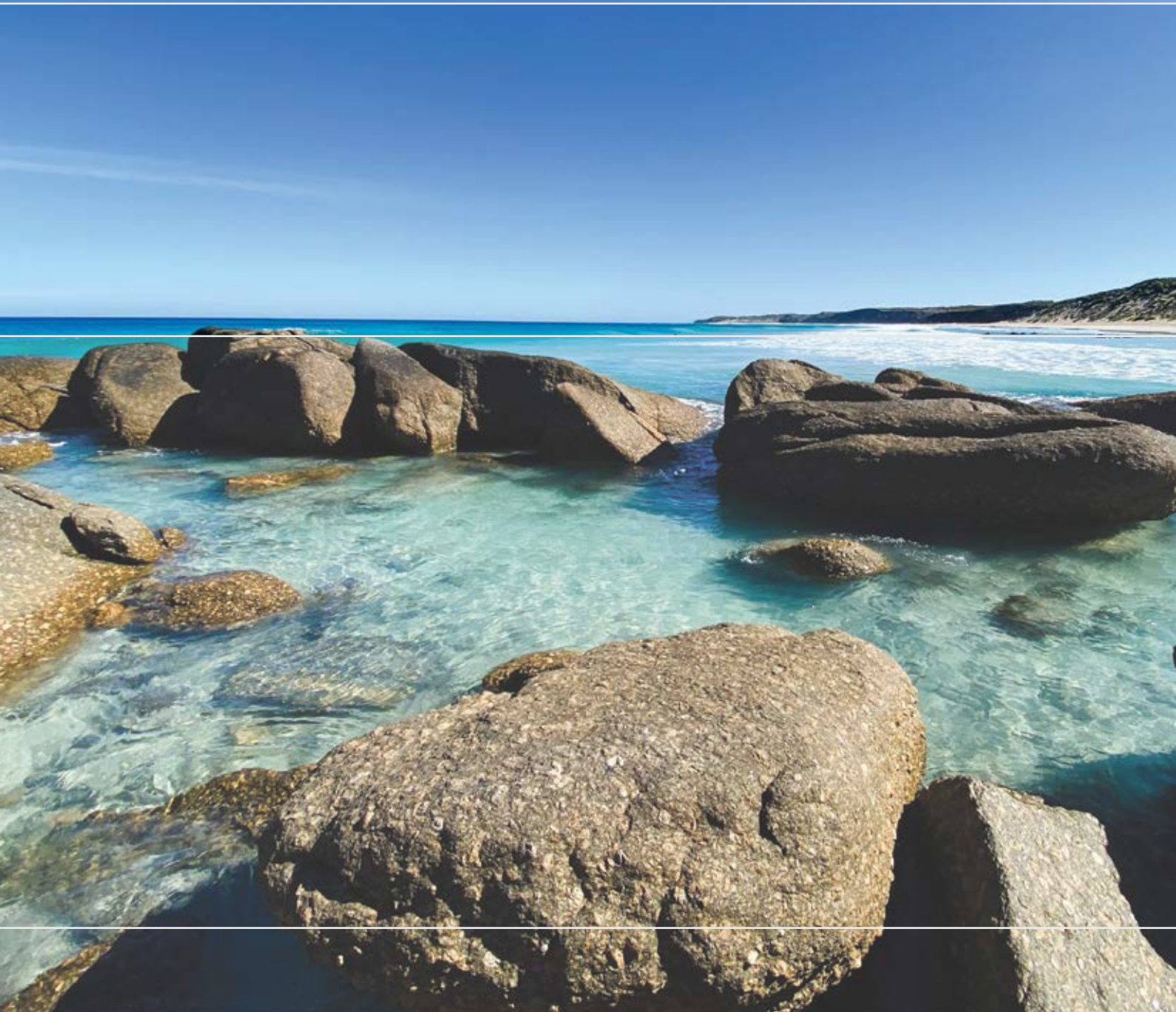
EPA
South Australia

Good for Environment Good for Business

Volume VI

Berry Bay, Corny Point, Yorke Peninsula. Image courtesy of Paris Bates, EPA.



