance, as opposed to weighing the content of a bin on either a rear, side or front load vehicle,” Phil says.

“We are more than happy to advise about the above technical aspects of dynamic bin weighing though to actual mass management of heavy vehicles.”
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Chinese philosopher Sun Tzu wrote in *The Art of War* that it is important to know yourself and to know your enemy before every battle.

The same principle applies in commerce – knowing the ins and outs of your industry and competitors is the key to success.

In the waste industry, it is important to understand what waste is being handled, when and where, as well as the risks involved, for a business unit to limit its liabilities. This is where Mandalay Technologies provides expert guidance.

As former Head of Finance of a diverse waste and recycling group, Lacey Webb’s relationship with Mandalay commenced as a customer, and after many years of partnering with and developing an understanding of Mandalay’s systems, she joined the company in 2016. Bringing 12 years of waste industry experience to the table, Lacey’s role as Senior Consultant is to take the lead in commercial and compliance consulting at Mandalay, supporting clients in their commercial practices. She has seen first-hand the importance of accurate data to drive business outcomes.

“I cannot speak more highly of the importance of real data: to have confidence in data integrity and trust that the information being reported is complete and valid. Not understanding your own business’ knowledge gaps is one of the worst positions a company or local government authority can be in,” Lacey says.

Lacey points out that not having accurate data for your business, or lacking confidence in the quality of information and process, means it’s difficult to understand commercial realities.

“Understanding your business means understanding your bottom line and your obligations. Without proper data, you’re overlooking one of the most important considerations a business must manage – making sure you know where you have money to spend and where it has come from,” Lacey says, adding that it’s also imperative to understand where the risks of fraud or incorrect information lie.

“It is this risk of fraudulent, incorrect or incomplete information that is the hidden challenge facing our industry as it’s so often a lesser consideration.”

By managing data efficiently and
“Instead of managing data, predefined information in systems like Mandalay allows you to manage by exception, which is what efficient data management is all about.”

Lacey Webb, Senior Consultant

having comprehensive auditing and exception methodologies in place, a business greatly reduces its risk of fraud, regulation and compliance issues.

“The waste industry in many areas is still a cash-based industry and it can be very easy for someone at any level within a cash handling business to amend a transaction to achieve a desired outcome. If nobody is looking for these amendments in the data, nobody notices,” she says.

“Human error is also a factor. People miss things. A lack of training is one of the biggest risks that I notice, and I’d hate to see ongoing lost revenue in a business unit because of a failure to train staff effectively. Unfortunately though, it is not uncommon.”

Training users, administrators and senior managers how to properly manage data is a key part of Mandalay’s model, Lacey says.

“Often key people within a council or company will be thoroughly trained in using a system. When those people leave, they train the replacements and as this cycle continues, nuances of best practice are not passed down. However, a handful of poor habits are,” she says.

Lacey says that over time, this leads to the stringency of data governance degrading and increases the risks facing a company. Because of this, it’s important for companies and local government authorities to maintain up-to-date records and perform audits on their information.

“There is a lot of effort that goes into an audit, whether it’s financial or data related. Making sure the information is correct the first time around alleviates future headaches,” she says.

Regular training and competency validation is also important.

“Technology and methodologies are changing, and we in waste are lucky that our industry is one of so much collaboration. As new techniques and technologies come into practice, we have an opportunity for continuous improvement.”

Lacey notes that chief executive or financial officers and waste industry executives are rarely the people handling the data, but they are usually the people with their neck on the line if information is incorrect. As this is the case, it’s important that they can have confidence in the quality of techniques being practiced to manage system information.

“There is a lot of responsibility placed on operators at a waste facility to ensure that data is accurate, but often the accountability ends further up the line,” she says.

“An operator can be responsible for structured data that impacts financial records, regulatory reporting and operational metrics, but may lack the tools or exception reporting methodologies to ensure the data stays structured.” She says this can lead to incorrect reporting and challenges for management.

“The quintessential example of this challenge is an organisation in NSW who was recently fined $1.6 million under the National Heavy Vehicle Chain of Responsibility provisions, due to a failure to appropriately oversee mass management of vehicles and provision of false documentation to regulators,” Lacey says.

“This resulted in not only a penalty to the company, but also a prohibition order against the director personally. And there will be more cases to come. Our job is to provide the right compliance and product support to allow our customers to manage these challenges effectively.”

In addition to managing point-of-sale transactions, Mandalay provides a system which will allow customers to redefine large volumes of
information behind the scenes. Lacey says this allows clients to remove a significant amount of administrative overhead and risk – specifically in the regulatory space.

“Instead of managing data, predefined information in systems like Mandalay allows you to manage by exception, which is what efficient data management is all about,” she says.

Mandalay’s system can predefine regulatory reporting settings for specific states and standardise reporting to allow for easy submission of recurring reports, such as those lodged via the Queensland Waste Data System in Queensland or Waste and Resource Reporting Portal in New South Wales, reducing administrative effort and allowing for more effective staff utilisation.

“Without a system, or with an ungoverned system, a lot of time and effort is spent creating data instead of managing the outputs,” Lacey says.

Referencing NSW Environment Protection Authority (EPA) and QLD Department of Environment and Science reporting, Lacey says that Mandalay allows a waste business unit to ensure that those in control of data can be comfortable that it’s correct and current.

“My role at Mandalay is to focus on risk and compliance – and this includes the regulatory space, helping our customers manage the challenges of tracking their regulatory data from the transaction and in more challenging situations, helping them with audit responses.

“Often, I will liaise with the EPA or other regulator on behalf of a client to determine the standards of classification when there is a grey area. This not only assists that business move forward, but helps in allowing Mandalay to better educate other clients and refine processes.

“We offer comprehensive training and governance specific to the space and have strong relationships with regulators and authorities across the country: with the NSW EPA, QLD Department of Environment and Science, Department of Water and Environmental Regulation in Western Australia and the list goes on.”

She says that national companies, both small and large, that operate facilities across multiple states also come across issues of regulation that they will address with the Mandalay team.

“For a national company, it’s difficult to have a centralised office that manages the regulatory requirements for every state in Australia, given that the regulations and reporting requirements in every state are different,” Lacey says.

“Each customer requires a bespoke service – to ensure that the guidance and support that we give is consistent in method across all facilities, but specific to the local regulation of each operation.”

And this is all a part of the Mandalay consulting service: supporting waste operations, regardless of their size, to manage their challenges more effectively through system implementation and best practice process.
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SATURDAY 12 MAY 2018
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Increasing the volume of waste collected per hour without the need to deploy extra trucks is a priority for many fleet managers across Australia.

With enough organisational momentum and enthusiasm, fleet planning technologies can be implemented to help reduce vehicle and driver costs and capacity, prioritise collection orders and free up driver availability.

Integrated software and vehicle specialist AMCS Group continues to help waste collection companies around the world improve their bottom line – with Irish waste management and recycling company AES one organisation to benefit from an optimised service.

Servicing more than 105,000 residential homes and 6000 commercial customers, AES handles recyclables, organic and general waste and manages 65 vehicles with 400-500 collections per route on average.

AES must work with various fleet patterns and multiple individual drop-off sites for each type of waste. The combination of a large number of customers spread across a varied geographic area makes waste collection planning a challenging task.

In Ireland, councils are no longer involved in waste collection services, as residential householders instead use subscription-based services from a variety of private operators. Residents can change providers if they’re not content with their service or product offering.

While the challenges of fleet management and budgetary concerns are universal, competition in the Irish sector is two-fold, according to Thorbjørn Schmidt-Jacobsen, International Sales Director, Routing at AMCS Group.

Darren Sadler, AES Logistics Planning

AMCS Group is helping waste collection companies around the world to improve their bottom line.
and Operations Supervisor, says working with different visit patterns, weights, volumes and individual drop-off sites complicates waste collection planning.

“It is imperative for us at AES to be able to meet the expectations of our customers and previously we were unfortunately not always able to do so,” Darren says, adding that AES practically never created new master plans for its routes.

Before seeking the services of AMCS, Darren says that AES’ routes weren’t written down, but rather planned by drivers based on their local knowledge. As a result, routes were inefficient and difficult to execute for temporary drivers, who often missed bins.

