



# RECYCLING

SPECIAL REPORT





# Environment ripe for recycling

Government, the public, and businesses need to work together to turn WA's poor recycling record around.

**EFFORT:** Reg Howard-Smith says there are challenges to meeting the 2030 waste targets. **Photo** Gabriel Oliveira





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**6-PAGE FEATURE**

**C**URTIN University sustainability professor Peter Newman believes the current climate offers an opportunity for the business sector to recycle Western Australia's patchy record on waste.

Professor Newman, who has researched recycling for the past 40 years, said government incentives, low interest rates and demand for processing facilities were creating opportunities for businesses to enter the recycling sector.

"Entrepreneurs who have good ideas about how to deal with recycling, this is their big chance," Professor Newman said.

He said the public was looking for local jobs as well as opportunities to contribute on environmental issues, while the government was grappling with climate strategies and issues around landfill.

Professor Newman told *Business News* investment in recycling should be considered the next part of the COVID-19 recovery.

"It's no longer a wild west economy where you just chuck things out, you have to do it properly," he said.

In March, the national cabinet announced bans on exporting unprocessed plastic, paper, glass, and tyre waste.

The bans will be introduced gradually, with unprocessed glass exports banned from January 1 2021, through to the final plastic ban from July 1 2022.

To improve waste infrastructure in light of the bans, and ensure waste can be processed onshore, the federal government invested \$190 million in its Recycling Modernisation Fund, while also announcing a \$250 million package to modernise recycling infrastructure as part of the budget.

In July, the WA government committed \$20 million to increase capacity for local processing of waste plastic and tyres in the north of the state, which will be matched by the federal government and industry to create a \$60 million fund.

South Metropolitan Regional Council chief executive Tim Youé said all materials collected in people's recycling (yellow lid) bins, except for glass, were currently exported, and there was a real need for local processing facilities.

"Clean glass goes to South Australia, so the material collected through the container deposit scheme will end up going there," Mr Youé told *Business News*.

"Our glass is mixed, so our glass goes into road base."

Mr Youé said the state and federal government funding was positive and essential, given the export bans coming into effect over the next few years.

"We need to deal with our own recycling and waste onshore and not export it to other countries to deal with," he said.

"That's what we have been doing for the past 20 years and it's time that we had a circular economy and dealt with those materials onshore.

"That's the future we are looking to."

Mr Youé said some materials were easier to resell than others.

"I think plastics facilities will be the easiest things to establish because they are affordable and you can scale them up or down," he said.

"The most difficult is how you deal with newspaper and cardboard in WA because we don't have the volume, so you would need to build an expensive plant and it would be expensive because you don't have the supply."

However, for the new system to work, government and businesses needed to be willing to buy recycled products over virgin materials, he said.

A big-picture solution to improving waste recovery rates, Mr Youé said, was to ensure manufacturers stopped making materials that were difficult to recycle, or made them responsible for the recycling of their products.

He said two of the seven codes of plastic, including HDPE, which is used to make white plastic milk bottles, and PET, used for soft drink bottles, were easy to recycle, while the rest were more challenging.

"Those two plastics are very readily recyclable, you can turn them back into pellets and you can make new things out of them," Mr Youé said.

## Recycling record

According to the WA auditor general's 'Waste Management – Service Delivery' report, published in August 2020, the most recent data (from 2017-18) shows WA has a household waste recovery rate of 41 per cent, well below the 2020 target of 65 per cent.

In major regional centres the recovery rate was 28 per cent, well short of the target the government set of 50 per cent.

The report, which audited the waste services of six local governments and the state government, found while kerbside waste collection was largely effective, not all councils were encouraging waste avoidance or maximising waste recovery, meaning the state was not on track to meet its 2020 targets.

**“It is an ambitious target but achievable target, there is no doubt about that - Reg Howard-Smith**

It called for a state waste infrastructure plan to: identify locations for new processing facilities; improve data collected on how much waste is collected and recycled; encourage the uptake of the FOGO (food organics, garden organics) system by providing local governments with more information; and work together on behavioural change campaigns.

Waste Authority chair Reg Howard-Smith said the authority had already started solving the issues raised in the report, given the data was from 2017-18.

He said the Waste Authority was working with local governments to improve data collection and develop waste plans.

Meanwhile, the industry is undergoing significant change, with the Act under which the authority operates currently out for consultation.

The state government is also working towards the goals set in the Waste Avoidance and Resource Recovery Strategy 2030, which was published in late 2019 and states 75 per cent of materials should be recovered by 2030.

