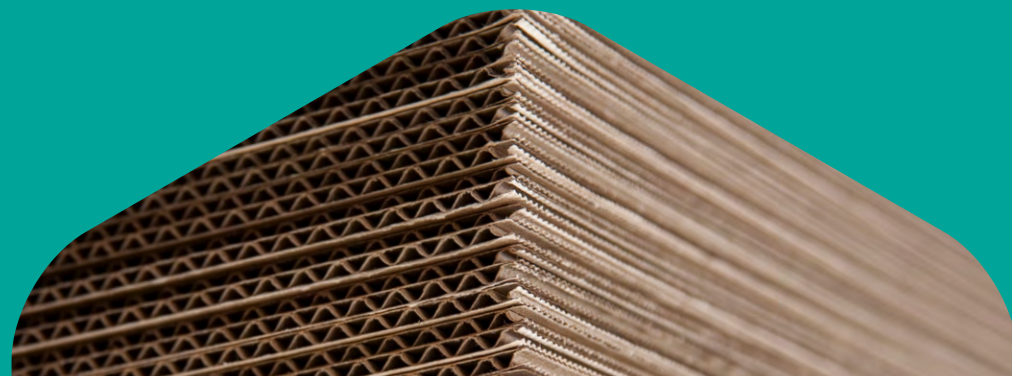




# Sustainability Report 2024

Opal shapes the future through sustainable packaging



Opal.

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## Acknowledgement of Country

Opal acknowledges the Traditional Custodians of the lands and waters on which we operate. We pay our respect to Elders past and present, along with all Aboriginal and Torres Strait Islander peoples who contribute to our business.

In Aotearoa New Zealand, we recognise Māori as Tangata Whenua. We acknowledge their kaitiakitanga and commit to working in genuine partnership to care for the land and waters on which we work.

# Messages from leadership

## From our CEO

As an innovative, solutions-led group, our Vision is to shape the future through sustainable packaging. We work to improve the sustainability and emissions footprint of our operations and value chain, and support our customers with more sustainable paper and packaging solutions for today and tomorrow. As an industry leader, we aim to design products that can re-enter the economy at the end of their use, creating value for people, businesses and communities within Australia's circular economy.

Sustainability is part of the work that we do; from promoting the shift away from hard-to-recycle materials toward more circular packaging, to working to reduce the environmental footprint of an energy and water-intensive industry.

Just as importantly, we recognise our responsibility to people, providing a safe and thriving workplace for our teams, supporting the communities in which we operate and working in partnership with customers and suppliers to deliver shared value.

We're committed to improving transparency across our value chain and sharing progress on our journey of continual improvement.

Thank you to our team, our customers, our partners and the communities we serve for your role in working together towards a sustainable future.

**Chris Nagaura**  
Chief Executive Officer  
Opal Group



## From our GM of Sustainability and Environment

Packaging plays an essential role in our daily lives. It protects the products we rely on and makes them easier to transport, store and use. Packaging helps reduce food waste, extend shelf life and improves convenience.

At the same time, significant amounts of packaging still end up in landfills and oceans. That's why it has never been more urgent to shift from a linear take-make-dispose model to a circular packaging system.

The majority of Opal's business model is based on an integrated value chain where we recover, recycle and

remake packaging. We are also helping our customers meet their own sustainability goals by designing solutions that reduce material use and incorporate recycled content while maintaining functionality.

Our manufacturing process is heavily reliant on electricity and thermal energy. In pursuing net zero by 2050, our primary focus over the next five years is looking to transition from natural gas to biomass and biogas for high-temperature thermal energy. We are also continuing to expand our use of renewable energy, including on-site generation.

We welcome your feedback on this report and look forward to continuing to work towards a sustainable, circular future for packaging.

**David Jettner**  
General Manager, Sustainability & Environment  
Opal Group



# 2024 highlights



## 3372 team members

across Australia and New Zealand



## More than 60 sites across Australia and New Zealand

including paper mills, recycling facilities and depots, packaging manufacturing sites and warehouses



## 600,000+ tonnes

of waste paper collected for recycling



## 8% reduction

in Scope 1 and 2 emissions compared to 2023



## Opal maintains FSC® and PEFC Chain of Custody certifications



The mark of responsible forestry



## 60%+ average recycled content

included in the paper-based packaging produced



## Working towards Net Zero 2050<sup>1</sup>

Roadmap in place for interim 45% reduction in Scopes 1 and 2 by 2030 from FY2021 base year



1. Across Scopes 1, 2 and 3.

## Ongoing commitment to Zero Harm



# About Opal

More than 150 years ago, our first paper mill began operating on the banks of the Yarra River.

Today, Opal is one of Australia and New Zealand's largest recycling, paper and packaging businesses, with a decades-long history providing innovative, renewable and circular solutions, supplying both local and global markets.

As part of NIPPON PAPER GROUP, we are committed to sustainable circular economy business practices that reduce our environmental impact, support our customers and contribute to a strong economy.



## Our Values

Our Values were created by our people and are a reflection of our organisation. We put Safety at the centre of everything, it is our No.1 priority across every area of our business.

# Our Vision

Our Vision is to shape the future through sustainable packaging



## Thinking fresh

We are committed to innovation. We adapt quickly to change and are always looking for opportunities to add value, in partnership with our customers.



## Thinking people

We recognise, respect and celebrate the unique contributions from each member of our team. We work towards our common goals creatively, collaboratively and, above all, safely.



## Thinking sustainable

We are committed to circular economy principles, by promoting recycling, working to eliminate waste and producing packaging that helps shape a positive future.



## Thinking value

We work hard to build positive relationships with our customers, suppliers, team members and communities, striving to reach a shared understanding that creates value for all.

We operate sites across Australia and New Zealand

## 2 Paper mills

Our Botany Mill has been producing paper since 1902. It is now the largest single-site Old Corrugated Containers (OCC) waste paper recycler in Australia, producing 100% recycled paper.

Opal's Maryvale Mill first began operation in the 1930s and produces a range of products including 100% recycled paper and kraft paper made from certified-sustainable wood.

## 22 Converting sites

Manufacturing cardboard boxes, cartons, specialty packaging and point of sale, functional coatings and bags for thousands of Australia and New Zealand's leading brands.