“Adding to the inefficiency was the fact that whenever we acquired new companies, the new routes were added to the plan, but never actually merged with it,” Darren says.

“New customers were inserted manually into existing routes without any plan optimisation. As the plans were not recorded in writing, new customers were often forgotten.”

Darren says that when bins were missed, AES had to organise extra collection routes, resulting in overtime payments and increased costs and superfluous mileage. This was only one part of the problem as when bins were missed, customers were highly dissatisfied and even decided to terminate the agreement – more common around new customers as first impressions count.

He says the company then decided to follow a “learning by doing” approach by training itself in the user-friendly AMCS Route Planner system. Designed to modernise a driver’s fleet, AMCS Route Planner provides what-if simulations on expected collection times and trucks on the road, master route creation and general day-to-day planning.

The optimisation system is equipped with powerful algorithms that can be configured to match the requirements of any industry, whether suited for distribution, pick-ups, collections or a combination.

When using its optimisation service, AES only asked for consultancy from AMCS when needed and started its implementation with smaller depots to learn from its experiences.

Darren says communication was imperative when it decided to evaluate all of its customer’s service days.

AES had to change approximately 80 per cent of its customer’s service days, a decision that was not without its risks.

“Early in the process, service day changes were not well received,” Darren explains.

“Many customers never got the message regarding the changes, and the outcome was numerous customer complaints about missed bins.

“Optimising service days was crucial in order to achieve the best results, and, learning from our mistakes, we changed our communication strategy and improved the acceptance of service day changes remarkably.”

And the risk paid off for AES, greatly boosting its profitability and customer service quality. It saw a cost reduction of approximately 15 per cent per lift as a result of the changes. It also eliminated ad-hoc routes for collecting missed bins by 100 per cent and its ability to take on a greater number of new customers with existing vehicles.

Darren adds that the well-defined routes ensure effective use of temporary drivers, decreasing the number of missed bins tremendously. The use of Global Positioning System coordinate maps are also available for temporary drivers to use.

“We are now able to optimise more often, thereby improving our resource utilisation. Due to better resource utilisation and a better overview of resources versus actual needs, we have been able to relocate vehicles to other service areas, making better use of them,” he says.

“The improved overview of resources and our ability to assess spare capacity has also enabled us to be more strategic about where to make sales campaigns. We now know exactly where we have spare resources and, consequently, where it would be extra beneficial to win new customers.”

AMCS’ route planner is equipped with powerful algorithms that can be configured to match the requirements of any industry.
In this ever-changing marketplace, project managers need to ensure that they're focused on generating the maximum productivity from their site and equipment. One way to do this is to ensure that every piece of equipment is operating at maximum efficiency.

According to Position Partners, the Loadmaster Alpha 100 loader scale aims to achieve exactly this. The company’s loader scale has the adaptability to go on a range of heavy vehicles around waste industry sites, enabling operators to keep their technology purchases to a minimum – while still increasing productivity.

In its basic form, the Loadmaster Alpha 100 loader scale is a tool to indicate the weight lifted by the loader and loaded into a truck, hopper or other relevant machinery. It can also be used as a complete management tool, featuring data storage, Wi-Fi and internet connections to send captured data anywhere in the world. The Loadmaster loader scale was the first loader scale in Australia to gain a pattern approval to allow it to be used for trade purposes.

The loader scale can help project managers overcome numerous challenges, from load record keeping, to complying with Chain of Responsibility legislation, greater utilisation of plants and matching the right equipment to boost productivity.

The Chain of Responsibility laws, which are undergoing changes in mid-2018, mean that if you consign, pack, load or receive goods as part of your business, you could be held legally liable for breaches of the National Heavy Vehicle National Law – even if you have no direct role in driving or operating a heavy vehicle.

The Loadmaster Alpha 100 loader scale helps ensure fleet operators are not overloading their vehicles. The load record-keeping feature of the loader scale means that fleet operators can keep track of all their loads within a certain period. This data is on hand if
operators need to prove that they have not overloaded a vehicle.

Position Partners Loadmaster Alpha 100 loader scale is adaptable enough to be installed on a range of machines including front end loaders of any size, telescopic handlers and container lifts.

“We aim to make the integration between the Loadmaster Alpha 100 loader scales and your machine as seamless as possible,” says Chris Nussey, RDS Business Development Manager, Position Partners.

“The Loadmaster is the best value for money loader scale on the market today.”

Chris says that prior to implementing the Loadmaster Alpha 100 loader scale, project managers would rely on operators to manually record load data, increasing the risk of falsifying figures and leaving them vulnerable to user error in weights, truck cycles and information on what business activity was undertaken, when and where.

“Along with increased logging ability of jobs, to be able to recall one particular truck load loaded in the past, say six months ago, to prove no overload or just the weight loaded if an accident happened is invaluable,” he says.

Chris says the Loadmaster Alpha 100 loader scale has a range of standout features which set it apart from its competitors, including the removal of manual inputs with Global Positioning Systems, barcode readers and radio-frequency tags. This allows the operator to automatically select products, trucks and locations without touching the screen. He says the Loadmaster’s integrated reverse camera improves safety on site, while boosting efficiency. In addition, he says a straightforward user interface ensures new users can be trained to use the scales in a short amount of time.

“The Loadmaster also has the ability to be controlled from any computer in the world with an internet connection,” he says.

And with local support being a key factor in after-sales support, the team at Position Partners is on hand with branches in each Australian state to assist should there be any issues.

“Position Partners can supply after sales support and training packages depending on customers’ requirements. From a basic telephone, onsite and worldwide remote internet to the Loadmaster – ongoing support and training is not far away,” Chris says.
STREET SWEEPINGS ONCE DESTINED FOR LANDFILL WILL BE RECOVERED THROUGH INNOVATIVE WASHING PLANTS IN MELBOURNE.

Cleaning up Victoria’s streets cost more than $90 million in 2010-11 – or $16.04 for every ratepayer in the state.

That’s according to statutory authority Sustainability Victoria’s 2010-11 data, which puts the price of street sweeping services at more than $58 million a year – covering by 76 per cent of the metro region.

It goes on to say that collecting 39,693 tonnes of roadside litter and illegally dumped rubbish cost local governments almost $10.6 million annually to collect.

The pricey burden to councils drew the attention of Melbourne resource recovery specialists Repurpose It and integrated infrastructure and environmental services provider Citywide, which two years ago opened the nation’s first street sweeping and recycling plant at Dynon Rd, in West Melbourne.

“We need to be educating the community on where litter ends up, because quite often it ends up on our road network and that comes at an increased cost to councils,” says Repurpose It’s George Hatzimanolis explains.

“This is ratepayers’ money that could be spent and invested in critical
infrastructure for our communities.”

Street sweepings comprise grit, plastic, paper, cardboard, timber, litter and glass, with much of it recoverable with the right technology in place.

With the capacity to process about 22,000 tonnes of materials per annum, Citywide’s Dynon Road facility is operated in partnership by Repurpose It. It is a dedicated street sweeping and pit cleaning waste plant for the Melbourne Central Business District and surrounding areas.

Matthew Whelan, Citywide’s Executive Commercial and Innovation, says the partnership has allowed the companies to maximise productivity and the facility’s sorting capability. He says this allows the organisations to continue to grow their volumes, products and recyclable streams for the plant.

“All of our clients are experiencing increased volumes of street sweeping and other waste streams and the ongoing development of the facility is part of the commitment of Citywide to provide leadership in the areas of resource recovery, sustainability and liveability in our cities and local municipalities,” Matthew says.

George says a typical local government area will produce about 3500 to 5000 tonnes of street sweepings per annum. He estimates 95 per cent of the street sweepings generated through standard road maintenance are recoverable, with the remaining residuals containing litter such as paper, plastics and cardboard. Other areas of road maintenance are also part of its street sweeping recovery, including catch basin cleanings and pit cleanings comprising sand, grit, coarse organics and silt/fine organics.

“Catch basin cleanings and even pit cleaning can cause issues in urban environments, particularly if you’ve got an oil spill – which can mean material emerging from the pits and drains is contaminated. These are particular challenges in Melbourne’s Central Business District, so there is often stringent environmental compliance required and that’s why street sweepings can only be disposed of at a licenced facility with regimented testing,” George says.