"It is an ambitious target but achievable target, there is no doubt about that," Mr Howard-Smith said.

He said there were three major challenges in meeting the target: ensuring organics were composted; reusing construction and demolition waste; and reducing contamination in household waste.

Mr Howard-Smith said the uptake of the FOGO system, where residents have three bins – one for recycling, one for waste and one for organics – was central to the government's plan.

One of the concerns the authority had was that some councils in the Perth metropolitan region had signed contracts for their organic FOGO material to be processed in waste-to-energy plants, instead of being sold as compost.

"That will impact on our ability to achieve our targets, so the clear message from all levels of government is this should only be what's left after you have recovered," Mr Howard-Smith said.

"I think community demand on these councils will be such that they will have to change to recycling."

Waste-to-energy plants are not high on the waste hierarchy as they are less environmentally friendly than other options.

He said government departments, including Main Roads Western Australia and local councils, needed to use more construction and demolition waste when building new infrastructure projects (see page 23).

Mr Howard-Smith said the third threat to the government reaching the target was the contamination of yellow-top bins.

Consistent messaging and building on the campaigns the state government had built could improve this, however.

"I think we will [succeed] because there is good public support, but we need to be reinforcing those messages," Mr Howard-Smith said.

South Metropolitan Regional Council's Mr Youé agreed, and said the contamination of household waste was a big issue.

"We get huge amounts of contamination these days and people often put in things which aren't readily recyclable through the facilities available," Mr Youé said.

"Like soft plastics and textiles, a whole range of things ends up going to landfill because they aren't recyclable through the recycling stream."

He said his member councils had contamination rates of between 8 per cent and 10 per cent, but other councils could have anywhere up to 38 per cent.

"Some local governments invest in educating their communities much more than others and you can see a direct correlation between that spend and what's in the bin," Mr Youé said.

South Metro Regional Council runs the Recycle Right program, which has a website and a mobile phone app, to educate people on what goes in each bin.

It also organises bin tagging, which involves officers checking bins and evaluating how well a household is recycling and providing feedback.

However, Professor Newman said members of the public would do their part when they were certain what they were putting in the bin was being recycled.

"We need to be convinced that there is a serious strategy and partnerships being set up, industry doing their bit, getting investment to make the most of it and we will do our bit," he said.

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**REUSE:** M8 Sustainable recycles construction and demolition waste at its facility in Maddington.

# Change looms for C&D waste

The government is considering changes to limit stockpiling and waste levy avoidance in the construction and demolition recycling industry.

**Madeleine Stephens**

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STATE government plans to overhaul longstanding regulatory issues in the construction sector to improve its poor recycling record are key components of its 2030 waste recovery strategy.

Construction and demolition waste such as bricks, timber, and tiles represents 33 per cent of waste generated in the state, according to a report by the Waste Authority, and can be processed and used as road base, infill, and construction material.

In its 2018-19 annual report, the Waste Authority found 77 per cent of C&D waste was recycled, almost reaching the state government's goal of 80 per cent of C&D waste to be recovered by 2030, as outlined in the Waste Avoidance and Resource Recovery Strategy.

However, the report said the high recovery rate was likely due to the stockpiling of C&D waste by builders and recyclers, and the dumping of waste to avoid levies at landfill sites.

It said declining C&D waste disposal had coincided with scheduled increases in the waste

levy in January 2015, from \$8 to \$40 per tonne.

C&D recycler M8 Sustainable managing director Tom Rudas said the lack of regulation around stockpiling waste meant some recyclers were charging construction companies less than it cost to process the waste, driving prices down and making it difficult for recyclers who were trying to do the right thing.

"If you can have the ability to store then you can bring your prices right down because your costs are substantially lower than someone who is physically doing the work to make it into a product," Mr Rudas told *Business News*.

Recyclers had no obligation to process the waste they collected, he said.

"You get a processing licence, but what you choose to process is up to you, it's your land," Mr Rudas said.

"Effectively there is no obligation for you to recycle per se, even though your licence says you are a recycling yard."

He said construction waste was often driven to regional landfills to avoid the high metropolitan waste levy, making it cheaper to

put the material into landfill than to recycle it.

The 'Closing the Loop: Waste reforms for a circular economy' report said there were concerns the waste levy may be driving large-scale stockpiling, illegal dumping or the disposal of waste at inappropriate facilities, and offered proposals to address long-term stockpiling.

Waste Authority chair Reg Howard-Smith said one of the options included applying a waste levy to stockpiles stored for more than 12 months at specific solid waste facilities.