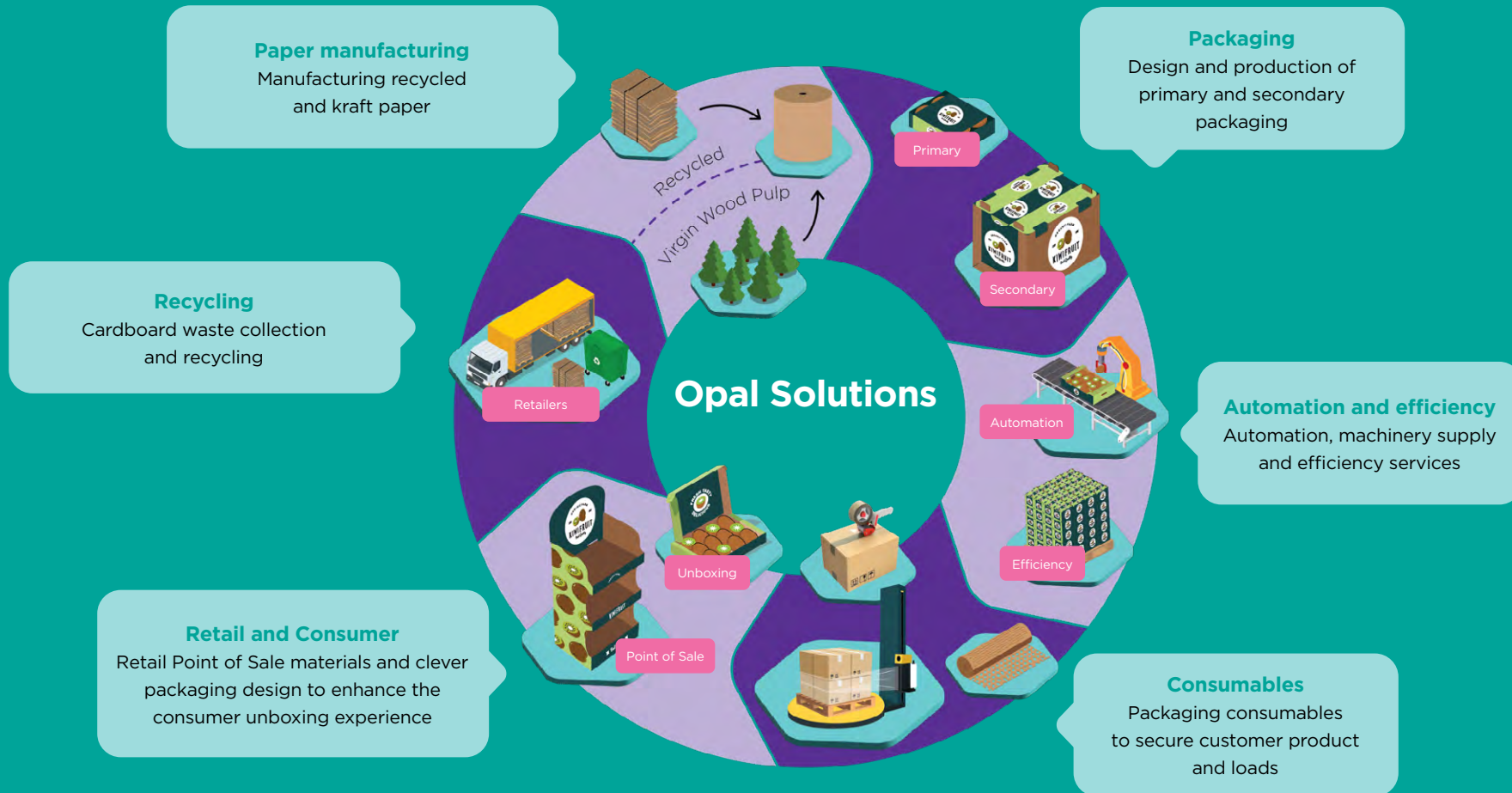
## 30+ Depots and warehouses

Including recycling centres and Opal Packaging Plus, supplying cardboard packaging and complementary packaging solutions.

### Opal locations

-  Fibre Packaging
-  Cartons
-  Specialty Packaging
-  Sacks and Bags
-  Paper Mill
-  Packaging Plus
-  Functional Coatings
-  Recycling centres





## Packaging end to end

Opal offers fully integrated solutions for fibre packaging and distribution needs.

We work with our customers to protect products across a range of industries, including fresh produce, protein, FMCG, industrial, dairy, quick service restaurants and beverage.



# Our commitments

Our sustainability commitments focus on where we can drive meaningful change.

We will review our commitments on an ongoing basis.

## Operating responsibly



- » Ongoing commitment to Zero Harm
- » Transparently report our environmental and ethical practices, in alignment with third-party frameworks
- » Collaborate with customers toward shared industry goals
- » Create a safe, respectful and inclusive workplace in which people thrive
- » Supporting responsible procurement practices.

2. Across Scopes 1,2 and 3.
3. From FY21 base year.

## Decarbonise our operations and value chain



- » Achieve net zero greenhouse gas emissions by 2050<sup>2</sup>
- » Reduce Scope 1 and 2 (operational) emissions by 45% by 2030<sup>3</sup>, as an interim target
- » Expand our emissions inventory to include Scope 3 (value chain emissions) by 2025
- » Set rolling five-yearly interim emission reduction targets across all Scopes.

## Responsible sourcing of wood fibre



- » Preferentially procure certified, traceable and ethically managed fibre
- » Maintain 100% FSC<sup>®</sup> certified and recycled fibre at Botany Mill
- » Transition to 100% FSC<sup>®</sup> certified and recycled paper supply from Maryvale Mill
- » All sourced wood fibre undergoes a risk assessment as part of our Due Diligence System.