Repurpose It’s washing plant technology will focus primarily on manufacturing sand and washed aggregates at high output. George says it complements the Citywide facility.

“While our facility will wash a number of materials, we focus predominately on excavated materials to make manufactured sand,” George says.

“We partnered with CDE Global who offered a turnkey solution and the world’s leading construction and demolition washing plant.” The plant, which won’t be operational until October this year, will wash and recycle the ordinarily difficult to recover sand, silt and aggregates through advanced screening, scrubbing and water treatment.

Glass fines will also be a notable feature of the washing plant, eliminating contaminants such as alcohol and cane sugar caught up in glass through the commingled bin.

At full capacity, it will handle up to 250,000 tonnes per annum comprising a variety of waste materials from the construction industry.

“Excavated materials will go over a wet screening, scrubbing and sand processing plant and we’ll be able to recover any of the available sand and grit for reuse which really closes the loop. Industrial ecology is the core of our business,” George says.

“We are able to wash and produce this material to specification – it’s a direct substitute for natural sand.”

He says Repurpose It has made arrangements to partner with Australia’s leading construction material providers, as the material will be sold on to owners of asphalt and concrete plants and developers of road base. These companies will turn the materials into a finished product for use in road building.
Mattresses and tyres can be some of the most rugged and often difficult to process waste streams.

To ensure mattresses are recycled safely, the steel needs to be separated, which can involve manual dismantling or mixed shredding. The steel can be separated readily from the shredded output, with a small fraction of shredded steel and wires tangled up and potentially unrecoverable.

Likewise tyres also need to be shredded, and depending on the application, can require specialised technology to convert into a valuable commodity. When tyres, mattresses or other waste streams need to be sent to landfill, reducing volumes is critical to maximising compaction rates, preserving valuable airspace and saving transport costs.

Dealing with both streams responsibly rests with the dedicated processing, recycling and waste transportation businesses of Australia, which require only the best technologies to get the job done.

In the resort town of Airlie Beach, in Queensland’s Whitsunday Coast, Paul Verwoerdt works hard to transport and shred a range of materials. As Managing Director of the family-owned business Tropical Mulch, Paul has since 1995 focused his efforts on green and general waste transport and recycling, but recently expanded into tyres, concrete, mining belt and mattress recycling. Paul says this expansion occurred during the clean-up after Cyclone Debbie – which caused damage to thousands of properties across northern Queensland.

Tropical Mulch travels to councils across Queensland and helps reduce their waste volumes. It also works with private vendors in reducing their waste.

To aid the business’ tyre and mattress expansion, Paul needed a powerful and versatile machine to shred materials down to a range of sizes – and that’s when he discovered the TANA Shark 440DT. He ordered the machine in August last year and received it in October.

“We were using a variety of shredders for months and found we couldn’t size green waste down to the...
requirements we needed and that’s when we started researching and found out about the TANA,” Paul says, adding that the TANA can shred waste to an eighth of its size, reducing volumes by 40 per cent.

Referred to by GCM Enviro as the most versatile shredder on the market, the machine is capable of handing a diverse range of materials from mattresses, to tyres, cables, ragger wire and construction and demolition waste. The slow-speed multipurpose waste shredder is suitable for a variety of tasks, including pre-shredding, secondary shredding, small particle size shredding and in-line systems. It enables full control over the particle size, from 50 millimetres to 500 millimetres. GCM Enviro is the sole Australian distributor of TANA landfill compactors and shredders.

“We gave ourselves 12 months to make the TANA work for us and it’s worked even quicker than that. We are picking up a lot more work in Queensland since,” Paul says.

Paul says that Tropical Mulch is able to process up to 150 mattresses each hour, 85 cubic metres of finished green waste product each hour and 200 cubic metres each hour of pallets. The machine is able to perform shredding in one pass, allowing Paul to change the grade of the materials to suit his customer’s requirements.

“We’ve in some cases been able to reduce a council’s mattress waste by up to 85 per cent, separating the steel for recycling,” Paul says.

In the primary shredding phases, unwanted metal wires are removed using an over-band magnet and a range of screens are inserted below the rotor to generate a particular size of material. The end product size and quality can be determined and finalised by using a rotor screen with suitable mesh size out of the six available, ranging from 35 millimetres up to 220 millimetres. Ensuring the end result is efficient, the TANA Shark 440DT takes care of the shredding process, whether its a pre-shred from 500 millimetres minus or a finished product of 50 millimetres minus.

“We size the mattresses down to a 40-millimetre size and take the steel out of them, while the other unrecyclable materials usually go to landfill,” Paul says, adding that reduced waste volumes saves councils on transport costs, maximises compaction rates and preserves landfill airspace.

“The design of the rotor configuration and the interchangeable knives and screens allows us to produce anything from 50 to 500 millimetre particle size.”

Pallets which take up space in landfill are reduced by 80 per cent in volume to a 75-millimetre size – with the nails separated and sent on for recycling.

TANA’s second elevator is equipped with magnets to allow for easy separation on special materials for recycling.

Most importantly, Paul says the process all takes place with minimal contamination.

“The TANA Shark 440DT has its own process and is able to sort the bad contamination from the not so bad,” he says.

Tropical Mulch also specialises in the mulching of green waste stockpiled at council transfer stations, as well as processing materials for land clear projects, private operators and landscaping yards in preparation for material reuse. Paul says the green waste is sized from down to a 40-millimetre size.

He says the process all takes place with minimal down time, noting that GCM Enviro has been highly supportive in its aftersales service, ensuring he is able to call upon them should he encounter any difficulties.

“It’s very easy to operate and any issues come through satellite so GCM Enviro is able to fix problems in real time,” he says.

The TANA Service Center ensures maximum uptime with staff performing preventative maintenance schedules and getting in touch with its customers to alert them of any problems before they occur. Paul says he’d have no hesitation turning to GCM Enviro into the future should he require additional products. ■
Imagine a world where manufacturers and materials recovery facilities worked in tandem to develop new products. Likewise, picture a business environment where waste generators recycle their own materials, including difficult-to-process materials such as e-waste.

The idea is being envisioned through new technology at the University of New South Wales (UNSW) Sydney’s Sustainable Materials Research and Technology (SMaRT) centre. Professor Veena Sahajwalla, SMaRT Director, and her colleagues are trialling eco-friendly microfactories, which comprise one or a series of small machines and devices that use patented technology to convert waste into new and reusable resources.

The term microfactory refers to a small dimension factory able to produce small dimension materials and was first proposed by the Mechanical Engineer Laboratory of Japan in 1990.

“We are essentially creating a new technology for small-scale factories, working on predominately using...
“What was great to see that these guys were captivated about the possibility of manufacturing their own smaller components from the plastics they normally have to throw away.”

Veena Sahajwalla, SMaRT Founder

waste as a feedstock and generating value-added materials for products,” Veena explains.

The intellectual property-protected technology has the ability to transform materials using regulated temperatures, eliminating the need for magnetic separation technology and differentiating it from other products on the market. SMaRT is aiming to ensure the materials compare to virgin materials.

The long-term goal of the project is to enable local communities to produce many of the products, materials and resources they need within their areas, using resources derived from waste. This unique approach aims to disrupt today’s centralised, vertically integrated industrial model and its global mass markets, with agile technologies driving the decentralisation of manufacturing.

Veena says traditional manufacturing frequently occurs in large and immobile factories near raw material supplies or remote areas, but microfactories can be situated on a site as small as 50 square metres and located wherever waste is stockpiled. The first two microfactories will be unveiled at UNSW in 2018, with a focus on e-waste and green materials. Growing up in Mumbai, Veena dreamt of a scenario in which manufacturers and recyclers work together.

“If you’re looking at the ability to produce metal and metal alloys from, say, computer motherboards, it’s not just about physically separating out the plastic from the metals, but it is really about the transformation of these into reusable materials again,” Veena says.

“You want to be able to create metal alloys – so you can think of it as a regeneration of alloys. If you were focusing on metallics, for example, to create metal alloys, the plastic itself from the leftover non-metallic process could potentially also be converted into a value-added material containing carbon.”