The government was considering legislative approaches, such as the GPS tracking of trucks to improve waste and data reporting, which could stop metropolitan waste being taken to regional areas for disposal, he said.

Consultation on the paper was held from February to July of this year, and Mr Howard-Smith said the government was reviewing submissions.

## Reuse

Mr Rudas said another challenge of operating in the sector was that recycled construction materials were not often used in



**Even a small amount of utilisation by Main Roads would have a massive impact** - Tom Rudas

Western Australia, and it could be hard to find markets for recycled products.

"When you do finally produce a product, test it, it complies, your second issue is our state, or Perth metro, has an abundance of virgin products like sands and road base," Mr Rudas said.

"Getting your product into the market is pretty challenging.

"Even a small amount of utilisation by Main Roads would have a massive impact."

He said recycled product would not replace virgin materials, and instead they could be blended together.

Mr Howard-Smith said it was pivotal to ensure Main Roads and local governments used recycled materials in their new developments.

"We are having discussions and we are very keen, and so is Main Roads, to use as much recycled material as possible, and we have to guarantee the integrity of that

with strict testing regimes," Mr Howard-Smith told *Business News*.

"If Main Roads successfully use material, which they have already demonstrated in pilots will work, then local councils will follow; some are, but we would like a lot more."

Mr Howard-Smith pointed to the redevelopment of Hamilton Senior High School as an example. The school has recycled almost all the original materials, with 85 per cent of that base to be used in the new project.

A recent survey of construction professionals, led by ActiveSustainability in collaboration with Foundations Research, Earthcare Consulting, and Murdoch University, called 'Expanding reuse opportunities for recycled construction materials', found a majority of respondents thought the government mandating the use of recycled materials in contracts would increase the uptake of recycled materials.

# New facility for hazardous waste

A new facility costing close to \$100 million is designed to provide a long-term solution for hazardous waste in WA.

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IN a remote corner of the Goldfields stands a new landmark that will have any passing travellers rubbing their eyes.

It's a giant air dome that stands eight storeys tall and is large enough to cover two soccer fields.

Underneath the air dome is a newly excavated mine void that is 25 metres deep.

That's where Sydney-based Tellus Holdings plans to store Western Australia's hazardous waste.

Managing director Duncan van der Merwe believes the new facility fills a big gap in the market.

"The reason Tellus is developing geological repositories is because we as a nation produce too much waste and we don't have enough infrastructure to responsibly manage that waste," he said.

Mr van der Merwe said about 12 per cent of all waste was categorised as hazardous.

Big producers around the country include coal-fired power stations, alumina refineries, and aluminium smelters.

He said just about every industry produced some hazardous waste, with emerging areas including electronics, long-life batteries and solar panels.

"We as a nation are one of the highest emitters of hazardous waste per capita," Mr van der Merwe said.

Tellus's Sandy Ridge facility, which opened last month, is licensed to take 100,000 tonnes per annum for 25 years.

Once the operation is at capacity, Tellus expects to excavate a new mine void every 12 to 18 months.

The waste in the old voids will be back-filled and covered, providing a secure, long-term repository.

The key to the project is its location, in a 70-million-year-old kaolin clay bed on top of some of the oldest and most stable rocks on earth.

The kaolin clay provides a second income stream for Tellus, though that is not the main focus.

The regional geology explains why the state government built its own intractable waste disposal facility (IWDF) just seven kilometres away at Mt Walton East.

The IWDF has been operating successfully for 27 years, taking small volumes of waste every few years.

This includes low-level radioactive waste and items such as medical isotopes, exit signs and smoke detectors, arsenical sheep dip residues, pesticides and contaminated soil.

East Perth firm Aurora Environmental is contracted to run the facility, which will remain available for organisations that want to use a state-owned facility.

Tellus, which for the past seven years had a joint venture with Aurora to run Mt Walton, is expected to take the vast bulk of hazardous and intractable waste in future.

"We can offer services 365 days of the year at significant cost discounts to the IWDF site that only opens up every few years," Mr van der Merwe said.

He said only about 30 per cent of hazardous waste was recycled or treated to remove the hazard.

Most goes to landfill, he said, with a portion stored on-site, either in warehouses, containers or remote sites.

The issue with landfills, even those with liners, was their limited lifespan.

"Increasingly clients are looking for permanent solutions and not temporary solutions," Mr van der Merwe told *Business News*.

"We take at our gate the risk and title for the material.

"In return, we give them a Tellus permanent isolation certificate.

"They can show that to their auditors and it can help de-recognise the liability on their balance sheet."

