NSW GOVERNMENT Office of Environment & Heritage

SUSTAINABILITY ADVANTAGE

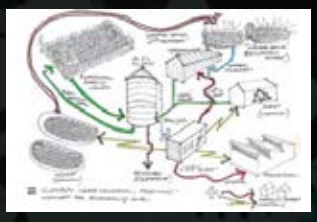
# ADVANTAGE NSW

## Creating value in the circular economy

Delta Electricity co-fires biomass

StabilCo's waste-derived MatrixBase makes roads

CSR uses recycled glass, wastewater



CLEAN Cowra maps resources and options

Rob Stokes,
NSW Minister for the Environment

# Creating new opportunities for NSW businesses

If we are to prosper in the future, we must embrace opportunities to encourage and enhance sustainability. We need to move away from the old-fashioned business model of take, make and waste, towards a sustainable circular economy that reuses resources, minimises waste and encourages the wise and thrifty use of assets at our disposal.

As Theodore Roosevelt observed "I recognise the right and duty of this generation to develop and use the natural resources of our land but I do not recognise the right to waste them, or to rob, by wasteful use, the generations that come after us."

The circular economy is an emerging global trend shaping the way industry, business and the community can successfully work together to create a sustainable future.

It can significantly boost local and regional economies by increasing jobs and prosperity while reducing emissions across the supply chain, product life cycles and services.

The NSW Government, through the Sustainability Advantage program, is assisting businesses to realise the opportunities offered through the circular economy. The program helps businesses gain a competitive edge by reusing discarded resources as new inputs to the productive economy.

Innovation and collaboration are critical for success. Sustainability Advantage is an honest broker for new and extended partnerships across diverse business sectors and organisations to help them grab opportunities a circular economy presents.

The examples set out in this feature illustrate real examples of businesses improving their competitive advantage through developing new opportunities in an emerging circular economy.

Rob Stokes
**NSW Minister for the Environment**

# The circular advantage

When testing a concept for hype, it pays to watch the numbers not the rhetoric. The statistics behind the emerging concept of a circular economy, where materials, water and energy are cycled and cascaded through multiple uses, are truly compelling.

Resource scarcity, says the CSIRO, will be one of six megatrends of the 21st century due to the twin drivers of global population pressure and rising affluence. As management consultants Accenture put it in a recent research paper, "economic development as we know it and resource scarcity are on a collision course".

Jeremy Grantham, legendary chief investment strategist at the $100 billion investment house GMO, crunched historical commodity data and called a tipping point in 2002. In a much-quoted investor letter titled Time to Wake Up: Days of Abundant Resources and Falling Prices Are Over Forever, he said the price of all important commodities except oil fell for 100 years until 2002, by an average of 70%, but since then has given it all back.

Circular thinking is a smart hedge against rising price volatility, but it is also a massive business opportunity. The World Economic Forum estimates 80% of the US$3.2 trillion value of the global consumer goods sector is lost each year due to a purely linear materials flow.

That's a lot of money simply left on the table and the penny is starting to drop with both business and government. China's latest five-year plan includes efforts to "vigorously develop a circular economy", while the European Union's new Resource Efficiency Platform sees circular economy as pure economic strategy, floating a new indicator of GDP/Raw Material Consumption.

"Improving our current resource productivity by 30% would increase GDP by up to 3% and create around two million more jobs than under the 15% baseline scenario," said EU Environment Commissioner Janez Potocnik.