Through microfactories, e-waste can be converted into valuable metal alloys, plastic 3D printer filament and other advanced materials, including silicon carbide nanoparticles with multiple uses. Green materials such as benchtops, panelling and flooring can be manufactured from mixed glass and plastics and other wastes that would ordinarily go to landfill. One microfactory takes computers, mobile phones and printers and places the discarded devices into a module to break them down. This may follow with a special robot to extract useful parts, while another module uses a furnace to separate the parts and allow them to be reused.

Carbon particles can be created using e-waste, including refractories used in high temperature manufacturing within furnaces that need carbon and oxides to withstand high temperatures.

“You can start to open up a whole realm of possibilities. Where you are using carbon for a variety of applications, it depends on the quality of the materials. Chemically, it might be a carbon product, but the properties control the end game which then controls its price in the market,” Veena says.

SMaRT continues to collaborate with its industry partners such as TES-AMM, a local recycler of e-waste, which has taken on licencing rights to implement a microfactory. TES-AMM is focusing on plastic and creating a variety of high performing plastics, which can be used in applications such as 3D printing.

“For a company like TES-AMM to create value-added materials like plastic filaments from waste plastics which are then suitable for 3D printing makes a lot of sense, because they’re sitting on a stockpile of waste plastics,” Veena says.

“You eventually start to create an ecosystem of microfactories that almost...
enable each other to co-exist.”

Microfactories may also provide a viable solution to oversupplies of materials such as glass, which has faced issues over the past few years over fluctuating commodity prices. Companies can convert glass into products for the built environment using a microfactory at precisely controlled temperatures and potentially process residual waste.

“We are creating innovative glass products for another company who loves the idea of a microfactory because it doesn’t mean that you need to have a whole history and a track record of working with waste. You can operate a microfactory even if you are not sitting on a pile of glass,” Veena says.

“Of course, you need to access raw materials, but there is no shortage of waste glass in Australia.”

SMaRT is now looking at further commercialising its research into plastic and glass. Metallics are another focus of SMaRT’s research, however it is still looking into how its solution could be commercialised.

“We do have technological solutions to generate metal alloys, but even though our industry partner is ready to take on the technology, we want to be able to produce alloys that are quite special,” Veena says.

“I think the metal alloys are going to be our biggest challenge that has yet to come, even though we’re staring down micro furnaces that have produced these alloys for us.”

In the long term, Veena believes microfactories could support, rather than challenge, materials recovery facilities.

“They have already gone through the logistics of picking it up and collecting it and probably have a site somewhere where this material is sitting, so it’s a logical extension of value-adding to their business.

“If they took even one of the microfactories on, say in glass, they wouldn’t have to worry about disposal costs.

“Essentially generating a high-value product in their own site means it leaves the site as their own product, rather than a waste they have to pay levies on,” she says.

Veena adds that microfactories will bring a new level of precision to the process.

“We can be agile in how we operate and control. Whereas if you had a large mega factory and a big smelter doing things on a larger scale, you do to some extent have to live with the larger
avenues. With a microfactory you can nicely tailor and customise depending on what your inputs are.”

SMaRT’s vision for the technology in the long term is to ensure it helps no waste go to landfill, providing customised solutions for manufacturers and waste managers alike to deal with materials themselves, as well as cross-collaboration between businesses managing their waste.

“If you’re a manufacturer that wants to try different product designs then having access to filaments is one way to do it,” Veena says.

“You’re producing a product for a customer, so at the end of the day it’s not just about recycling, but to me it’s about advanced manufacturing. If you’re generating products through advanced manufacturing then there’s got to be an end user who is happy with what you’re making.”

Veena says the next few years will be key to SMaRT’s success and the next steps are for commercialisation on a wider scale. The process will see the university licence the technology for the waste and manufacturing industry, which would on sell it onto any relevant third parties.

Further support from federal, state and territory governments in encouraging manufacturers to look at recycled content as part of their products could support the rollout of microfactories, she adds.

“That commercial push is going to be important for us along with performance. It’s not good enough for us to say we’ve made it in the lab. We need it to be technically sound and commercially viable for our industry partners.”

Veena says the key to driving outcomes is understanding the process conditions required to capture the materials so it doesn’t interfere with the product or process.

“When I was travelling with Michael Sharp, Director of Manufacturing Growth Centre NSW, to a factory in Albury-Wodonga (we saw) they had produced a product where they had waste plastic left over,” she says.

“What was great to see was these guys were captivated about the possibility of manufacturing their own smaller components from the plastics they normally have to throw away.”

“This is more practical than getting a third party to manufacture it for them and then waiting for weeks before it arrives, and then worse yet, getting it imported from somewhere.”
RESEARCH BY MELBOURNE’S SWINBURNE UNIVERSITY OF TECHNOLOGY HAS FOUND A POTENTIAL NEW USE FOR FLEXIBLE PLASTICS AND GLASS FINES IN THE CONSTRUCTION OF FOOTPATHS.

An estimated 257,000 tonnes of glass is generated each year in Victoria, with 52 per cent made up of glass fines and stockpiles and about 76 per cent of the total generation recovered.

Likewise, flexible plastics contained three per cent by weight of landfilled waste in 2009. That’s according to fact sheets collated by statutory authority – Sustainability Victoria.

For flexible plastics, the market risks are contamination, high costs and a lack of technology processing options.

Recycled glass has been sensitive to price changes and stockpiled, while medium to long term contracts of glass cullet feedstock favoured by industry may cause some operators to hedge their bets against price volatility.

Fortunately, product research and development is helping develop new markets for glass fines, particularly in civil construction and flexible plastics, which are being made into bollards, fence posts, speed humps and outdoor furniture. In the area of flexible plastics, a 2013 report, Assessment of recycling infrastructure: current status and future opportunities, by the Australian Packaging Covenant Organisation suggests Victoria requires more local processing capability in this area.

The progress for increasing markets for both materials is being supported...
by Sustainability Victoria’s Research and Development for recovered glass fines and flexible plastics grant program, which recently saw promising results through project research at Melbourne’s Swinburne University of Technology. It is one of seven projects taking place at other Melbourne universities, including RMIT and Monash University.

The research project was undertaken by Dr Yat Choy Wong and his colleagues Dr Alireza Mohammadinia and Professor Arul Arulrajah, who were awarded $100,000 by Sustainability Victoria and an additional $10,000 by industry partner Polytrade, to investigate new blends of concrete for footpaths incorporating flexible plastics and glass fines.

The goal of the research was to ensure the material did not compromise engineering standards required for its use, akin to using virgin materials, while reducing the carbon footprint linked to footpath construction.

The research proved in the lab that these materials could be incorporated into concrete footpaths, while still meeting the standard requirements and not compromising on mechanical properties. The next stage is to include local governments and the civil and construction industry in the process to increase the amount of recycled materials in footpath construction.

Dr Wong, Senior Lecturer at Swinburne University of Technology, says the research trialled a varying blend of plastic and glass with concrete, along with plastic and concrete on its own and glass and concrete by itself.

With a background in materials engineering, Dr Wong says he was inspired to reduce waste based on the issue of stockpiling recycled glass.

The ranges of material in footpath construction blend varied from a mixture of 10 to 50 per cent.

He says as you increase on strength using these materials, the megapascal (MPa) – a metric pressure unit used to quantify internal pressure and stress drops.

“Plastic is soft when compared to sand and cement as they are very hard materials, so it’s about finding the right balance,” Dr Wong explains.

“Certain councils will want a footpath strength of 20 MPa, but it’s not a universal consensus and it also depends on the additive of glass or plastic fines.”

As one example, he says a three-metre by one-metre by 100-millimetre footpath could help divert more than 1000 PET bottles. Material recycling provider Polytrade supplied Swinburne with the glass and flexible plastics fines, which were shredded via the company’s in-house crusher. From there, the researchers built a concrete cylinder sample of the concrete and blended the materials, of up to 100 by 200 millimetres in length. The footpath sat for 28 days to cure and was then placed into a universal tester machine under compression to crush the cylinder and discover any potential splits or cracks, putting the strength of the concrete to the test.

According to Dr Wong, the ASTM International standard, which provides a framework for commercially viable engineering, allowed the team to go anywhere near as high as 50 per cent materials.