This is backed with \$100 million of construction insurance, \$322 million of general operational insurance and \$100 million of environmental liability insurance.

The Sandy Ridge project employed 120 people during construction, with GR Engineering awarded the \$50 million engineering, procurement, and construction contract.

## The Future of Work in WA

The Fourth Industrial Revolution is upon us; indeed COVID-19 has hastened its arrival, forcing changes we thought would be years away.

Working from home, video meetings, virtual summits and tele-health have become commonplace, while contact-free transactions are the norm. The speed at which businesses responded is a reminder about the fast pace that technology can be harnessed and change the face of our workplace.

These concerns have been exacerbated by the coronavirus pandemic, which according to international research, has the potential to accelerate future of work changes.

While there is consensus that the types of skills required by industries of the future will change, there is little agreement concerning the number of job losses that could occur, or the quantity of new jobs created by automation.

Should we be worried?

The Committee for Perth has embarked on its 2020-2021 major project – the Future of Work: equipping WA and its people for the changing world of work.

The purpose of the research is to build a comprehensive understanding of how technology and automation, combined with relevant global and workforce megatrends plus COVID-19 are impacting jobs, skill requirements and industry needs in Perth and across the state.

Has the Future of Work Arrived? is the first FACTBase bulletin to be delivered under the project.

It found the industries most prone to automation were manufacturing; transport; sales and related fields; construction; administrative services; accommodation and food services; agriculture; and mining and resources.

Those least prone to automation include education; health; information and communications technology (ICT); computer science; business management and financial services; professional and scientific services; and arts and recreation services.

The bulletin also found that while Australia's economy was experiencing a structural shift from a goods-producing economy towards a services-oriented economy, the change has not been felt as strongly in WA due to its unique specialisation in mining.

The next project milestone is the release of our Future of Work survey results at our Perth in Focus public luncheon on November 24th. The only research of its kind to be undertaken across Perth and regional WA, the survey measures and identifies the major impacts on local businesses and organisations due to technological changes and the impact of COVID-19.

To keep up-to-date with our progress, or to RSVP to the Perth in Focus event, visit our website [committeeforperth.com.au](http://committeeforperth.com.au)

**Marion Fulker**

Committee for Perth CEO





**UNDER COVER:** The Sandy Ridge facility has one of the largest air domes in the Southern Hemisphere.

At full capacity, the project will have 80 operational staff, with most living on-site in a 71-person village.

Mr van der Merwe said Tellus was also focused on finding ways to recover and

recycle valuable materials.

"We have already invested in our first circular economy technology," he said.

This would involve reusing an existing hazardous material rather than mining and

transporting new material.

"By using one of our existing materials on site we are able to reduce our carbon footprint," he said.

With Sandy Ridge now operational, Tellus

is pursuing the development of similar facilities in NSW and the Northern Territory.

Its Blue Bush project near Broken Hill will be even larger, with an estimated cost of between \$100 million and \$150 million.



## HELP PUT CHRISTMAS BACK ON THE TABLE

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# RECYCLING

## SPECIAL REPORT

### Data & Insights

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#### Lithium Australia looks to patent battery recycling processes

Lithium Australia has moved to protect its battery recycling intellectual property by applying for two Australian patents for its recycling of battery materials processes, with lithium-ion batteries in its sights. It comes only days after the ACCC approved ...

#### Battery levy boost for Lithium Australia's recycling

recycling facilities in Victoria after the ACCC gave the Battery Stewardship Council the nod to set up and ... the recycling of batteries and seriously decreasing the practice and volume of landfill disposal of ... collection and recycling. The Perth-based company says keeping as many spent or end-of-life batteries out of

#### \$12m for Bunbury water recycling facility

Aqwest will build and operate an \$11.9 million water recycling facility and pipeline with funding from the state government. ...

#### Lithium Australia testing fertiliser produced from recycled batteries

Lithium Australia could be near to closing another loop in the battery economy, producing a slow release micronutrient fertiliser from recycling alkaline batteries. The fertiliser is tailor-made for broad-acre farming in WA and early indications suggest th ...

#### Lithium Australia claims 'first mover' status in EV battery recycling

Car batteries being prepared for recycling. Credit: Nissan. By Matt Birney Bulls N' Bears ... suppliers to provide spent electric vehicle (EV) battery packs for recycling through the company's ... Envirostream claiming the facility is now primed for regular production and that battery recycling is expected ...

#### State govt to spend \$20m on recycling

innovation in recycling. Photo: Jilbert Ebrahimi By Business News Government E-commerce provider Afterpay is ...