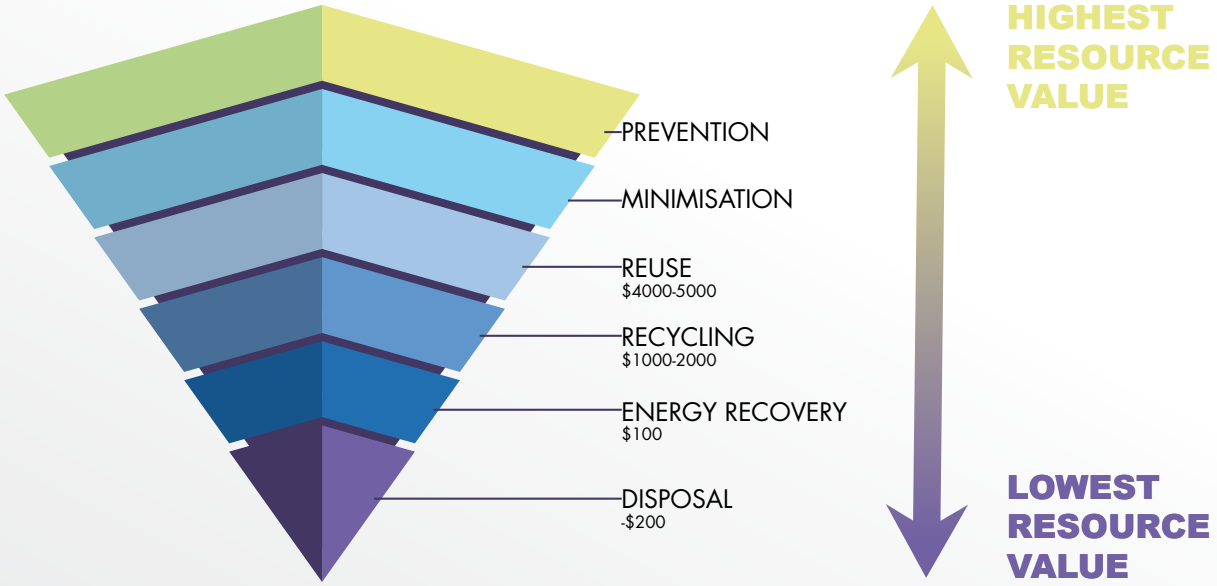
NSW has also embraced the circular economy as an engine of green growth through the NSW Office of Environment and Heritage. Its Sustainability Advantage program has been supporting circular economy projects since 2007, initially under the industrial ecology banner. Nine circular economy flagship projects have since 2010 diverted more than 700,000 tonnes of waste from landfill /landform, saved $23 million, created 79 jobs and leveraged almost $30 million in infrastructure investment. Follow the numbers.

### Circular economy in NSW

A core aspect of a circular economy is the business-to-business exchange of commercial and industrial by-product wastes for reuse as alternative raw materials or fuels. It also includes the sharing of underutilised assets, knowledge and logistics.

Colin Barker, deputy chair of the Australian Industrial Ecology Network and a key facilitator of Sustainability Advantage's circular economy initiative, sees NSW as uniquely placed to tap into circular opportunities.

A range of state dynamics complement the global drivers: a strong price signal in the waste levy, the challenge of developing new landfills, rising costs, the "serendipitous" co-emergence of some exciting technologies *(see the*




**THE RESOURCE OPPORTUNITY HIERARCHY**
The Hierarchy prioritises options according to their highest economic use. Take a tonne of plastics. Landfilling it in NSW *costs* more than $200. Sending it to an EfW plant creates value of $100 by replacing a tonne of coal.

Recycling it into plastic beads as a virgin substitute offsets the wholesale plastic price of $1000 to $2000. But reusing it or otherwise avoiding the need to buy new plastic products saves the retail plastic price of $4000 to $5000 per tonne.

*following pages)* and a critical window before centralised infrastructure such as energy-from-waste (EfW) plants lock up materials streams in long-term contracts.

He puts the opportunity at more than $2 billion a year in recovered resource value and avoided landfill levy alone. The key is optimising the value of resources. Barker re-imagines the waste hierarchy as a Resource Opportunity Hierarchy, where recovered materials go to their highest economic use. It's a powerful framework for prioritising the options.