Overall, Dr Wong is buoyed by the results and hopes the project can help divert more waste away from landfill.

“I think it’s a great way to deal with waste in a responsible way and we’re now trying to look at recycled bricks and see if we can produce a similar result.”
In January, McDonald’s announced that by 2025, all of its packaging will come from renewable, recycled or certified sources.

The environmentally conscious push expands on the company’s previous packaging goal to have 100 per cent of its fibre-based packaging come from recycled or certified sources by 2020. The remaining target covers packaging served to its customers in menu items, which was previously not 100 per cent recyclable, certified or renewable.

To reach its ambitious target, the company will work with leading industry experts, local governments and environmental associations – improving packaging design, implementing new recycling programs, establishing innovative ways to measure progress and educating its staff and customers on sustainability.
It’s been a more than 25-year journey for the company, which began with a partnership with the not-for-profit Environmental Defense Fund. The global partnership has, over time, eliminated more than 300 million pounds of packaging, recycled more than one million tons (approximately 907 metric tonnes) of corrugated boxes and reduced 30 per cent of its waste in the decade that followed.

At present, 50 per cent of the chain’s customer packaging globally comes from renewable, recycled or certified sources. In Australia, the company will hit a milestone in coming weeks, with 100 per cent of its branded fibre-based packaging made from renewable, recycled or certified sources.

Susie Craig, Sustainability Manager of McDonald’s Australia, says the process of achieving 100 per cent fibre-based packaging involved extensive planning and collaboration with the company’s global suppliers. The company became a member of the Australian Packaging Covenant Organisation (APCO) in 2002, which helped it benchmark its progress.

Since then, the business has made numerous changes to determine its progress more effectively. Using McDonald’s environmental packaging review tool, Eco-Filter, the company was able to analyse all of its new and existing packaging formats as part of its strategic sourcing reviews until recently. The tool was progressively phased out in 2016 in favour of a supplier-managed evaluation model underpinned by a detailed packaging strategy and design hierarchy.

“Alignment is one of the most important considerations and certainly corporate social responsibility is embedded into our culture. Working with our suppliers remains the key to our success,” Susie says.

One of the challenges, she says, was boosting the availability of certified fibre for use in McDonald’s packaging.

“There was a lot of transitional change to build that certified fibre supply chain we needed. While we’ve been able to achieve that for our Australian market, being a global company, in some markets they’re working towards those last few per cents.

“At a global level, there’s a complex network of environmental organisations who we frequently engage with. On a project basis we need to be consulting locally with our environmental networks.”

Materials that were converted into fibre-based sources include salad bowls, previously made of plastic, represented a move of 127 tonnes per

Plastic lids were removed from the company’s McFlurry cups in 2012.
annum of resin packaging into a fibre-based alternative.

McDonald’s also introduced 100 per cent recycled fibre to its carry-out bags, saving around 1300 metric tonnes of virgin fibre in the first quarter proceeding the change in 2016 – the equivalent of saving 22,100 trees. The raw material in making the carry-out bag is recovered paper, converted in the mill to pulp and de-inked pulp.

The company’s array of networks include its partner, the Forest Stewardship Council, which helps it source ecofriendly packaging.

“There’s a percentage of our packaging sourced locally within Australian forests and a range of other sourcing regions. Around 74 per cent of all of our packaging by volume is fibre and we have made great progress against that goal, so it’s just about tackling that final 26 per cent and focusing on the balance of our guest packaging.”

In addition to its commitment to recycled packaging, the company has also pledged to give less packaging to its customers, including introducing reusable alternatives and designing packaging that is compatible with its composting and recycling systems. In Australia, its dinner box source reduction project is one example of reducing packaging, which eliminated more than 29 tonnes of paper per annum.

Its 10-piece McBites cups was also replaced by paper bags, saving more than 44 tonnes of fibre per year.

According to a report prepared for the APCO, one of the major challenges of delivering sustainable products was the availability of end-of-life infrastructure for recoverability. As composting or recycling infrastructure can be limited, McDonald’s focuses on tailoring its infrastructure within the Australian market and tailoring its sustainability packaging in accordance with those options.

“We’re committed to finding solutions for both packaging and recycling to bring us in line with our 2025 global goals. However, we acknowledge that the availability of packaging materials and recycling infrastructure in Australia is just not quite there at this stage. We’re working on what we can do to make a genuine impact and this will take time,” Susie says.

Food safety and customer satisfaction remains the company’s first priority and therefore functionality takes priority when meeting these requirements. Due to food contact legislation, recycled content packaging is at a higher risk of legislation issues, which can constrain any future packaging with recycled content, as most of the company’s packaging comes into direct contact with food.

“It’s one thing to have a piece of packaging made of the best sustainable alternative, but if it’s not going to do the job it needs to do that’s hardly sustainable,” she says.

“If we’re looking at brand new packaging, we will always trial that in a limited number of restaurants and take the learnings before we rolled it out at scale.”

Susie says that fortunately the desire for corporate social responsibility is growing among consumers.

“There’s definitely an appetite from consumers who want to ensure that brands like McDonald’s are doing the best they can in the area of sustainability.

“Alignment within our organisation is already there. Corporate social responsibility is embedded in our culture.”

Fast Fact

Commingled recycling has been maintained in about 50 per cent of McDonald’s Australia company-owned restaurants. Waste diverted from landfill at its stores includes cardboard and used cooking oil. Many restaurants have implemented additional recycling streams, including comingled recycling and organic wastes. Plastic lids were also removed from the company’s McFlurry cups in 2012.
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An environmental EXIT?

THE UNITED KINGDOM’S EXIT FROM THE EUROPEAN UNION PRESENTS BOTH CHALLENGES AND OPPORTUNITIES FOR WASTE MANAGEMENT. WE SPEAK TO INTERNATIONAL EXPERT RICHARD COWELL ABOUT ITS IMPACTS.
On 20 February, British Prime Minister David Cameron set the date for a referendum which would pose a simple question: should the United Kingdom remain a member of the European Union (EU) or leave?

The date was set for 23 June, 2016, but little did the former prime minister know that the end result would be a 52 per cent yes to leave the EU and a 48 per cent voting no to remain.

On 24 June, only a few hours after the Brexit result became known, Mr Cameron revealed he would resign from office at the commencement of the Conservative Party Conference in October, 2016. In an impassioned speech outside 10 Downing Street, Mr Cameron said:

“I will do everything I can as prime minister to steady the ship over the coming weeks and months, but I do not think it would be right for me to try to be the captain that steers our country to its next destination.”

Fast forward to 2018 and a new prime minister has been appointed and re-elected in Theresa May, as the UK undergoes talks to progress its exit from the EU. The UK and the EU have provisionally agreed on how much the UK owes the EU and what will happen to citizenship for those living in the EU and UK. It is scheduled to leave the EU on Friday, 29 March, 2019. What future relations will look like and a plan for a 21-month “transition” period are now being discussed, which will allow businesses and others to adjust to the new post-Brexit rules, including its terms of trade.

What remains to be seen is the uncertainty regarding environmental governance in the sovereign nation, according to a research paper by academics Richard Cowell, Andrew Flynn and Nick Hacking of Cardiff University in Wales.

Released in July 2017, the aim of the briefing report, Assessing the impact of Brexit on the UK waste resource management sector, is to spark debate about the possible effects of Brexit on future policy directions in the waste and resources management sector. It notes the most debate about the UK’s post-Brexit future is characterised by three scenarios: a “hard Brexit” where the UK loses access to the single market, a “soft Brexit” where it stays within the European Economic Area and an “à la carte Brexit” where efforts are made to maintain participation in specific EU institutions.

Brexit has implications for the different elements of EU-related policies applicable to the UK that could be open for change, the level at which waste policies could be organised, including with devolved nations, national or European, and the different perspectives on how environmental and economic goals should be integrated, according to the report. Given this complexity, it suggests there could be multiple future pathways for change.

The EU Withdrawal Bill will transfer the whole body of existing EU environmental law into UK law. The UK Government will then have the opportunity to scrutinise the legislation in parliament over time.

