Opal's net zero journey

EUAA Conference 2026

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28 May 2026

Thinking packaging.
Discover Opal.

Opal.

Agenda

1. About Opal
2. Opal’s Net Zero Strategy
3. Opal’s Net Zero Projects

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About Opal

Opal is a leading paper and cardboard packaging manufacturer and recycler, operating across multiple sites in Australia and New Zealand.

We produce renewable and recyclable packaging products and provide these to global markets.

Opal is a trade exposed and emissions intensive manufacturer employing over 3,000 team members.

Manufacturing Sites

Natural Gas

Opal operates 25 manufacturing sites that are reliant on 6 PJ of natural gas to deliver high temperature (200°C) thermal energy for its manufacturing processes.






Opal's Net Zero Strategy: Net Zero by 2050

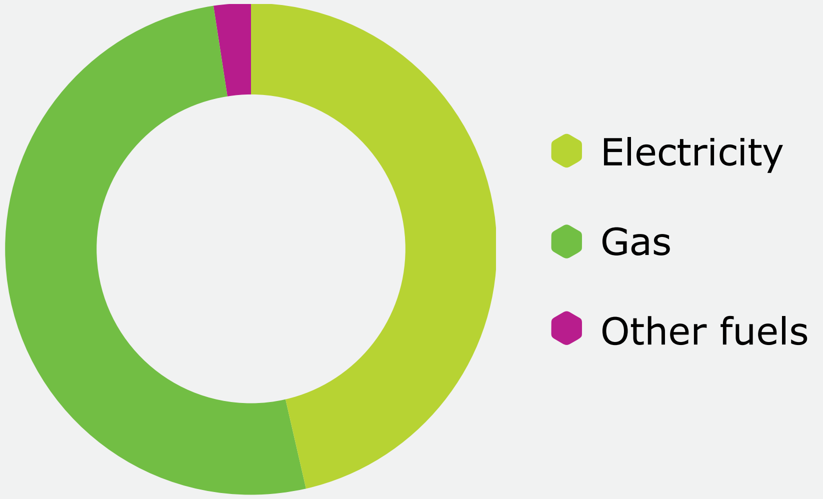
A focus on energy

- Large scale hard to abate thermal energy in Pulp & Paper manufacturing.

  Two largest facilities Botany Mill (NSW) and Maryvale Mill (VIC).
- There are few large scale commercially viable technologies suitable to decarbonize thermal energy needs operating above 200°C.
- The Australian National Electricity Market is undergoing rapid decarbonisation.

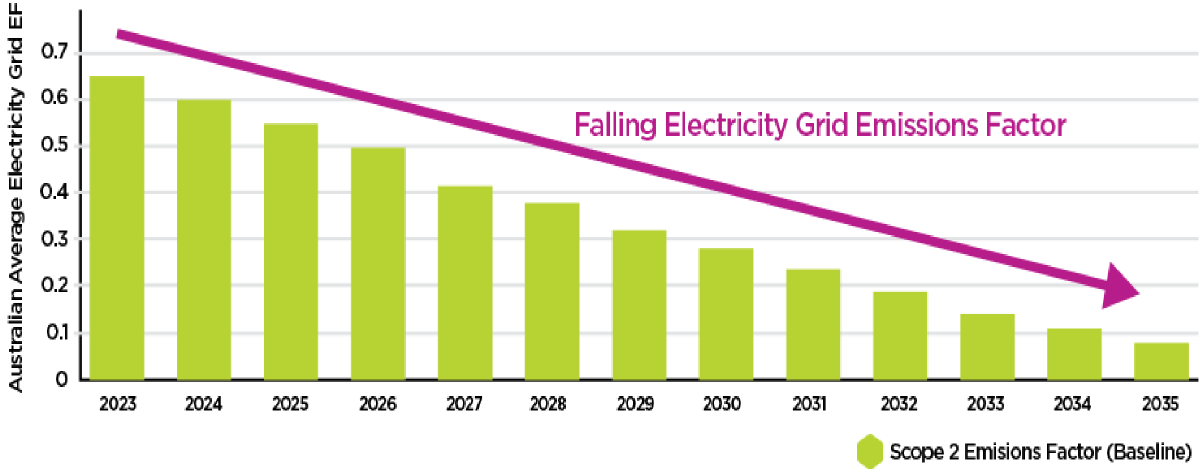
  State Based Electricity Emissions Factors estimated to fall by half in 2030-2035.