"The waste hierarchy was generated to reflect the environmental and social good, but if you take that away it actually reflects the value you place on that resource. So for no other reason than pure economics, you ought to be as high up that hierarchy as you can," said Barker.

"And we should focus on the biggest price gaps, because that is where you have the most room to innovate."

A circular economy is also a regional development strategy, creating local loops in materials that mimic the growing interest in decentralised energy and water systems. Cowra is a prime example, mapping materials and multiple opportunities across the region. *(See Pg 7)*

The mindset presents challenges for companies, encouraging them to look "over the fence" for new supply and value chain opportunities. Sharing the benefits requires a new mindset and new metrics of value.

It also increases co-dependence between companies to a degree, but Barker frames it as strengthening networks rather than continuing to rely on increasingly uncertain linear supply chains.

"Circular economy has to be the new paradigm for doing business. Sustainability Advantage has been fabulous as an incubator of the idea and the network. It lets businesses move at their own pace and address the pressure points they want to address, then gets out of the way to let business do business."

## Driving the circular revolution

* Carlsberg and six global suppliers created the Carlsberg Circular Community to develop the next generation of packaging optimised for recycling and reuse while retaining or improving quality. By 2016 they aim to have at least three products certified under the Cradle-to-Cradle framework.

* BlueOak is a start-up out of the NASA Ames campus that in June raised US$35 million to build its first plasma arc technology mini-refinery to extract precious metals and rare elements from e-waste. The company's mission is "to enable circular integration in the technology supply chain".

* Japanese manufacturer Teijin has created a network of 150 partners in the Eco Circle initiative, based on its chemical recycling technology that refines old polyester into new polyester raw material. It cuts waste and energy use, and reduces carbon emissions by 77%.

* Materials science company Royal DSM and ethanol producer POET formed a joint venture that in September opened a plant in Iowa turning plant residues into cellulosic ethanol, previously dubbed a "fantasy fuel". Their proprietary cocktail of enzymes and yeast turns a low value waste into a cost-competitive biofuel.

* One of Ikea's core corporate goals is to "strive for resource independence by using resources within the limits of the planet and by encouraging all waste to be turned into resources". By the end of 2014/15 all main home furnishing materials will be either made from renewable, recyclable or recycled materials.

Biomass is being co-fired at Delta Electricity's Vales Point power station.

# Biomass co-firing for Delta Electricity

Electricity generator Delta Electricity has implemented a biomass co-firing program at its Vales Point power station on the Central Coast to reduce its reliance on coal and emissions of $CO_2$.

The program comprises two parts: direct co-firing with coal of up to 5% biomass; and development of Continuous Biomass Converter (CBC) technology with the Crucible Group to remove technology constraints and enable much higher rates of biomass co-firing.

It is talking industrial scale tests. Delta increased biomass co-firing in 2013/14 to 32,000 tonnes, up from just 3,000 tonnes the previous year, and conducted biochar co-firing trials at a rate equivalent to 400,000 tonnes per annum to demonstrate the potential of CBC technology. It reduced $CO_2$ emissions in 2013/14 by more than 32,000 tonnes.

"Legislation and regulations define biomass as renewable," said Delta Electricity sustainability manager Justin Flood. "By preferring biomass over coal, the carbon in the coal is not burnt and remains locked up."

One biomass source is wood waste that would normally go to landfill, but the primary driver of Delta's recent increase in co-firing is sawmill residues.

"Previously there was a higher value market for the residues for paper pulp. However, when that market evaporated the timber industry was left with a sizable problem in terms of what to do with its residues and the loss of revenue," said Flood.

The way greenhouse gas accounting is conducted in Australia, with carbon emissions based on site activities, makes it difficult to undertake a lifecycle assessment of the program.

"However, some of the international studies looking at this issue have concluded that the net carbon emissions of the biomass system are significantly lower than the coal system because of the uptake of carbon during biomass growth," said Flood.