Report co-author Richard Cowell, Professor of Environmental Planning

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Fast Fact

A few of the key features of the EU/UN legislation:

- **Waste Framework Directive 75/442/EEC**: Introduce the waste hierarchy into European waste policy and emphasise the importance of waste minimisation, the protection of the environment and human health.
- **Sewage Sludge Directive 86/278/EEC**: Encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals and man.
- **Landfill Directive 99/31/EC**: Avoiding Landfilling.

Source: Assessing the impact of Brexit on the UK waste resource management sector.
at Cardiff University, tells Waste Management Review the EU has historically had a strong capacity for the implementation of environmental policy, and a post-Brexit UK would have to align itself with EU policy if it wanted to maintain waste-related exports to the EU.

“No matter which exit from the EU you take, regulatory alignment has become recognised as pretty likely in any case. In order to trade with the EU, it’s not just a matter of tariffs but also our regulations and a whole variety of elements have to be aligned if we’re going to trade waste-derived products,” Richard says.

One of the drivers of regulatory alignment is a need to maintain a friction-free border with Ireland, he adds.

If the UK re-joins the European Economic Area, legal experts anticipate it would still need to comply with the majority of policy regulations, the report argues. If the UK’s Brexit arrangements entail it not being members of a single market, which is its strategy at present, then the policies and regulations could become subject to greater change. These include numerous directives which affect Wales, England and Scotland, including a Landfill Directive which imposes restrictions on landfill, a Batteries Directive to encourage battery recycling and a Waste Framework Directive, which encourages the industry to follow the waste hierarchy. It is understood the government will support the Circular Economy Package, which sets common recycling targets and economic incentives for greener products. It will be voted on by EU member states this year and includes recycling targets for materials.

“There’s a big issue about what will happen to some of those directives in the long term. In the short term, the UK Government is preparing a great EU withdrawal bill to try and throw every bit of EU legislation into UK legislation, so that there is no gaps,” he says.

He adds that one area of conflict is whether all EU powers will be passed to central government in London, or be handed to the devolved governments of Wales, Scotland and Northern Ireland.

“The uncertainty emerges longer term as we review the prospects for sticking with regulations aligned with the EU or diverging from that,” Richard says.

According to the report, some commentators argue that the fact that the UK has ratified numerous international treaties mean many environment protection obligations will remain. But the report asserts that international treaties are less precise and lack conventions for enforcement. The risk of leaving the EU is also a lack of access to its funding for waste policy delivery.

“Things like the Basel Convention for international waste transport of dangerous goods will still apply as before,” Richard says.

In terms of territory, a level playing field of waste-related standards through the EU helps the UK take advantage of export markets, including refuse-derived fuel. It also helps enforce concepts such as the proximity principle, which puts a level of risk and responsibility on long distance waste transport.

While exports are likely to remain in place, Richard says the key questions for the UK going forward are will the current recycling targets remain in place and will the government opt for more incineration (with energy recovery) to fill any gaps in the market?

He says this situation could be compounded by China’s tightening standards for its recyclates imports. Richard sees more incineration and less recycling as a worst-case scenario and a possible outcome of a hard Brexit.

According to the report, the Westminster Government has been rebuked for not setting any strategic direction since 2010. This worries the devolved Welsh and Scottish governments, Richard says, with key responsibility for waste in their territories, who see inaction by the UK government on things like packaging standards stymieing their ambition to press quickly for zero waste objectives.

While governments lead the way in setting the policy agenda, another concern is that some local government authorities may see any post-Brexit softening on recycling as an opportunity to shift money from waste to what they perceive to be other more pressing matters.
“Fortunately the UK Government is now looking at releasing a Waste and Resources Strategy this year so we might get some policy clarity,” Richard says, adding that the appetite in the UK is also towards more regulation as opposed to deregulatory policies. Prime Minister Theresa May’s government has also moved to ban all avoidable plastic waste in the UK by 2042.

Richard says businesses have also taken waste and recycling into their own hands, with companies such as Coca-Cola setting their own recycling targets. The key question here, however, is how far will voluntary action will go?

While the path to Brexit is one of uncertainty, there may be opportunities, including for “more UK sensitive” approaches to policy.

At present, the Wales and Scotland governments have achieved higher recycling targets than the rest of the UK.

“One of the arguments that Brexit has amplified is that we need to deal with things more in a national space and get more of our materials within the country,” Richard says.

“When the UK Government stands up and talks about a national waste policy, it largely means a policy for England, as Wales and Scotland position themselves as environmental leaders. Wales has one of the highest recycling rates in Europe.”

As Brexit is still undergoing negotiations, the outcome and policy direction can change fast.

However, at this stage Richard says legislative changes would likely occur after the end of the transition period, which is slated for December 2020.

“Even in this Brexit negotiation period, there is nothing to stop us from doing things that are more ambitious than the EU legislation demands.”

A UK Government Department for Environment, Food and Rural Affairs (Defra) spokesperson said:

“Our 25 Year Plan for the environment set out our commitment to leave the environment in a better state than we inherited it, and we’ll be setting out more detail on how we further increase resource efficiency and recycling rates in our Resources and Waste Strategy later this year.

“When we leave the EU we will have the opportunity to strengthen and enhance our environmental standards even further by delivering a green Brexit.”
The Western Australian Government is reviewing its waste strategy. Waste Management Review looks at the changes required to create a level playing field for the sector.

Reviewing a waste strategy requires collaboration at both ends of the spectrum, as the waste industry, local government and the like can have their differing interpretations on what strategies or policies are best for industry growth and environmental outcomes.

In Western Australia, the government is reviewing its waste strategy through statutory authority – Waste Authority WA.

WA’s first strategy was published in 2012 after stakeholder consultation and approval. The need for a new strategy was reflected in 2014-15 data, which shows Western Australians are generating more waste than those in other states and territories, dispose of the second highest amount of waste to landfill and have the second lowest rate of resource recovery.

A waste levy, government programs, investment in infrastructure and increased community engagement ensures waste to landfill is on a downward trend and resource recovery heading upwards, but the government in its Waste Avoidance and Resource Recovery Strategy Consultation paper acknowledges there’s room for improvement.

The paper shows there are opportunities to embrace the circular economy, engaging consumers, industry and government about product lifecycles, policies that foster competition and address market failure, removing barriers to waste reduction through improved procurement and standards and well-sited landfills to complement resource recovery. Western Australia’s waste generation includes a majority construction and demolition (C waste with 2.9 million tonnes generated in 2014-15, followed by 1.4 million tonnes of organics, 0.8 million tonnes of metals, 0.6 million tonnes of waste paper and cardboard and 0.4 of plastic waste.

The WA Government has already moved on numerous reforms, including plans to introduce a container deposit scheme and a ban on
lightweight single-use plastic bags. But what else can be done? Reviewing waste classifications and definitions, an equitable waste levy, product specifications encouraging waste-derived materials, improving data quality and assessing landfill infrastructure are just a few measures the Waste Authority WA believes it can look at. If it is to reach its target of 75 per cent resource recovery of C&D by 2020, 65 per cent municipal solid waste recovered in Perth and 50 per cent in the major regional centres, there may be more work to be done.

Broadly speaking, the Waste Authority has set a target of reducing its waste per capita to 10 per cent by 2025 (doubled by 2030) compared to 2014-15 levels, which would bring it in line with the national average.

Working with the Waste Authority WA is a newly-formed state advocacy organisation – the Waste and Recycling Industry Association of Western Australia (WRIWA). Formed in April of year, WRIWA represents private sector organisations in the state across waste, recycling and composting. It estimates that its members collect, process, recycle and dispose of around two-thirds of the total waste produced in WA. Its objectives are to ensure a level playing field for waste markets and achieve best practice outcomes for collection, processing, recycling and waste disposal.

Michael Harper, WRIWA Chairman, says WRIWA has been pleased with the responses of the new Minister for the Environment, the Waste Authority and the Department of Water and Environmental Regulation to its concerns. He says a waste strategy can and should be a significant driver of good outcomes in the private sector. In submitting its agenda to the Waste Authority, WRIWA is most concerned about the issue of landfill levy avoidance in regional areas, calling for a strict policy which ensures a levy drives investment in recycling technology and implementation. This is because the waste levy, which was introduced in 1998, only applies to landfill sites in metropolitan Perth.