Opal operational GHG emissions*



Scope 2 Forecast Electricity Emissions Factor (Baseline)

DCCEEW "Australia's emissions projections 2023"



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Opal's Net Zero Roadmap: Interim Target **-45%*** emissions by 2030

***Scope 1 & 2, baseline FY2021**

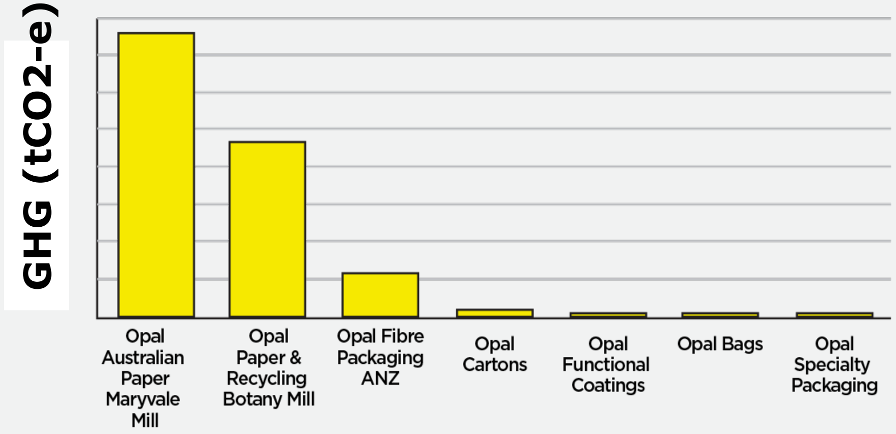
Strategy

Opal's GHG reduction strategy = *switch natural gas to biomass and biogas*

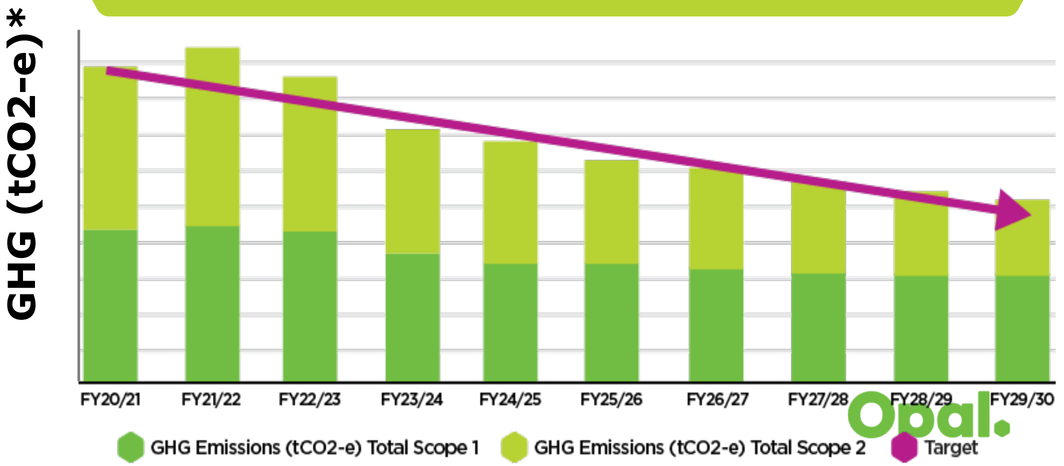
Opal Net Zero Roadmap (2030):

1. Set interim GHG reduction targets on a rolling 5-year basis.
2. **Action on for Scope 1 Reductions:**
   a. Site-based energy reduction and energy efficiency projects
   b. Develop large scale solutions:
      i Maryvale Energy from Waste project development;
      ii Biogas options for Maryvale & Botany Mills (internal & external supply);
      iii Explore other biomass opportunities; and
      iv Develop carbon capture options.
3. Align corporate and business units with Net Zero goals.
4. Public disclosure of targets, methodology, traceability and reporting.