Delta identified two challenges, sourcing the feedstock and that biomass conversion to electricity is slightly less efficient than coal due to a higher moisture content.

"It is very difficult to guarantee a stable source of biomass, hence the lack of significant capital investment in this technology by the industry," said Flood.

Delta can manage biomass co-firing up to about 2% of its total output without the requirement for major capital investment, but it isn't satisfied with that cap. This is where the company's interest in investigating CBC comes in (see story below). Not only does it deal with the moisture issue with raw biomass, but can make the process more efficient.

"Part of the current focus for Delta Electricity and Crucible is aimed at removing the final hurdles for commercial deployment," said Flood.

*Delta Electricity has been a member of Sustainability Advantage since 2009.*

# A game changer in electricity generation

Crucible Group founder and director Joe Herbertson recognised some time ago that not only were conventional power stations not built to directly handle biomass, there was a more effective use for under-valued resources such as forest and timber mill residues, agricultural residues, woody weeds, greenwaste and wood waste.


Converting biomass to char for power stations could divert significant amounts of material from landfill.

The former BHP research chief in Newcastle has steered development of Continuous Biomass Converter technology (CBC), a pyrolysis-based technology with the potential for multiple by-product streams.

"CBC offers attractive project economics across multiple sectors. It's a breakthrough, proprietary technology for high efficiency conversion of biomass to a char product; a clean burning gas; and a water product," said Dr Herbertson.

"In turn, the outputs from this process include industrial heat, electricity, reductant, soil conditioner, horticulture products, industrial water, biofuels and biochemicals."

He said the CBC was more than a conventional pyrolyser and had potential for fossil fuel substitution in power plants, steelmaking, the cement industry, timber mills and the manufacturing sector.

It is based on a patented thermo-chemical profile and combines in a single stage process the functions of dewatering, char making, oil and tar cracking and gas scrubbing.

Subject to further regulatory testing, Dr Herbertson anticipates the CBC will also unlock engineered timbers and laminates as potential biomass fuels that are currently precluded from co-firing.

*Crucible Group has been a member of Sustainability Advantage since 2014.*

Ferrero Australia wants to close the loop on its mixed plastic waste.

# Targeting zero waste

Confectionery manufacturer Ferrero Australia is working with the Sustainability Advantage team in developing a technology to re-engineer plastic waste. It is considering whether to apply the concept at its Lithgow factory or the group's new hazelnut business in the Riverina region.

"We have agreed to work on this project in order to seek ways in which we can use re-engineered plastic waste with a view to close the loop with our waste, to be plastic waste neutral," said Australian director of institutional affairs Derek Lath.

Its Lithgow factory, which produces Tic Tacs and Nutella, is also the site of a novel Australian wastewater bioreactor comprised of a series of nano-ceramic membranes that are vertically suspended and surrounded by air to create gills.

"Wastewater passes over the gills, enabling microbes to 'eat' the nutrients out of the water and breathe the air to grow and multiply. The project has moved from a test phase to the early implementation phase, with regular monitoring against performance goals being undertaken. Early results are encouraging," said Lath.

Another company to realise circular economy opportunities through the Sustainability Advantage network is dog and cat food manufacturer Mars Petcare.

"Obviously cardboard and metal are easily transferable, but with the benefit of business networking… many more avenues to other waste streams are opened up," said safety, environment and security manager Glen Cuthbert.

"For our manufacturing pet food business, achieving zero waste to landfill is real and only achievable by building long standing, mutual relationships with other businesses."

It is beginning to close the loop on materials such as soft plastics, organics and overseas pallets. Just as there is "waste in your value stream, there is value in your waste stream," Cuthbert said.

*Ferrero Australia and Mars Petcare have both been members of Sustainability Advantage since 2010.*

# Paving the way for aggregate re-use

StabilCo NSW has worked with road authorities over many years to gain the acceptance of its MatrixBase technology, which principally consists of re-used coal waste from coal washing, mines and gob piles but also sedimentary rock, sandstone from quarrying and fly-ash from power stations.