Michael says that avoidance is damaging honest operators who are complying with the regulations. The current level of avoidance is well known within the waste sector, he says, and there is an increasing awareness within the non-governmental organisation environmental sector and the general community. Michael says a failure to bring it to an end risks undermining public confidence in the state’s waste avoidance and resource recovery strategies.

The waste and recycling snapshot: WA 2015-16 indicates 58 per cent of C&D materials were recovered. Michael says a shadow of doubt remains over the figures, as non-metropolitan landfills are not measured. As president of the Demolition Industry Association, Michael is well versed on the subject and keeps his ear to the ground about the level of industry compliance.

“The 2014-15 estimation from Department of Water and Environmental Regulation was 42 per cent diversion of C&D materials from landfill. The following year the figure rose to nearly 60 per cent. A rise of almost 20 per cent in one year seems very questionable. There is considerable evidence that C&D recycling has not improved and that the figures are distorted by illegal dumping for the purpose of avoiding the levy outside the metropolitan area,” he says.

To solve this problem, WRIWA proposes consistent landfill levies across the largest jurisdiction possible, while also extending the landfill levy by a radius of 500 kilometres from the Perth Central Business District (CBD). Clear definitions to eliminate potential misrepresentation of key terms such as ‘waste’, ‘waste origin’ and ‘waste source’ is required as part of eliminating levy avoidance,” Michael says.

WRIWA supports the current rollout of landfill levies of $70 a tonne for putrescible and inert waste to apply in 2019, while not supporting any increase due to its impact on competitiveness and possible illegal dumping.

“Levies and their governing regulations should be put in place for at least five years, and if the regulations are to change, industry should be given a minimum of 12 months’ notice.”

Part of the issue in accurately measuring waste management stems from self-reporting, which is organised via voluntary industry surveys.

He says this calls into question the accuracy of the data, as it cannot be assumed that businesses are voluntarily providing accurate figures, particularly in the current levy climate. Making data gathering compulsory and then extending the landfill levy would provide resources for state agencies to police illegal activity.

Cr Lynne Craigie, President of the peak industry body the WA Local
Government Association (WALGA), says WALGA also considers that there are issues with the reporting of waste management data.

“In WA, there are two main sources of data on waste management: the Local Government Census and the Recycling Activity Report. WALGA recently wrote to the environment minister and chair of the Waste Authority identifying that the data for local government recovery rates in the two reports did not align,” she says.

“As has been identified by the Department of Water and Environmental Regulation, while nearly all of local governments are reporting through the census, there are significant industry players who are not reporting through the Recycling Activity Report process.”

In terms of compliance, Michael says improved certification/receipting procedures and reporting are also required at each point in the supply chain to improve WA’s understanding of recycling and diversion rates and correct application of landfill levies.

He says that C&D waste transporters should be required under the regulations to identify at the point of disposal where the waste has originated. The identity, registration number and licence of the truck and driver should be recorded and the driver should certify the information as true. Breaches should be rigorously prosecuted, he says, adding that Global Positioning System tracking should be in place to monitor this.

In addition, WRIWA is also focusing on working to increase the uptake of recycled materials in government procurement – which it says is currently minimal or non-existent in WA. Michael points to a Municipal Waste Advisory Council survey of Western Australian Local Governments in 2013, which found the uptake of recycled materials was less than half of the 41 local governments which participated in the survey.

“There is a substantial difference in attitude and outcomes between Victoria and Western Australia with respect to the use of recycled building materials. Victoria has a simple specification for incorporation of recycled materials in products such as road base,” Michael explains.

“Victorian government agencies enthusiastically promote the use of recycled building materials which has created confidence and demand for the use of these materials.

“In some cases, Victorian processing and recycling operators now pay collectors of C&D waste for some materials.”

In response to questions as to whether WALGA supports the increased uptake of recycled materials in local government contracts, Lynne says that it is essential that the material collected has a viable market.

“WALGA has actively encouraged local governments to use recycled materials, for example construction and demolition (C&D) materials in civil works,” she says.

Lynne says WALGA has facilitated local government use of these products by establishing preferred supplier arrangements for recycled C&D material to ensure this comes from trusted suppliers. WALGA has also worked with the Institute of Public Works Engineers to establish a specification for using C&D material in local government roads, which addresses technical considerations about how to use the product.

Michael says WRIWA fully supports the view expressed in the foreword to the Waste Authority’s 2016 Position Statement that “the use of recycled products for road base in WA should be an entirely unremarkable activity and the norm rather than the exception”. For this reason, it calls for 100 per cent of local governments to use recycled C&D materials in place of virgin materials by 2020.

It wants the Waste Authority to convene a working party with Main Roads WA, the Department of Water and Environmental Regulation and industry to review by December 2018 the current obstacles to the use of C&D aggregates in road construction and increasing the use in WA of C&D aggregates.

Lynne says that in reviewing the implementation of the previous state waste strategy, one of the key flaws was that it wasn’t implemented. She says a whole-of-government commitment to the new strategy’s implementation is vital. In its submission on the consultation paper on the strategy, WALGA has called for state government to take a leadership role in its implementation.

She says some of the issues that WALGA identified in the submission as key priorities include: amending the Environment Protection Act to ensure the chief executive officer can refuse a license application if a proposed facility will undermine waste strategy outcomes and targets, that targets for
recovery are included, with the state government setting specific recycling, composting and diversion targets for its own operations and the role of waste to energy as part of the strategy.

“For the strategy to be achieved, it is also essential that adequate support and incentives to assist with the achievement of targets is provided through the waste levy,” Lynne says.

In the context of National Sword, which has seen China tighten its acceptable contamination levels from five per cent to 0.5 per cent, WRIWA is calling for grants for upgrades to recycling facilities, ensuring government procurement policies prioritise the use of recycled materials and incentivise home grown manufactured post-consumer products. Michael says an industry package similar to the Victorian Government’s could be a good place to start, as the cost of recyclables is estimated to rise to up to $100 per tonne.

Lynne says WALGA has engaged with the Environment Minister on this issue and suggested the establishment of a state, local government and industry task force to ensure there are viable markets for recyclables collected in WA.

“When this task force is hopefully established, one of its first roles is to identify a package of measures to address the WA specific market development needs,” she says.

Marcus Geisler, Waste Authority WA Chairman, told Waste Management Review that once finalised, the new strategy will set the direction for waste and recycling in the state, and will include mechanisms to drive outcomes and help industry (including local governments and the private sector) to meet targets.

Given that non-metropolitan waste is not covered by the landfill levy, when asked how we can have a true understanding of how much waste is going to landfill, Marcus said:

“The Waste Authority conducts an annual review of all waste and recycling activity in Western Australia via its Recycling Activity in Western Australia report. As part of that review, a survey of major non-metropolitan landfills is undertaken to estimate the total amount of waste sent to landfill in non-metropolitan areas.”

As the Waste Authority was currently reviewing submissions at the time of writing, Marcus was unable to provide information on specific contributions in regards to questions of alleged landfill levy avoidance and WRIWA’s proposal to extend landfill levies by a radius of 500 kilometres from the Perth CBD.

“The government is committed to ensuring the waste levy is applied consistently and fairly to provide a level playing field for the sector,” he said.

Turning to self-reporting and questions of whether mandatory self-reporting could be a better indicator, Marcus said that following Waste Authority advice, the Department of Water and Environmental Regulation is progressing amendments to the Waste Avoidance and Resource Recovery Regulations 2008 (WARR) to make the reporting of waste data mandatory. These amendments are expected to improve the state’s waste data.

“The Waste Authority is also developing a Waste Data Strategy and promotes measuring tonnes versus volumetric calculations,” Marcus said.

In terms of paying greater focus to the uptake of recycled contracts, Marcus said the Waste Strategy Review consultation paper identifies procurement, including by government, as an important tool for supporting the use of recycled products.

“The 2017–18 business plan includes a project to identify opportunities for state government agencies to implement procurement policies that support the objectives of the strategy.”

Marcus said the waste levy is the main economic lever to reduce waste generation and increase recycling. He said the need for targeted incentives will be evaluated during the waste strategy review.