Foreword

For more than 25 years the EPA has been safeguarding communities and protecting the environment by supporting and encouraging more innovative and environmentally sustainable industry and business practices across South Australia.

As the state's independent environmental regulator our purpose is to protect, restore and improve the environment and safeguard people's health and wellbeing. A key program to deliver this purpose is the authorisation, monitoring and regulation of activities of environmental significance.

The EPA provides licences to around 2,500 business across the state under the *Environment Protection Act 1993*. All licensees are required to meet their environmental obligations through efficient and effective practices, and we actively encourage them to develop and adopt cleaner, innovative technologies.

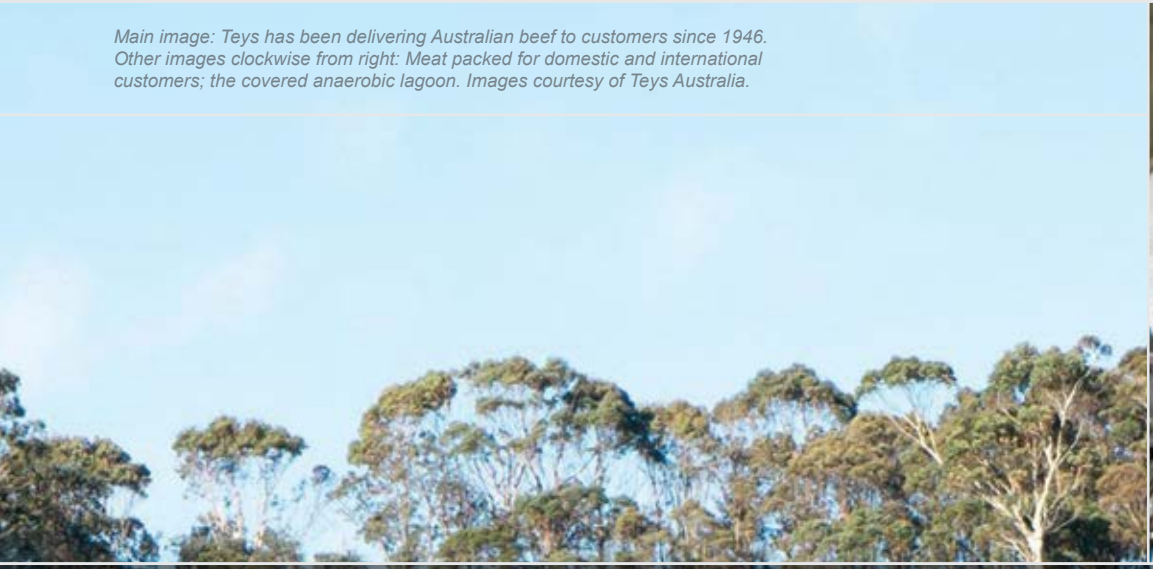
This year's *Good for Environment Good for Business* publication highlights a number of metropolitan and regional businesses and industries – from shipbuilding to wastewater treatment – all of which are implementing innovative solutions to achieve environmentally sustainable outcomes.

I hope the stories will inspire and encourage others to consider how they might innovate to lighten their footprint, in order to improve environmental, community and business outcomes.

We continue to build a culture of working together with industry, community and across governments. Together we can ensure we conserve our natural resources and protect our precious environment. This will ensure we keep our community safe and all play a part in progressing towards a more sustainable future.

Tony Circelli
Chief Executive
Environment Protection Authority

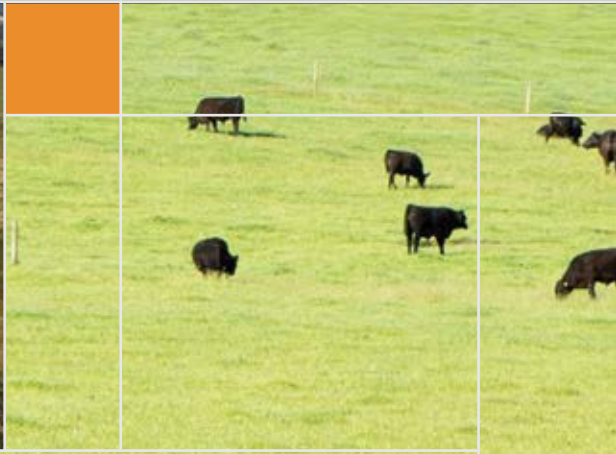
Main image: Teys has been delivering Australian beef to customers since 1946. Other images clockwise from right: Meat packed for domestic and international customers; the covered anaerobic lagoon. Images courtesy of Teys Australia.