In August 2014 the NSW Roads and Maritime Services formally amended its road base specifications to allow MatrixBase to be used in roads, a huge breakthrough for StabilCo and testament both to the tenacity of director Simon Bruce and the role of Sustainability Advantage as an incubator for innovation, project development and collaborative partnerships.

"The innovation is a system that includes both the product and the associated construction techniques. Verification of performance of the system is provided by construction of trafficked roads – real field tests, not just laboratory tests," said Bruce.

Surveys by road authorities have found superior performance to conventional road base. One assessment in particular found a 39% saving in material and transport costs, a 20% construction productivity gain and a 47% reduction in carbon footprint.

Five different blends using different constituent materials have been produced since the first public road was constructed with MatrixBase in 2002. Since then more than two million tonnes of the various blends have been used in roads and highways.

"A major challenge has been to overcome entrenched engineering and construction practices, traditional engineering conservatism, risk-averse authorities and environmental concern for the re-use of waste to prove the value of the innovative technology," said Bruce.

There's still a perception that waste is "dirty" and carries a legacy that may return to impact the user; shifting that mindset is one of the keys to building a circular economy.

"The incorporation of waste materials has been progressive. Initially industrial waste made up only about 10% of the material, but as our R&D and understanding progressed, so increasing amounts of wastes were incorporated so that we can now include up to 100% waste," said Bruce.

Initial blends included quarry aggregates with waste power station ash; then poor shape and poor size waste quarry aggregates were used.

"Progressively, different wastes including mine gangue, coal washery reject, waste glass and foundry sands have been incorporated," he said.

Now they are collaborating with several parties from the steel, construction and waste and recycling industries to utilise their wastes. Once the technology is fully understood, he said many industrial, mining, chemical and municipal wastes can be included, provided the end product is fit-for-purpose, the correct construction techniques are applied and the materials meet environmental requirements.

*StabilCo, formerly Weston Matrix, has been a member of Sustainability Advantage since 2008.*

A road in Kangaroo Valley is using MatrixBase with 100% waste products.

Yeast washing and cooling presented a significant opportunity for MAURI anz.

# Diversifying supply chain brings efficiency

Yeast and bakery ingredients producer MAURI anz has been in Australia since 1940 and it's still pushing the envelope on innovation and collaboration to create best-in-class operations. One of the challenges in the manufacturing process is to keep its aerobic digester at a temperature the micro-organisms prefer for biological action.

Traditionally, this is controlled by adding ambient temperature mains water, seven days a week, but the company's Camellia plant in Sydney has shown liquid trade waste from nearby industrial premises can do the job just as well.

Isaac Panagiotidis, the effluent treatment & co-products development manager at MAURI anz, scoped out the cooling water substitution project in collaboration with four waste companies.

"Our approach has always been to build engagement within the waste and recycling industry. This industry is highly regulated and therefore we can be assured that water quality will be of a high standard ongoing," he said.

It identified four companies, Transpacific Industries (TPI), Worth Recycling, SITA and Solveco, and together they analysed its treated water. Extensive trials established the by-product water was of sufficiently high quality to substitute for mains water.

It offers benefits to parties along the supply chain. It avoids potable water purchases for MAURI anz, eliminates costly discharges to the sewer (including the liquid waste levy) for the waste companies and reduces a contaminant that requires energy intensive processing by Sydney Water.

Panagiotidis explains: "A Memorandum of Understanding was initially established with our partners outlining volumetric limitations, water quality acceptance standards and testing requirements, liabilities and project reviews. Strong communication and a systematic approach has resulted in a seamless project to date."

The company spent $150,000 installing a 100 kilolitre process water buffer tank and equipment to enable continuous inbound process water loads and controlled discharge of water into the process.