## Circularity



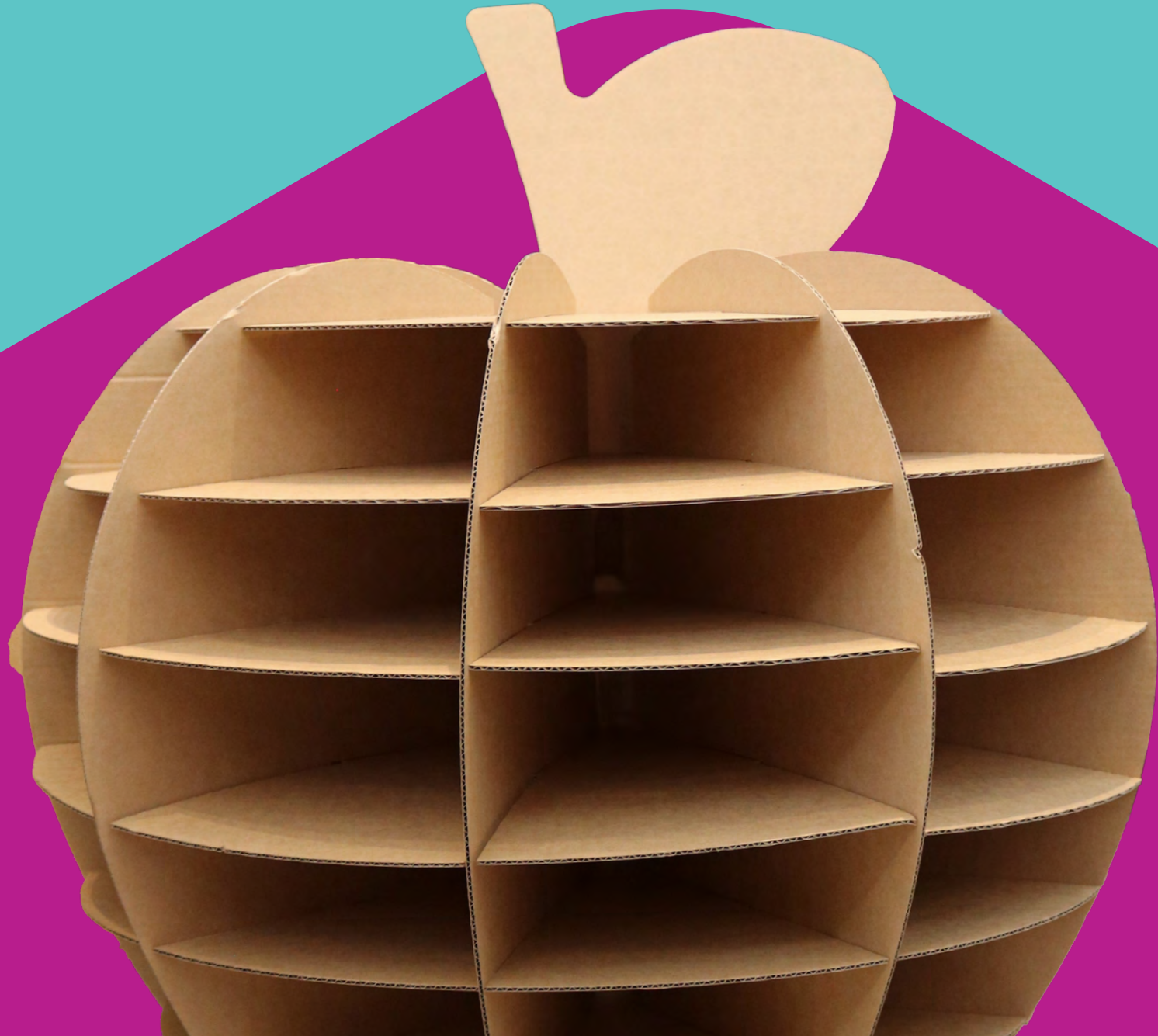
- » Ongoing investment in and operation of large-scale infrastructure that enables a circular economy for fibre in Australia
- » Optimise material flows and minimise waste by using circular economy principles
- » Provide solutions that support our customers' transition to sustainable packaging
- » Support Australia's National Packaging Targets
- » Advocate for Australia's transition to sustainable packaging.

## Water efficiency and recycling



- » Ongoing investment in on-site wastewater treatment and recycling
- » Implement a sustainable water management plan.

# Planet



# Decarbonising our operations and value chain



## Our approach

Across our manufacturing and converting operations, we are becoming more energy efficient by improving our operating practices and using technology effectively. Pulp and paper remains a hard-to-abate sector, as manufacturing is energy-intensive and reliant on high temperature thermal energy in its production process.

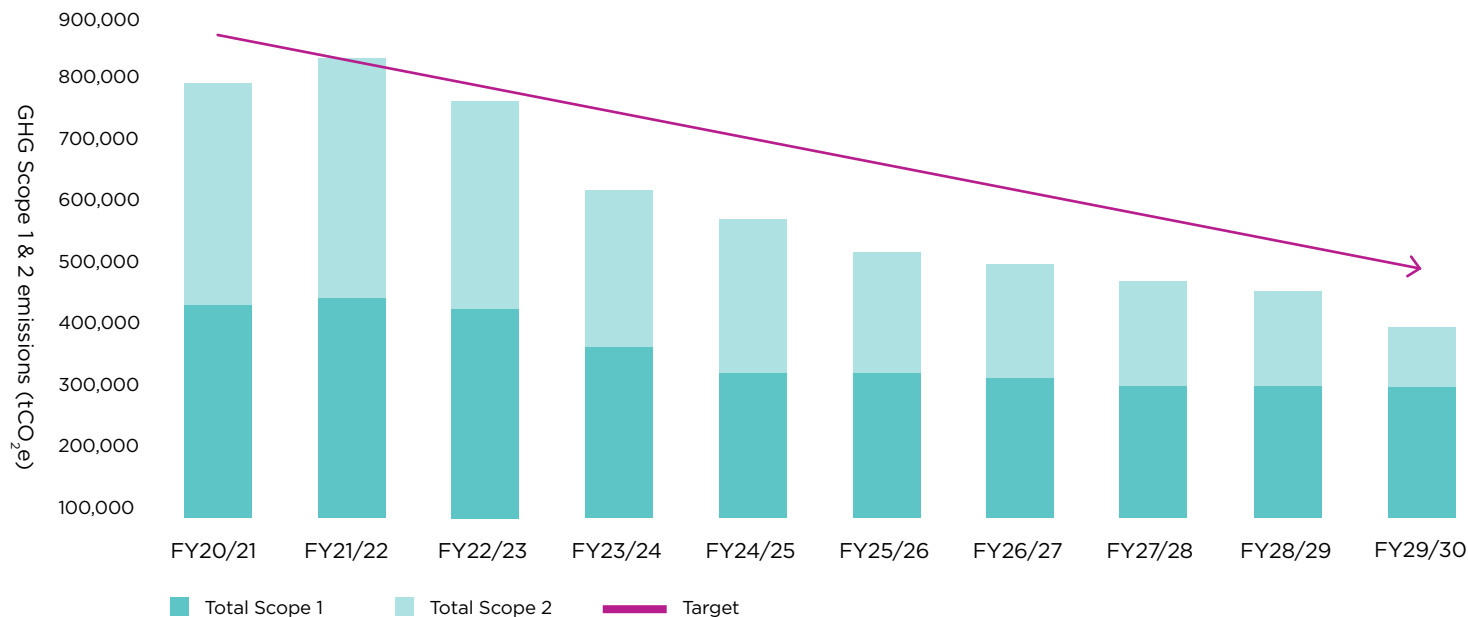
## Our levers for decarbonisation

- » Continuous improvement to enhance operational energy efficiency
- » Switch from natural gas to biomass and biogas, for high temperature thermal energy requirements
- » Explore solutions such as carbon capture and storage to reduce the climate impact of fossil fuel use.

## Our commitments

- » Achieve net zero greenhouse gas emissions by 2050
- » Reduce Scope 1 and 2 (operational) emissions by 45% by 2030 (vs FY21 baseline)
- » Set rolling five-yearly interim emission reduction targets
- » Complete an inventory of our full footprint, extending to include Scope 3 (value chain) emissions.

## Decarbonisation Roadmap



Opal reduced overall operational emissions (Scopes 1 and 2) by

↓ **8%**  
in 2024,  
compared to 2023.



# 2024 operational emissions footprint

This footprint covers our Scope 1 and 2 emissions, those generated by the energy used in our operations, from both direct and indirect sources.