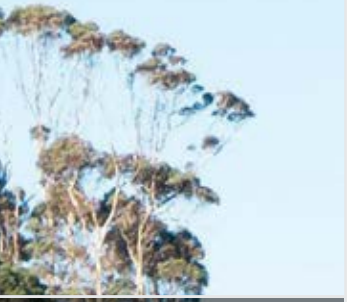


Generating **2,500** **MW hours** of renewable energy each year

Reducing reliance on grid **electricity** by **30%** and **operating costs** by **10%**

Reducing **22,000** **tonnes** of CO_2 emissions a year





Teys Australia – Naracoorte facility

Since 1946 Teys has been delivering Australian beef to domestic and international customers while demonstrating a strong commitment to creating more sustainable futures for its employees, communities and the planet.

And for more than two decades the team at Teys processing facility at Naracoorte, which employs more than 500 people, has focused on having a positive impact on the local community, while also supporting change across the industry.

Teys has set clear targets to demonstrate this sustainability focus. By 2023, Teys will reduce water intensity by 10 per cent, reduce carbon intensity by 20 per cent, and source 30 per cent of its energy via renewables, with a view to achieving industry carbon neutrality by 2030.

In recent years, Teys has made a substantial effort to upgrade its wastewater treatment infrastructure. The appointment of a local dedicated environmental officer, along with investment in industry leading technologies, supports the company's sustainability vision at Naracoorte.

Group Environmental Manager Jacob Welch said this involved upgrading the facility's primary and secondary wastewater treatment systems.

"The primary wastewater treatment system was upgraded with a dissolved air floatation system for fat, oils and grease removal, as well as the addition of two fan press units to improve paunch* solids removal prior to discharge to the secondary wastewater treatment system. The fan presses also significantly dewater the paunch product, reducing the moisture content prior to composting."

*undigested food

A covered anaerobic lagoon (CAL) was also installed to improve wastewater treatment performance while capturing renewable energy rich biogas for electricity generation.

"The biogas is combusted in a cogeneration engine to produce renewable electricity, substantially reducing the facility's reliance on grid electricity and reducing CO_2 emissions by about 22,000 tonnes a year," Mr Welch said.

"Teys has similar systems in place at its other processing facilities across Australia, but Naracoorte is our first plant to supply biogas into a cogeneration system for electricity generation, rather than a boiler for steam generation. The project will serve as a model for future implementation at our other facilities."

Continuity of electricity supply is critical to the meat processing sector, and to ensure long-term energy security, Teys was able to access funding to support the project through the State Government Energy Productivity Program.

The multi-million dollar improvements were recognised with a win in the Energy Sector: Innovation and Productivity Improvement Award at the SA Premier's Energy and Mining Awards in 2019.

"Recognition for our sustainability efforts is a great reward and it gives our customers and consumers confidence that Teys is taking real action to address the sustainability challenges of the future," Mr Welch said.

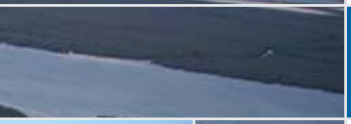
"We also have a more resilient business, which gives the local community and our employees confidence that Teys is in Naracoorte for the long term."

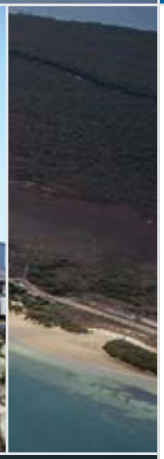
Main image: The Osborne Naval Shipyard on Lefevre Peninsula.
Other images clockwise from right: Indigenous artwork; Kaurna artwork in the dining hall; south-facing clear wall cladding for natural lighting in workshops.
Images courtesy of ANI.