The initiative, now in its second year, saw the company's Sydney operation avoid the annual purchase of 70,000 tonnes of potable water, saving it around $100,000 a year. Then there are the environmental benefits.

"The environmental footprint of transporting water is borne by the wastewater transporter," said Panagiotidis, adding the company anticipates a net carbon reduction from the initiative.

It is part of a systematic process within MAURI anz to improve feedstock resource efficiency, energy efficiency and reduce environmental burdens including wastes to landfill. The project has proven itself after careful water efficiency monitoring and is now ready for rollout to its other plants around the world.

*MAURI anz has been a member of Sustainability Advantage since 2010.*

# CSR's recycling tradition

CSR's facility at Ingleburn, making products under its Bradford Insulation brand, has a long history of re-using materials, especially recycled glass fines that it sources externally for input into its glasswool product.

Bradford Ingleburn (BI) has been using cullet in its glasswool since the year after the plant opened in 1990 and currently uses a mix of 75% window glass and 25% bottle glass.

"Bottle glass is not such a good quality, but for the balance of glass composition it would be preferable to use more bottle cullet if the quality was better," explained Peter Harris, QA manager at CSR Bradford Insulation.

The process is also water intensive, consuming 2.5 kilolitres (or 2.5 tonnes) of water to produce one tonne of glasswool. To make the process more efficient BI has since 2010 been receiving recycled water from Worth Recycling.

It takes about 180 kL a week of recycled water from Worth's South Windsor facility, but could easily consume 550 kL each week if it were available.

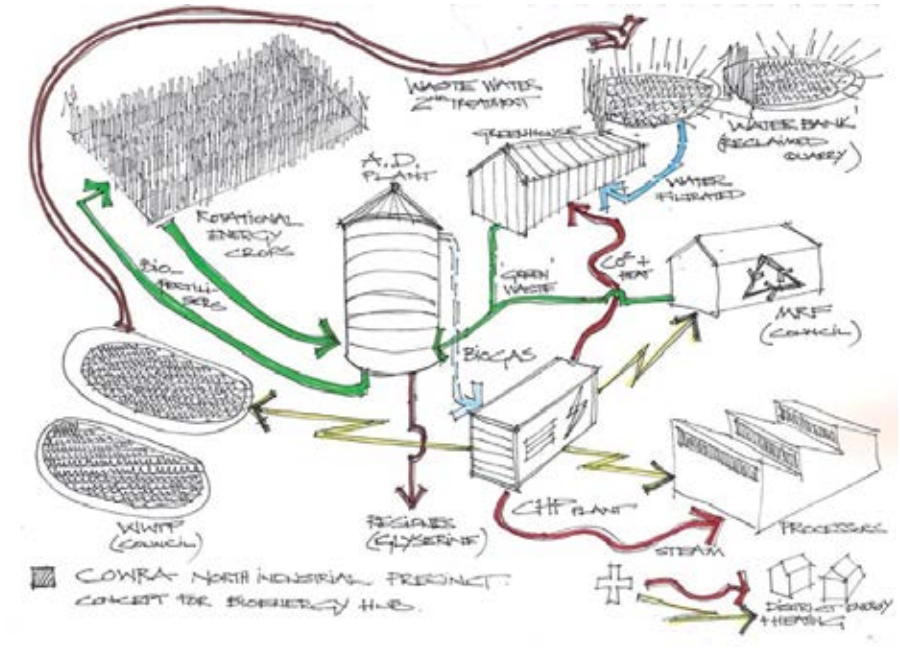
Worth recovers the liquid waste levy from the state government for each litre it returns to industry and BI receives a portion of that, as well as avoiding the cost of purchasing mains water.

While the company has approached other potential suppliers, Harris said those sources have "nowhere near" the water quality required for BI's processes.

The big focus for CSR Bradford Insulation is now on closing the loop on its wet and dry glasswool scrap, of which it produces around 400 tonnes and 1,000 tonnes respectively a year.