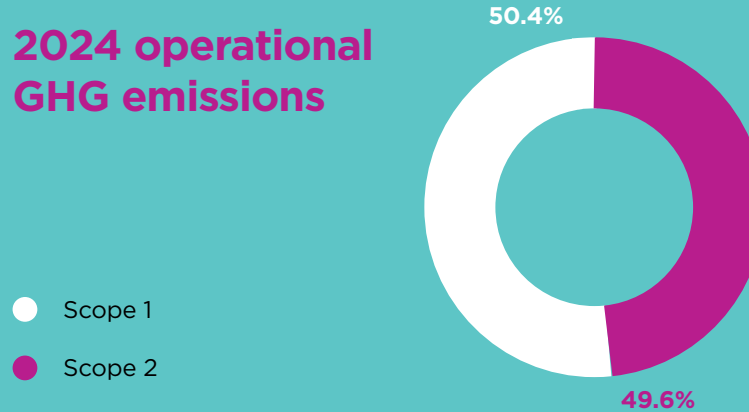
Opal's biggest energy input (and emissions source) is natural gas used to generate steam for process heating and electricity generation via steam turbine generators.

Our largest facilities, Botany Mill and Maryvale Mill, are large-scale electricity and thermal energy users, contributing to the majority of our operational emissions.

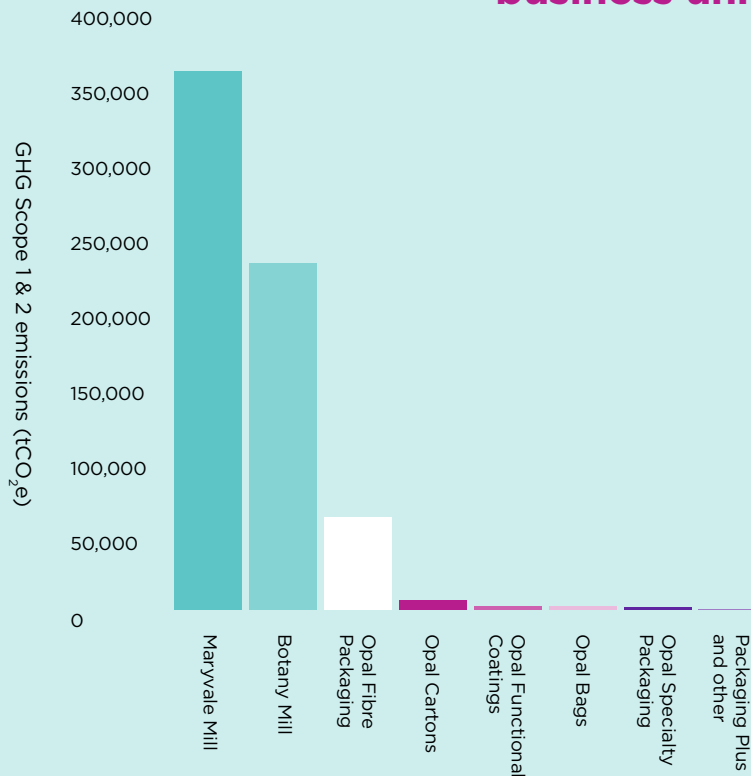
## Expanding our emissions footprint to include our value chain

In 2025, we are expanding our emissions inventory to include Scope 3 emissions generated across our value chain, from raw materials to product use and end-of-life. This will help identify opportunities to reduce emissions, collaborate with suppliers and customers, and drive action beyond our own operations.

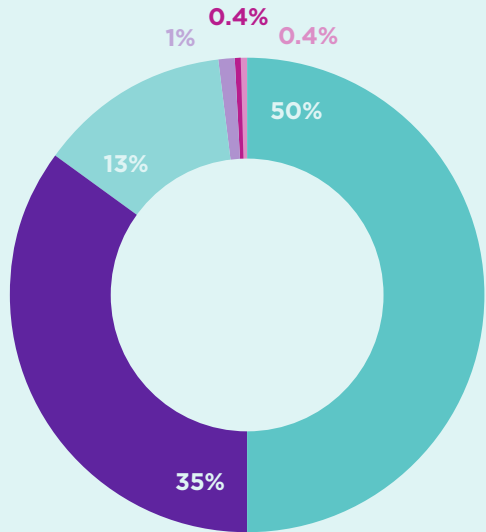
## 2024 operational GHG emissions



## Operational emissions by business unit



# 2024 energy consumption



Natural gas



Liquid fuels



Black Liquor (renewable biomass)



Imported renewable electricity



Imported electricity



Biogas

Renewable energy generated at our Maryvale Mill via combustion of Black Liquor was equal to

**35%**  
of Opal's total energy usage





## Biogas production

### Botany Mill

The Botany Paper Mill processes wastewater through an anaerobic digester before further clarification and discharge.

This digester utilises a biological process to consume organic materials, generating biogas as a byproduct. The biogas is scrubbed to remove impurities and then combusted to generate renewable electricity, powering approximately 5% of Botany Mill's total power requirements that would otherwise be purchased from the electricity grid.

Achieves annual emissions avoidance of circa

**8,000 tCO<sub>2</sub>e**

## One of Victoria's largest generators of renewable baseload energy

### Maryvale Mill

Opal's Maryvale Mill is one of Victoria's largest generators of baseload renewable energy. Its kraft pulping process produces Black Liquor as a renewable energy source.

In 2024, the Maryvale site produced 317,471 tonnes of Black Liquor for steam production.

Maryvale Mill generated enough renewable thermal energy to meet

**52.8%**

of its own energy needs.

# Our transition to renewable energy



## 2024

### On-site renewable energy generation

Opal operates one of the largest baseload renewable electricity generators in Victoria, powered by biomass.

### Lal Lal Wind Farm electricity

Opal supports the generation of renewable electricity through our agreement with Lal Lal Wind Farm, located in the Moorabool Shire, near Ballarat, Victoria.

### Rooftop solar

Several of our box and carton manufacturing sites have rooftop solar panels, including our newest

high-efficiency fibre packaging manufacturing facility in Wodonga, Victoria.

### Biogas from anaerobic digestion

Our Botany Mill uses biogas generated by anaerobic digestion from the organics in our wastewater treatment process to create a renewable electricity supply for the mill.

### Energy efficiency gains

Through its operations, Opal is continually looking to improve processes encouraging energy efficiency including through operating practices and leveraging the technologies we use.

## Towards 2030

### Energy from Waste

Opal is in the development process for an Energy from Waste facility located at our Maryvale Mill that will utilise non-recyclable residual waste, including biomass, as fuel to deliver process heat and electricity.

### Investigating renewable gas options

Opal is a member of several renewable energy working groups that are tackling the challenges of transitioning to renewable gas.