Accredited to ISO 14001 – Environment Management

'End to end' fully integrated shipbuilding capability

Incorporating solar power and LED lighting





Australian Naval Infrastructure

Australian Naval Infrastructure (ANI), formed in March 2017, is a Federal Government Business Enterprise which is building state-of-the-art infrastructure at Osborne to support the government's $183 billion Naval Shipbuilding Plan.

ANI has expanded the Osborne Naval Shipyard significantly during the past three years, so it now covers 109 hectares of the Lefevre Peninsula.

The Osborne South Shipyard represents a major commitment by the Australian Government to support a continuous and sustainable shipbuilding program in the decades ahead.

The new and expanded South Shipyard incorporates numerous environmentally-friendly, sustainable practices.

The south yard is just the first step in the expansion and modernisation of the naval shipyard. The shipyard now has 'end to end' fully integrated shipbuilding capability – meaning steel goes in one end and ships come out the other.

Project Director Phil Cornish said the new southern yard will support the continuous build program for future vessels up to 10,000 tonne displacement, such as destroyer class vessels.

"The southern yard has four new industrial halls each focused on different stages of the shipbuilding process, from steel fabrication to hull forming, blasting and painting, ship assembly and consolidation, outfitting and final commissioning.

"The massive Ship Consolidation and Erection Hall houses two 200 tonne overhead gantry cranes, allowing ships to be built undercover, rather than in the previous open, dry berths.

"The South Shipyard also includes a new canteen with commercial kitchen, modularised change room buildings with solar power and recycled water, offices and staff amenities.

"We worked closely with all project stakeholders in considering, assessing and implementing controls to manage environmental risks during delivery and also during future operation."

Environmentally sustainable initiatives include:

- Provision for future PV cells on main production halls.
- South facing clear wall cladding for natural lighting.
- Rainwater capture and re-use for office facilities.
- Low volatile organic compound paints.
- User-controlled ventilation and natural ventilation.

"ANI recognises it has an obligation to consider the interests of tenants, employees, nearby residential and business communities, and has considered and planned for the best social and environmental outcomes.

"ANI has progressed completion of the works and advanced handover of the facilities to the Hunter Class Frigate Program and appointed shipbuilder, BAEMSA (ASC-Shipbuilding). During this we worked with the EPA to establish relevant operational management plans and controls.

"ANI continues to ensure our Osborne development projects prioritise consideration of the environment in design, construction and future operations.

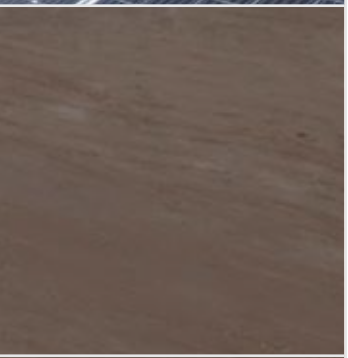
"We are also involved, with others, in the revitalisation of Mutton Cove, and the engagement of local indigenous artists to create site artwork which reflects the local environment and pays homage to the traditional land custodians."

Main image: Aerial view of the Murray Bridge Wastewater Treatment Plant. Other images clockwise from right: solar array; pump plant; close-up of treatment plant. Images courtesy of SA Water.

Odour control unit removes 99.95% of odour

400 solar panels generating up to 150 kW hours a day

100% of treated wastewater recycled for reuse



SA Water - Murray Bridge Wastewater Network

A new wastewater network and treatment plant at Murray Bridge is providing major benefits for the local community, the environment and SA Water. The new facility replaces a plant built next to the marina in the 1970s, when Murray Bridge's population was considerably smaller.

Moving the plant away from the River Murray floodplain and residential areas improves its environmental performance, by eliminating a previous source of odour and the potential for unplanned discharge into the river during high flood events.

The new plant, at Brinkley on the outskirts of Murray Bridge, is capable of treating up to 4.5 million litres of sewage a day, 2 million litres more than the previous facility, which provides for projected population and industry growth in Murray Bridge to 2041. There is also the ability to expand the treatment capacity, if required.