*CSR has been a member of Sustainability Advantage since 2007.*

BI has been re-using materials like glass fines for more than 20 years.




CLEAN Cowra is investigating plans to build a waste to energy plant in the town's north-west industrial precinct.

# Collaboration key to building circular economies

There's a revolution under way in regional parts of NSW addressing concerns close to the heart of local communities – energy, environment, materials and long-term financial security.

"It's in line with the culture of regional areas," said Nick Palousis, CEO of specialist engineering and consulting firm 2XE, adding that such areas often have a history of self-sufficiency and resilience.

"We are seeing this move into the materials space through the use of biomass and other feedstocks like solid waste in the case of pyrolysis or production of biogas."

He said communities were increasingly recognising that resources are becoming scarcer and the price of energy and other inputs is making collaborative approaches increasingly attractive.

One region nearing a resources tipping point is Cowra, located 317 km west of Sydney with a population of more than 10,000. This major regional agribusiness hub has a well-developed community interest in building circular economies.

The Cowra Low Emissions Action Network (CLEAN) has been collaborating with the community, council and industry for two years on alternative energy generation, resource efficiency and remanufactured value-added products. CLEAN Cowra facilitator Dylan Gower said the approach is two-pronged.

"We've identified there are significant waste streams from council and industrial processes," he said, adding industries in the region including food manufacturing and processing, abattoirs and previously a cannery also have high energy requirements.

"The second part is how we can look at residual agricultural waste streams."

One option to add greater value to these streams is converting biomass into fertiliser and soil additives.

Expansion of the local wastewater treatment plant also presents an opportunity for a circular economy approach to reduce its high operating costs.

"We're recommending they investigate increasing the plant capacity by utilising industrial and agricultural waste. The structure of the new lagoons are suitable for covered ponds," said Gower in reference to technology with potential to maximise harvesting of biogas.

## Working with communities

By working with Sustainability Advantage, CLEAN Cowra has been able to network more broadly and increase its capacity to deliver projects, which typically involve multiple stakeholders.

"Part of this initiative is that benefits go back to community," said Gower. "If the economics stack up in regard to return on investment, the added benefits go back to community for advancing other environmental projects."

The group has just completed a resource mapping exercise to understand the available material flows in the region and where synergies may be viable.

"What stacks up from our perspective is that aggregation makes sense as you require other participants in terms of their resources. If you create even a small plant you need to get to a certain scale," said Gower.

But it's not a clear boundary between community and industry, Palousis points out, they are interdependent.

"Community in my mind is the bigger macro picture and then you've got industry that sits within it, both working closely together to co-create value in a shared economy" he said.

It can be a challenging and lengthy process to develop circular economy projects, involving parties with multiple interests and different levels of power and influence. Sustainability Advantage found its flagship circular economy projects typically took two years to come to fruition.

"What we have found is the economic development angle is familiar and common to all these stakeholders, so if you want to pitch a project, angling it towards economic development is what gets a lot of these guys on board," Palousis said.

Taking a collaborative approach was essential on a New Zealand government project to attract foreign investment and foster energy intensive businesses in the Kawerau region, which is blessed with forestry and geothermal resources.

"You couldn't just go out there and do Town Hall style engagement because people with limited information will form views quickly," said Palousis.

"The process involved conducting a series of intensive interviews and meetings with businesses, councils, Maori trusts, employment development agencies, employees. The process was absolutely critical to its success."

It's an approach all governments should heed when it comes to supporting investment in projects that convert materials into value added resources.

"We can't rely on free market economics to work. We're not big enough in Australia, we have to invest in the right areas and make use of government influence and leadership," said Palousis.