Marcus noted the Minister for Environment is aware of the potential impacts of the Chinese Government’s import restrictions on recyclable waste.

“In January this year, the Minister wrote to the Federal Minister for the Environment and Energy in support of a coordinated national effort to manage these impacts and take advantage of emerging opportunities. Environment ministers will be exploring options at a Meeting of Environment Ministers in April.

“In addition to pursuing national solutions, the Minister for Environment is establishing a Waste Taskforce with members from Western Australia’s waste and recycling industry, state government agencies, local government and community.

“The taskforce will assist in providing the Minister with advice on how to support and develop a sustainable and productive recycling sector in Western Australia.”

Marcus Geisler said the government is committed to a waste levy applied fairly.
PRODUCT SPOTLIGHT

DISPOSING OF NDD WASTE

Disposing of non-destructive digging (NDD) or hydro excavation waste can incur high disposal costs due to its solid/liquid state and weight. As regulators tighten transport restrictions off the back of an increasing need for urban recycling solutions, the payload per truck may be reduced. CDEnviro aim to provide efficient dewatering solutions for NDD waste to reduce landfill disposal costs. Its solutions recover up to 85 per cent of water and sand which would have otherwise been sent to landfill. The recovered sand can be reused or provide an additional source of revenue. The end result leads to greater sustainability, reduced disposal costs, a secure method of processing and less business time and money spent on transportation.

One product designed to deal with this difficult waste is the G:MAX. G:MAX uses vibrating platform screen technology in a dual stage washing and recycling system for any solid/liquid mixture that requires classification or dewatering. It removes the particles that cause wear, efficiently removing grit, thus maximising product yield and minimising waste volumes. The recovered grit can be used to offset virgin resource extraction.

The G:MAX aims to boost efficiency through PU splash guards, rubber spring mounts and the ability to continuously process the incoming waste. Guards maximise material and water retention, resulting in a safer and more efficient site. The technology can also be used with other primary, secondary and tertiary water treatment solutions to reduce any necessary contaminants.

www.cdenviro.com/products/gmax

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Managing a fleet of vehicles can be a balancing act, especially when it comes to maintenance. IVECO’s Elements packages cover a range of options, from routine scheduled servicing through to total maintenance and repair. Whether you are an individual owner operator or the owner of a large fleet, Elements is suitable.

The Elements packages allow fleet operators to budget for costs in advance, avoiding unforeseen outlays by delivering a range of tailored packages designed to maximise vehicle uptime. It aims to provide operators with the flexibility to develop a maintenance regime best suited to their application. For a fixed monthly fee, operators know that their van or truck maintenance is taken care of.

Personalised maintenance contract packages are available across the full range of IVECO vans and trucks and over the past 12 months, the program has been reviewed and adjusted with the goal of providing customers with even greater value. There’s also the peace of mind of knowing that servicing and repairs are being carried out by IVECO-trained technicians to exacting manufacturer standards using IVECO genuine parts.

According to IVECO, here are the top reasons to consider its personalised maintenance contracts:

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THE NSW SENATE HAS RELEASED A COMPREHENSIVE AND WELCOMED REFORM PLAN FOR WASTE AND RECYCLING IN NSW, WRITES ALEX SERPO, POLICY OFFICER AT THE NATIONAL WASTE AND RECYCLING INDUSTRY COUNCIL.

It all began with a simple premise – review Dial a Dump Industries’ (The Next Generation) proposal to build a waste to energy facility at Eastern Creek. Public opposition has been fierce. The NSW Senate, compelled by public opinion and Greens NSW, launched the mundanely titled Portfolio Committee No. 6 – Planning and Environment – Waste to energy technology inquiry.

The NSW senate team, seeking to get an understanding of the risks and opportunities of waste to energy, called in a comprehensive line-up of industry associations, experts and top executives. Perhaps to the surprise of the senate, most experts had little to say on waste to energy, other than it represents a lost opportunity for the state.

Instead, the industry’s brightest used their senate appearances to catalogue the key reform failures and barriers to advancing waste and recycling in NSW. This resulted in a final report, released on 28 March, of which only three of the eight chapters address waste to energy or The Next Generation proposal.

As experts testified, the terms of reference for the inquiry grew like tomato seeds in fresh compost, offering the fruits of reform in every possible direction. Issues addressed in the final report included: planning, illegal dumping, regulatory enforcement, levies, recycling residuals, waste to energy plus a lot of content on the role, and performance of, the NSW EPA.

The final recommendations are in my view an excellent catalogue of the regulatory reforms needed to advance waste and recycling in NSW. The final report makes 36 recommendations, few of which are sheepish. If you have the time, they’re worthy reading online.

Consider Recommendation 6. “That the NSW Government urgently consider attaching the waste levy to the waste generator in NSW, particularly for large waste generators”. Or Recommendation 21 – “That the NSW Government investigate options to restructure the NSW EPA so it can improve its performance”.

Broadly, the 36 recommendations offered by the senate review validate what the National Waste and Recycling Industry Council (NWRIC) have identified as the three most important reform priorities. They are better enforcement of regulations, better planning for waste and recycling facilities and reform of landfill levies. Most of the recommendations in the report address these priorities.

I’ll briefly address each of these three topics. In regards to enforcement, the key suggestions from the senate report include: giving additional resources to the NSW EPA to police illegal dumping, that it strengthen its relationship with NSW Police and finally that GPS tracking and drones have an important role to play. Broadly speaking – these are obvious recommendations. If waste from Sydney to south-east Queensland was to stop, then NSW would have an additional “$155 million” per year in levy income to pursue these initiatives.

There are also some less obvious, but welcome recommendations on enforcement. For example, “the NSW EPA complete the draft protocol calculating the quantum of the monetary benefit from illegal dumping and landfilling in NSW”. That would make for interesting reading.

Next, planning. The report makes this very welcome recommendation: “That the NSW Government identify a government body…responsible for leading waste management infrastructure planning in NSW.” Further, this body should collaborate with the Department of Planning and
include suitable buffer zones in its review. In my view, this is the single most important recommendation of the senate report.

The report also identifies two other important planning reforms. Firstly, that as currently structured, Regional Organisations of Councils don’t have sufficient power to effectively tender for infrastructure. The report recommends “the NSW Government enhance the collaborative powers of the Regional Organisations of Councils to encourage investment in waste facilities, to be funded by the waste levy”.

The report also identifies that under Waste Less, Recycle More, money received cannot be used to purchase land for waste and recycling infrastructure. Further, grants issued aren’t sufficient to establish new infrastructure. They focus on “piecemeal” improvements to existing infrastructure and systems.

The NWRIC has also established a solution to this problem. As I have written previously, the NWRIC recommends a ‘national recycling bank’, funded by the waste levy, which gives low or no-interest loans for infrastructure and innovation. This approach solves this problem and many others. Most importantly, it makes every levy dollar go further, as the money comes back.

While the senate report explores levy reform, this is one of its areas of weakness. It touches on the two key issues arising from the very high landfill levy in NSW – interstate waste and the cost of disposing of recycling residuals. Ironically, the title of the report is perhaps the best solution to the recycling residual problem – these residuals should go to waste to energy rather than landfill and therefore attract no levy.

However, this only half the solution. The other half of the solution is this: when recycling, the waste generator needs to be liable for the final disposal cost of contamination. For example, the concept of tossing anything and everything that could be recycled into the recycling bin should be billed directly back to local government. This idea of tossing anything possibly recyclable into the bin is what Visy, in its public submission to last year’s federal government waste and recycling senate inquiry, had so aptly referred to as “wish-cycling”.

With commercial contracts, this liability should flow back to the waste generator.

This process ensures that recycling exports are internationally competitive. Our domestic recyclers aren’t hindered by the high cost of local landfill or waste to energy. Meanwhile, a real and positive market incentive is passed back to the waste generator to ensure that their recycling stream is clean. Great source separators will pay less, commercial recyclers will export more.

The NWRIC would welcome the implementation of any or all of the recommendations from the NSW Portfolio Committee No. 6 – Planning and Environment – Waste to energy technology inquiry. As the report notes “there are many, pressing issues facing the waste and recycling industry in NSW”. Now is the time to seize the opportunity.
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