# Responsible sourcing of wood fibre



## Our approach

Opal is committed to sourcing fibre from responsibly managed plantations and maximising use of reclaimed and recycled material. We aim to ensure minimal environmental disruption, responsible land use and the long-term health of forest ecosystems, via the certifications and partnerships we maintain.

While much of the paper that Opal produces uses 100% reclaimed materials sourced by our recycling business, a proportion of kraft paper utilises virgin wood fibres from plantation sources or a mix of recycled content and virgin fibres for its high-performance packaging.

Opal preferentially procures wood and fibre products from suppliers which are endorsed under the Programme for the Endorsement of Forest Certification (PEFC) or the Forest Stewardship Council (FSC).

Effective Chain of Custody systems track and record material through every stage of the manufacturing process and each change of ownership, from plantation to end-user, providing a level of assurance that fibre is from responsibly managed sources.

## Our commitments

- » Preferentially procure certified, traceable and ethically managed fibre
- » Maintain 100% FSC® certified and recycled fibre at the Botany Mill
- » Transition to 100% FSC® certified and recycled paper supply from the Maryvale Mill.



# Responsible sourcing of wood fibre



## 2024 outcomes

**100%**

of fibre sourced for our Maryvale and Botany sites was recycled fibre or plantation wood.

**100%**

of sourced wood fibre underwent a risk assessment as part of our Due Diligence System.

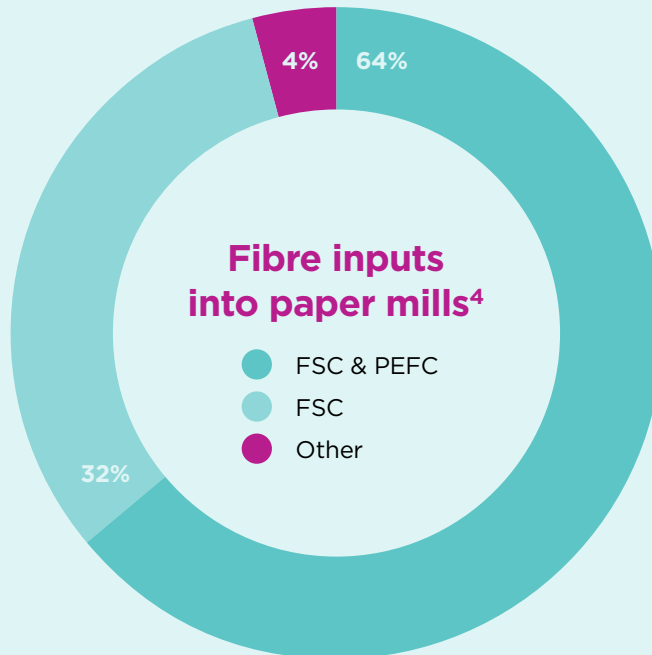
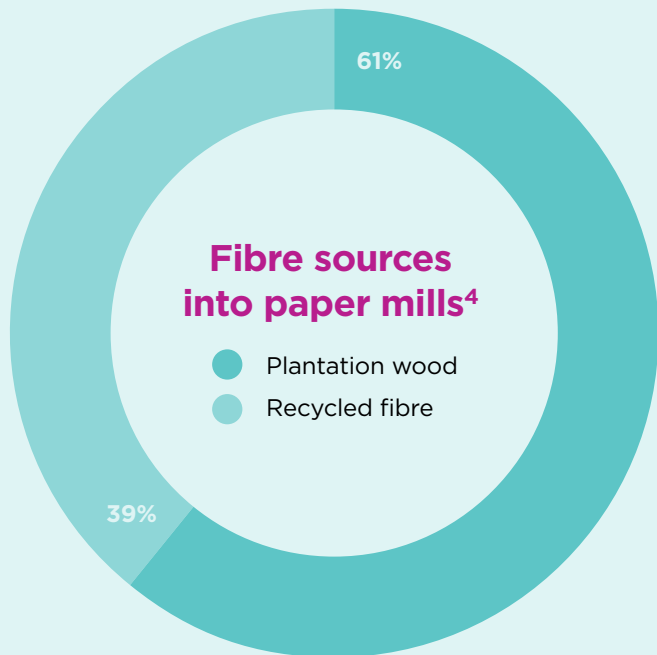
**100%**

of paper produced at the Botany Mill was FSC® certified and 100% recycled.

**96%**

of the fibre sourced for our Maryvale and Botany Mills was certified to FSC, PEFC or both.

Maryvale Mill achieved FSC Recycled and FSC Controlled Wood certification.



4. Total fibre inputs (tonnes) into Maryvale and Botany Mills.



# Responsible sourcing of wood fibre



## Case study

## Maryvale Mill FSC Controlled Wood Expansion

Throughout 2024, Opal's Maryvale Mill underwent two audits by an independent external certification body to expand the scope of the site's Chain of Custody Certification. The mill successfully achieved FSC Recycled and FSC Controlled Wood certification, enabling the production and sale of FSC Recycled and FSC Mix paper products using reclaimed material and both plantation softwood (*Pinus radiata*) and hardwood (*Eucalypt*) sources.



# Opal Recycling enables circular economy of fibre in Australia



## Our approach

Paper and cardboard is inherently renewable and has a high level of recyclability compared with other packaging materials. They are among the most widely recycled materials globally, supported by well-established systems.

In Australia, paper and paperboard packaging has a recovery rate of 65%<sup>3</sup>, making it a leader in post-consumer recovery. It can also be recycled multiple times, further extending its lifecycle.

## Our commitments

Ongoing investment in and operation of large-scale infrastructure that enables a circular economy for fibre in Australia.

## 2024 outcomes

### Botany Mill

Waste paper collected

(tonnes): **511,052**

Recycled fibre produced

(tonnes): **422,315**

### Maryvale Mill

Waste paper collected

(tonnes): **103,015**

Recycled fibre produced

(tonnes): **81,871**

# 500,000+

tonnes of recycled fibre produced in 2024.

Products are packed into recycled packaging and distributed to retailers or consumers.

Paper and cardboard waste is collected by Opal and taken to an Opal depot.

Reels made into recycled cardboard packaging.

Cardboard is processed, baled and sent to an Opal paper mill.

Bales pulped and made into reels of recycled paper.

3. APCO Australian Packaging Consumption and Recovery Data 2022-23.



# Circularity in our own operations



Opal is guided by circular economy principles and looking to reduce waste by prioritising reuse and recycling within our operations. We continually look at opportunities to improve our waste management strategy.

## Our commitments

Optimise material flows and minimise waste utilising circular economy principles.