General Manager Sustainable Infrastructure Amanda Lewry said the plant is one of the first non-industrial wastewater treatment plants in the country to include a biological process called a 'moving bed biofilm reactor'.

"This technology breaks down sewage in a more compact and efficient way. The resulting sludge is turned into biosolids, which is used to improve soils and crops."

The plant also incorporates an odour control unit, with a bio-trickling filter and activated carbon tanks, designed to remove 99.95 per cent of odour.

"More than 400 ground-mounted solar panels help power the plant, generating up to 150 kW hours a day and reducing SA Water's reliance on the electricity grid. Like its predecessor, the facility also recycles 100 per cent of treated wastewater for reuse, with the high quality product used at a Defence Department training area and a nearby pastoral property.

"The 11.4-hectare buffer zone around the building has been revegetated with local native plant species, and tree trunks salvaged during construction provide habitat for native birds and reptiles."

The $52-million project also included the construction of three connecting wastewater pump stations – with one also housing an odour control unit – and an additional 18 km of underground sewer mains.

SA Water's commitment to sustainability and environmental management during all stages of the project helped it achieve the highest design rating to date for a water or wastewater project in Australia, from the Infrastructure Sustainability Council of Australia (ISCA).

The project was also recognised during the 2020 Australian Water Association's South Australian Water Awards when it won the regional infrastructure Project Innovation Award.

Main image: Hot-dip galvanising at Korvest Galvanisers.
Other images clockwise from right: solar panels; dust bag facility.
Images courtesy of Korvest Galvanisers.

Environmental improvement embedded in company culture

99% reduction in emissions

Using solar power and LED alternatives

Korvest Galvanisers

Korvest Galvanisers has been conducting hot-dip galvanising at its Kilburn site for nearly 40 years, and was first licensed in 1995, making it one of 'the originals' from the year the EPA began operating. Over the years, the company has become increasingly aware of the need to use resources more sustainably and reduce its environmental footprint.

Korvest has continually adapted and implemented changes to work practices, plant and equipment to improve its environmental performance and comply with legislative requirements.

Reducing emissions was a recent challenge, as with an extraction system fan over the main galvanising kettle, Korvest was discharging emissions, including zinc compounds.

Korvest's stack monitoring and modelling program showed the ground-level particulate concentrations complied with the Environment Protection (Air Quality) Policy 2016, but with a change to $PM_{2.5}$ particulate emission National Standards, Korvest needed to consider how it would remain compliant.

Health, Safety, Environment and Quality Manager Andrew Mepham said they contemplated installing a taller stack and bigger exhaust fan to increase the exit velocity of the particles which would increase the dilution in the atmosphere.

"But while this would meet the new requirements, it wouldn't reduce emissions."

Instead the company installed a refurbished bag house filter over its main galvanizing kettle, allowing it to capture particulate for recycling before it entered the atmosphere.

"The instant visual results were amazing. No visible fume could be seen escaping from the stack. Verification testing and plume modeling was undertaken in July 2020 once the filter had bedded-in, and we calculated a 99 per cent reduction in emissions compared to the previous six months.

"We're the only hot dip galvaniser in South Australia to have a bag filtering dust plant, and were fortunate to be able to refurbish a second-hand unit, with the whole project costing around $380,000."

In the past 18 months Korvest has also invested in energy reduction projects across the site including replacing old lighting with a mix of solar and LED alternatives, and installing 175kW of solar panels. A further 270kW of solar panels and inverters is in the pipeline to further lessen consumption of mains power.

The company has also replaced traditional tonal reversing beepers on their fleet of mobile plant with white noise beepers to reduce noise emissions.

"It is vital that Korvest continues to look for ways to reduce its environmental impacts.

"Managing our emissions, maximising energy efficiency, and taking opportunities to recycle and manage our waste streams are not negotiable."

EPA
South Australia

Telephone
(08) 8204 2004

Email
epainfo@sa.gov.au

Website
www.epa.sa.gov.au

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