*CLEAN Cowra has been a member of Sustainability Advantage since 2013.*

# NEWS

## 100% recycling of waste mattresses

Sydney-based Salvos Stores and Innoveq are developing world-first technology for the aggregation, dematerialisation and 100% recovery of all mattresses, including contaminated, soiled and partially burnt ones. The water jet dismantling and recycling technologies will produce by-product streams suitable for steelmaking and carpet underlay manufacture. With up to 500,000 mattresses discarded annually in NSW, the technology is solving the dilemma of landfilling or illegal dumping of used mattresses.

## Water utilities and biodiesel production

Sydney Water and Biodiesel Industries are working together to use the crude glycerol from biodiesel production as a value added component of the diet of anaerobic digestion micro-organisms. The 'dietary supplement' results in increased biogas production without increasing sludge volume or sludge handling costs. It may lead to the co-digestion of other biomass sources with the gas energy being a resource to the water authority and the wider electricity grid.

## Reforming carbon to create value

Biomass and organic waste can be a valuable source of carbon for manufacturing, a fact not lost on major building products manufacturers (think steel, bricks and cement). Biomass can be combusted to produce heat for electricity, converted to bio-oil through pyrolysis and then upgraded for transport fuels. This process also produces char, a renewable alternative to coal for use in metallurgy. For example, as part of the integrated steelmaking process char would be produced by using pyrolysis to dry and heat biomass sourced from tree plantations and residues from forestry, agriculture and wood processing.

## The Qantas tri-generation project

Australia's largest commercial tri-generation facility is the 8.6-megawatt plant at Sydney Airport, delivering electricity and chilled/hot water for space cooling/heating to Qantas' corporate headquarters, jet base facilities and the catering centre. It is capable of supplying 100% of energy requirements while halving greenhouse emissions, while wastewater generated in the tri-gen plant is heated and reused in cooling towers, saving around 20 megalitres of potable water a day. The $25 million tri-gen plant is estimated to pay for itself in 6-7 years.

## Re-engineering for a carbon economy

De Bortoli Wines vision is to become a zero-waste wine company. It has developed a project with stakeholders to manage energy and water use, reduce carbon emissions and salinity and minimise waste. Initiatives include a 200 kilowatt solar PV system, filtration equipment, solar hot water and an energy-efficient bottling line. Estimated energy savings are 16–20% compared to 2008/09.

## Lismore's recycling revolution

Lismore City Council's new $3.65 million, 15,000 tonnes per annum materials recovery facility will process everything, from plastic bags to mobile phones. The state-of-the-art glass processing plant will divert hundreds of tonnes of glass from landfill by crushing it into sand for use in road base and asphalt.

## Further information

The NSW Office of Environment and Heritage (OEH) offers a range of tailored programs, management tools, information resources and training opportunities to help business, not-for-profit and government organisations in NSW become more resilient and productive and reduce their impact on the environment.

**Sustainability Advantage**
The NSW Government's premier program for supporting sustainable business across NSW, Sustainability Advantage is open to medium-sized and large businesses, not-for-profit organisations and government agencies. The program helps organisations identify and implement projects in practical areas such as resource efficiency, supply chain management, staff and stakeholder engagement and climate change adaptation, and includes a recognition scheme to reward environmental improvements.

Visit environment.nsw.gov.au/sustainabilityadvantage/, call (02)8837 6000 or email sustainbus@environment.nsw.gov.au

**Energy Saver**
The Energy Saver program supports businesses throughout NSW, helping them to reduce their energy consumption and costs. It provides practical guidance on energy efficiency and offers subsidised technical investigations and training, as well as project, financial and technical support.

Visit environment.nsw.gov.au/energysaver, call 1300 361 967 or email energysaver@environment.nsw.gov.au

**Assistance for Government Agencies**
OEH helps NSW Government agencies achieve their environmental goals in energy, water, clean air and waste-management and their obligations under the Government Resource Efficiency Policy. A dedicated team of specialists is available to work with agencies on the opportunities and challenges presented by energy efficiency projects, obtain finance and engage suppliers.

Email government@environment.nsw.gov.au or call (02) 9995 5000.