## 2024 outcomes

### Botany Mill

Waste composted (tonnes): **40,659**

Waste to landfill (tonnes): **41,031**

### Maryvale Mill

Waste composted (tonnes): **68,677**

Waste to landfill (tonnes): **18,510**

### Packaging Manufacturing

Internally recovered recycled paper and card (tonnes): **67,188**

### Case study

## Recycling paper and cardboard waste from our manufacturing sites

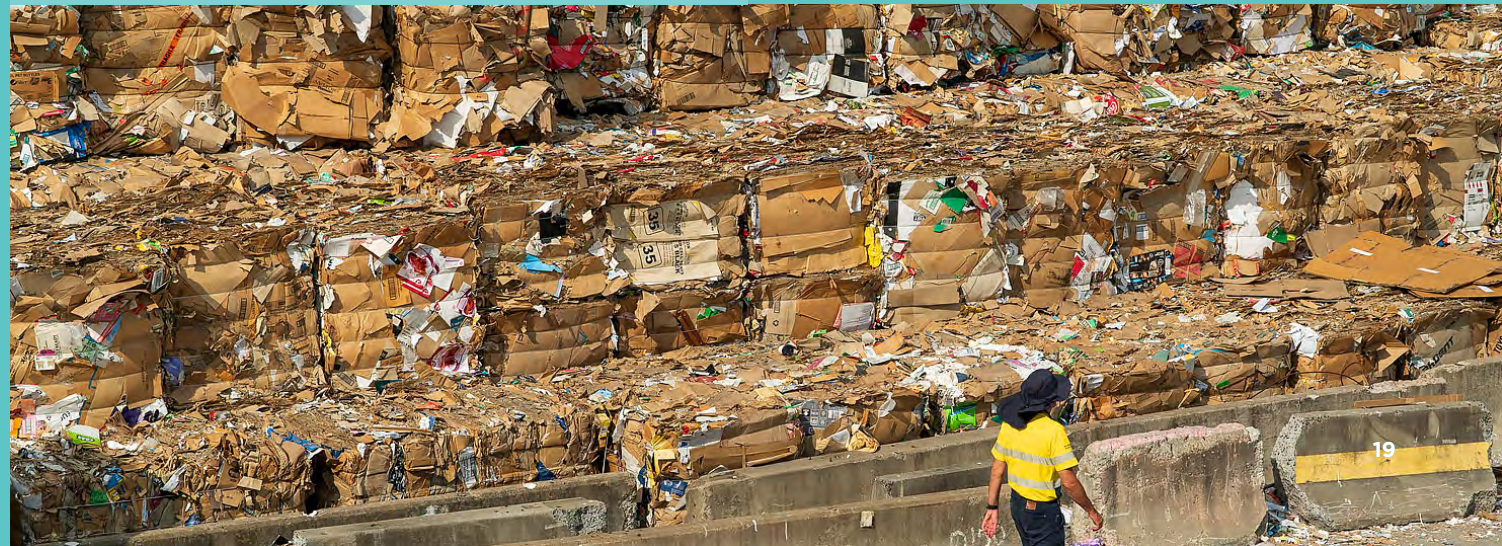
Offcuts, trimmings and scraps created during the manufacturing of paper, cardboard and packaging are collected and repurposed back into the production cycle by being re-pulped and reintroduced as raw material to make new paper and packaging products.

### Case study

## Repurposing materials at the mills

Opal's Maryvale Mill composted pine bark, solid material from effluent treatment and by-products from on-site recycling to produce soil conditioning products.

The Botany Mill provided paper crumble and excess biomass as a composting input for the Hunter Valley in NSW and as a natural fertiliser to boost crops and pasture growth on farmland in NSW.



# Water efficiency and recycling

## Our approach

Water plays a crucial role in papermaking by breaking down fibres, transporting pulp, removing impurities and forming the pulp into paper. The Botany Paper Mill and the Maryvale Paper Mill are intensive users of water.

Our paper mills use a combination of freshwater, recycled water, stormwater or bore water. Both mills utilise wastewater treatment facilities to ensure we are making the most out of our freshwater inputs before being appropriately and safely discharged.

Our packaging manufacturing and converting sites across Australia and New Zealand also use freshwater, with many converting sites also utilising on-site wastewater treatment systems.

## Why it matters

**Reduced environmental impact:** Protecting local waterways and ecosystems.

**Regulatory compliance:** Wastewater treatment ensures that the manufacturing sites comply with local environmental regulations.

**Future-proofing:** Opal is better able to adapt to future threats to water security and stress.



## Our commitments

- » Ongoing investment in on-site wastewater treatment and recycling
- » Develop and implement an organisation-wide sustainable water management plan.

## Botany Mill

### Stormwater harvesting

In addition to significant water recycling, Botany Mill focuses on using as little fresh water as possible. We have agreements with Sydney Water and the local council to use the stormwater drainage system in the surrounding suburbs to supply water to the site. The mill also operates a dam. During dry weather, the dam is fed by bore water. When there is a rain event, stormwater from the mill and from three local suburbs is captured for use on-site.

## Maryvale Mill

### Water treatment and recycling

The Maryvale Mill brings in water from Moondarra Reservoir. After being used in the paper-making process, the water goes through a multi-stage treatment process, before it is ready to be discharged into the Latrobe River. The treatment process is designed to ensure the water quality meets the requirements of the EPA licence. Rather than discharging all treated wastewater into the river, a portion is recycled and reused in the paper-making process, reducing the amount of fresh water required.

### Fibre recovery technology

Maryvale M3 paper machine uses a Saveall unit to recover fine fibres produced during the paper-making process, which are returned into the manufacturing process. This technology allows the mill to:

- » Recover and reuse fibres that would otherwise be lost in wastewater
- » Recover and filter water for reuse in the production process, significantly reducing the amount of fresh water required and improving efficiency.

# People



# Leading employer

## Our approach

Opal offers a diverse range of opportunities and careers across a large geographical area in Australia and New Zealand. From Margaret River to Bundaberg, down to Gippsland and across to Christchurch, New Zealand, you will find more than 3000 Opal team members working hard to meet the packaging needs of our customers.

In 2024, we continued to refine and strengthen several core policies, including those relating to inclusion and diversity, family and domestic violence leave, flexible work, compassionate leave and our alcohol and other drugs framework. Each policy is reviewed not only for compliance but also to ensure it supports the needs of our people and reflects our values of safety, respect and integrity.



You will find  
**more than**  
**3,000**  
team members  
working hard in ANZ.



## Our commitments

- » Ongoing commitment to Zero Harm
- » Create a safe, respectful and inclusive workplace in which people thrive.



## 2024 outcomes

- » **3,372**  
Opal team members
- » Implemented improved safety protocols and leadership "Pause for Safety" sessions
- » Launched "Check for Respect" Campaign with all Opal Australian Team Members.



# Building a safer future for everyone at Opal



## Safety, mental health, diversity and inclusion

### Safety is more than a priority, it's a core value.

We are committed to providing a safe, healthy and supportive environment for our people. Through continuous improvement, training and a strong safety culture, we work every day to try to ensure everyone goes home safe.

In 2024, we sharpened our focus by replacing Lost Time Injury Frequency Rate with Serious Injury or Fatality / Potential Serious Injury (PSIF) as our primary metric, emphasising proactive risk prevention.

Key initiatives included Stop for Safety Days for site-wide reflection and monthly Pause for Safety sessions for all leaders, both driving steady improvement. Training now features video-based modules, stronger safety-leadership behaviours and virtual-reality forklift simulations to build skills in a risk-free setting.

To involve families, our Safety Superhero competition invited employees' children to share what safety means to them, bringing fresh perspectives into the conversation.

Our New Zealand Wiri Fibre site kicked off an eight-week Wellness Challenge with more than 70 enthusiastic team members willing to participate. This program is designed to support every individual's journey toward better health and wellbeing. The Wellness Challenge focused on manual handling, bending and lifting, which is part of everyone's role at the site.



## Supporting our team's mental health

Mental health has remained front and centre in 2024, with teams taking part in the Beyond Blue speaker series and R U OK? Day, helping to keep the conversation going.

Movember once again saw plenty of creativity, moustaches and momentum behind men's health initiatives.

Opal's team members have access to an independent confidential Employee Assistance Program as part of our focus to support our team members' wellbeing.

## Check for Respect

The Check for Respect program is an ongoing, holistic initiative that promotes a workplace culture built on respect, safety and inclusion. It brings together a suite of initiatives including leader trainings, team-based conversations, reporting and regular awareness campaigns. The program is supported by trained Contact Officers, a confidential anonymous reporting line and improved governance processes to ensure concerns are addressed quickly and fairly.

**“ We are committed to creating an inclusive, connected and equitable workplace, in which everyone belongs and can do their best work. ”**

## Celebrating our cultural diversity

Our operations are reflective of the communities in which we operate. Up to 35% of our workforce identify as non-native English speakers. We are committed to creating an inclusive, connected and equitable workplace, in which everyone belongs and can do their best work. In 2024, team members at different sites marked key cultural moments, celebrating our unique backgrounds - from vibrant Diwali festivities to Harmony Day activities that recognised our cultural diversity.

## Addressing gender disparity

We continued to invest in leadership diversity, with our Women in Leadership program building strong momentum and helping women across Opal tackle new challenges.

Our latest Workplace Gender Equality Agency data shows a 15.5% total gender pay gap and a 5.3% base-salary gap - both better than industry averages of 19.6 % and 8.3%.

These gaps reflect a traditionally male-dominated, overtime-heavy operational workforce rather than unequal pay for equal work. To address them, we expanded our Women in Leadership pipeline initiative, including providing mentors and mentees to the National Association of Women in Operations (NAWO) development program.

We remain committed to long-term, sustainable change that ensures equal opportunity and enables every Opal team member to thrive.



# Supporting local communities

## Communities

Local sporting clubs and grassroots events continued to be a key focus in 2024, from our key partnership with the AFLW's St Kilda Football Club, backing youth participation through the Little Saints Cup and getting behind community athletics events in New Zealand.

Our teams found creative ways to give back, from transforming waste into community art in Western Australia, supporting local flora and biodiversity

projects in New South Wales, and jumping on board with the Shitbox Rally to raise funds for cancer research in Victoria.

Botany Mill team members participated in Business Clean Up Australia Day in Purcell Park for the eighth year.

Our biggest ongoing community sponsorship is with Breast Cancer Network Australia (BCNA) - a partnership we're incredibly proud of. It has been fantastic to see our teams actively getting involved to raise awareness and show support in 2024.



## Operating responsibly

Opal manages a tightly-linked policy suite, including a zero-tolerance Anti-Bribery and Anti-Corruption Policy, Whistleblower Policy and Employee Code of Conduct.

## Supplier Code of Conduct

Opal's Supplier Code of Conduct sets expectations for every supplier, contractor and subcontractor, focusing on preventing modern slavery, protecting human rights, operating with integrity and minimising environmental impacts.

## Modern Slavery Statement

Opal's 2024 Modern Slavery Statement sets out how we prevent, identify and remediate modern-slavery risks across our operations and supply chains, and is published on our website.

## Sustainability governance

Sustainability is embedded in our governance structure, ensuring clear lines of responsibility and enterprise-wide engagement.

- » **Board of Directors:** Approve the annual Modern Slavery Statement and oversee ESG performance
- » **Executive Committee:** Manage sustainability-related risks and continuous-improvement initiatives
- » **Sustainability Working Groups:**
  - Monitor legislative developments and Sustainability pillar priorities
  - Guide policy development and resource allocation
  - Track project progress.



## Our commitments

- » Transparently report our environmental and ethical practices.



## 2024 outcomes

Opal reported social and environmental progress on the following platforms:

- » EcoVadis
- » SEDEX
- » National Pollutant Inventory where required.

We reported our emissions performance on the following Frameworks:

- » NGERS: National Greenhouse and Energy Reporting Scheme that captures emissions by site, source and scope in Australia
- » CDP runs the global environmental disclosure system.

From 2026, Opal will be reporting in accordance with the Australian Sustainability Reporting Standard.

# Product



# Innovation in sustainable packaging

## Customer Innovation

Shopper expectations, National Packaging Targets and company goals are driving demand for more sustainable packaging solutions. Paper and cardboard packaging demonstrate a brand's commitment to sustainability in a way customers can see and feel.

Opal's Creative and Research & Development (R&D) teams are advancing structural engineering and fibre strength technology. This means fibre packaging can now be used in a variety of applications that were

typically made from hard-to-recycle materials without compromising recyclability, including e-commerce boxes, foodservice containers, retail displays and protective packaging.

Opal's R&D team is dedicated to ensuring our packaging solutions deliver seamlessly from production to end use. By focusing on manufacturing, transport, storage and visual appeal, the team works to optimise packaging performance across the entire supply chain and into the hands of the customer.

## Our commitments

Provide solutions that support our customers' transition to more sustainable packaging:

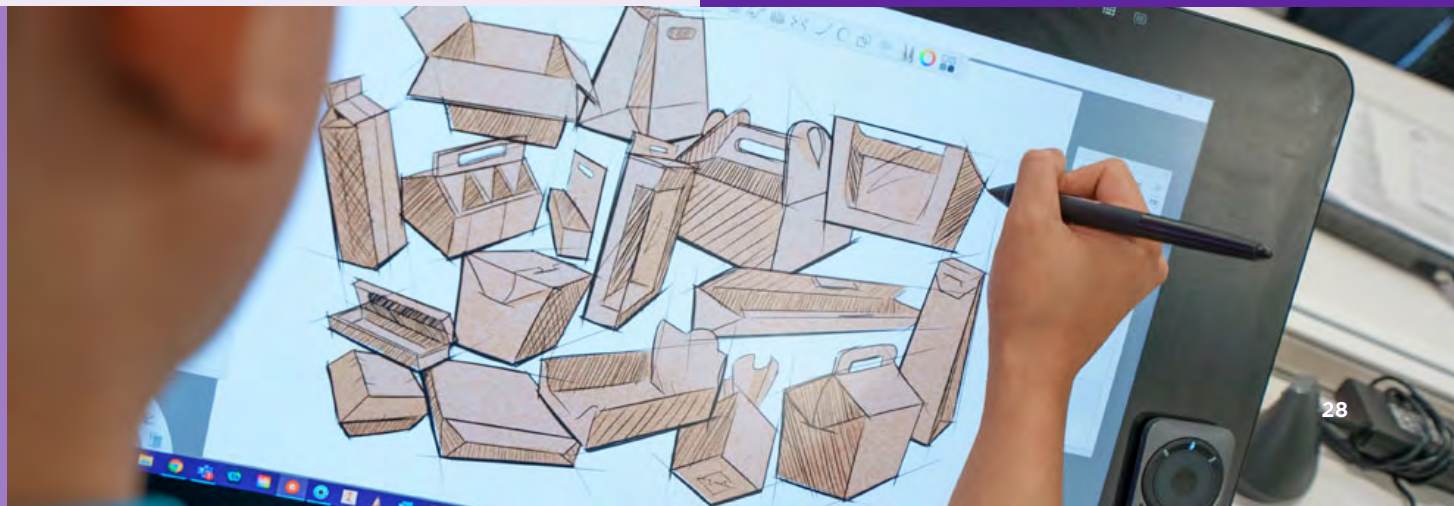
- » Optimising packaging and reducing unnecessary packaging
- » Offering recyclable solutions
- » Incorporating recycled content
- » Following Sustainable Packaging Guidelines
- » Advocating for paper-based packaging through the evolving regulatory landscape for packaging.

We support Australia's National Packaging Targets:

- » 100% reusable, recyclable, or compostable packaging
- » 60% of average recycled content included in fibre-based packaging
- » Minimise problematic and unnecessary single-use plastic packaging.

## Engineering out waste

Opal's iSpek® is an industry-leading packaging design tool that creates fit-for-purpose products that optimise performance and supply chain effectiveness.



## Increasing recycled content across John Dee's chilled boxes

John Dee is one of Australia's most experienced meat processors with a reputation for quality beef.

In anticipation of the National Packaging Targets, John Dee sought a packaging provider capable of rising to the challenges of the protein industry.

### Materials used

Opal's Dura-Flute Mediums (DFM) are a result of extensive research and development. They are suitable for supply chain and long life-cycle applications, and superior in strength to standard recycled fluting mediums in ambient and high humidity conditions. This DFM fluting medium was combined with Opal's newly developed Premium Recycled Liner (PRL) and High Performance Kraft Liner, to deliver a fit-for-purpose solution.

Increasing recycled content packaging utilisation enabled John Dee to achieve its recycled content goals for chilled meat and frozen meat boxes.

Opal and John Dee received recognition for this innovation as a finalist at the 2024 APCO Awards Recycled Content Category.



Opal produced a solution with

**50%+**  
average recycled  
content

across John Dee's chilled meat and frozen meat boxes, without compromising strength.

## Piloting paper produce punnets with Mountain Blue

Mountain Blue, Opal and Coles Group joined forces in 2024 to test a recyclable cardboard punnet for Eureka blueberries.

Over two months, 34 Coles stores in northern NSW replaced conventional plastic packs with cardboard punnets made from Australian-produced recycled paperboard. A transparent wood-pulp film maintained full product visibility while robust construction protected fruit throughout the cold supply chain.

Customer feedback and supply-chain performance were successful, with the products moving to a larger trial in 2025.



WORLDSTAR  
WINNER 2023

## WorldStar award for dunnage solution

Opal and JBS Australia were delighted to win a 2023 WorldStar global packaging award in the transit category for their innovative corrugated cardboard dunnage solution, which is a 100% recyclable cardboard alternative to EPS.

## Replacing EPS with recyclable paper-based alternative

Brand owners who rely on cold storage are now expected to provide packaging that includes recycled materials and can be recycled when it can no longer be used. This presents a challenge for brand owners who rely on the thermal capabilities of Expanded Polystyrene (EPS).

Opal's recyclable paper based alternative provides a more sustainable option while still ensuring that the content survives the cold chain journey.

The design features moisture barrier properties that withstand low temperatures for fresh chilled products, and a functional coating allowing imagery to be laid down onto kraft paper. Our solution contains more than 55% recycled paper and is flat packed, removing hard-to-recycle materials and improving efficiency in the supply chain.



## Debuting a life-size cardboard house

Using clever design and structural engineering, Opal designed a recyclable 10m x 5.5m life-size cardboard house, showcased by Enphase Energy at the All Energy Exhibition in Melbourne.

The house on the stand, which also served as a training space for solar installers, can be installed by three people in 12 hours and packed down in six hours.

The house is reusable to maximise material use across multiple events and is recyclable at the end of its life.



# World-class corrugating in Wodonga

Opal's world class, \$140 million corrugated cardboard packaging facility in Wodonga was officially opened during National Recycling Week, 2023.

The facility utilises the latest advanced, high-speed packaging manufacturing technology and processes recycled and kraft paper from Opal's local mills to produce packaging for a wide range of fresh produce, food processing, FMCG and manufacturing industries across Australia.

The facility's electricity requirements are supplemented by on-site solar panels and features a highly automated materials and waste handling system.



# Looking ahead

## Investing in Australia's primary packaging industry

Opal is developing a new, purpose-built cartons manufacturing facility in Moorebank, NSW, which is expected to be operational by late 2026.

The site will feature state-of-the-art machinery, packaging technologies and manufacturing automation, delivering better production capabilities for our customers.

The precinct will also offer a more efficient freight network by increasing the use of rail freight, helping lower carbon emissions and ease pressure on Sydney's road network.

This investment is an important step forward in our ability to meet the evolving needs of our customers. We are proud to align our growth with infrastructure that supports our customers and the environment in which we operate.

## Energy from Waste (EfW) facility at Maryvale Mill

In collaboration with Veolia Australia and New Zealand and Masdar Tribe Australia, Opal is developing a state-of-the-art EfW facility at our Maryvale Mill.

The facility is designed to divert at least 650,000 tonnes of non-recyclable residual waste from landfill each year, converting it into steam and electricity to reduce reliance on natural gas and coal-fired power.

This is expected to cut Victoria's greenhouse gas emissions by approximately 540,000 tCO<sub>2</sub>e annually. It will also contribute significant energy to the state's energy network by exporting excess electricity and reducing demand for natural gas.

Diverts approximately

**650,000 tonnes**

of waste from landfill.

Avoids approximately

**540,000 tonnes of CO<sub>2</sub>e**

per annum from landfill methane generation and consumption of fossil energy.

Generates energy equivalent to power at least

**70,000 homes**



# Opal.

Thinking packaging.  
Discover Opal.



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