Opal GHG emissions by business unit



Opal Forecast GHG Emissions*



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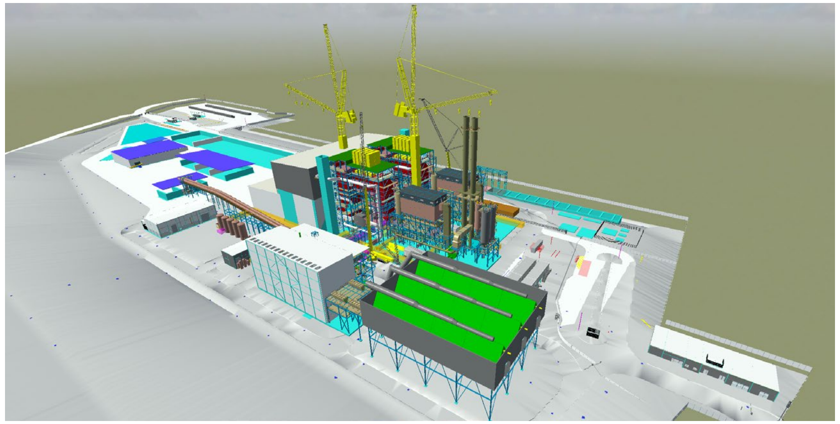
Opal Net Zero Strategic Projects



Maryvale Energy from Waste

- 715,000 tpa of residual waste
- 248 $MW_{thermal}$ energy.
- Using Kanadevia Inova moving grate technology.
- Partnered with Veolia and Masdar Tribe Australia.
- $2+billion.
- -543,000 $tCO_{2\text{-}e}$.

Biomass Boiler CCU

- Capture biogenic CO_2 from biomass boiler.
- Using Ammongas amine technology.
- Partnered with European Energy.
- -140,000 $tCO_{2\text{-}e}$.

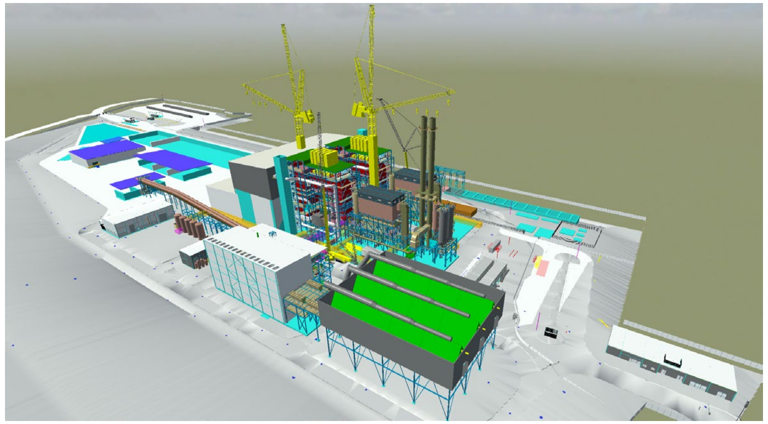
Anaerobic Digester

- Convert biomass and food waste into Biogas.
- To replace natural gas used in rotary lime kiln.
- Partnered with Delorean.
- -12,850 $tCO_{2\text{-}e}$.

Botany Biogas Upgrade

- Replace gas engine with dual fuel boiler.
- Maximise existing biogas generation and maximise biogas utilisation.
- -5,439 $tCO_{2\text{-}e}$.

Maryvale Energy from Waste Update



Consortium of Opal, Veolia, and Masdar Tribe Australia.

Combustion of residual waste feedstock to supply energy into Maryvale Mill.

100% of solid residues processed for recovery and reuse.

Demonstrating best practices in recovery, energy efficiency, and GHG abatement.

Project commenced in 2015 and nearing completion of development phase 2026.

Total Project costs circa AUD$2+billion with 35 years asset life.

	Milestone	Status	
1	**SITE**	• Co-located at existing Maryvale Mill Victoria.	✓
2	**TECHNOLOGY**	• Moving Grate combustion with semi-dry flue gas treatment.	✓
3	**APPROVALS**	• Planning Permit, EPA, Development Licence, EfW Operating Licence, Ausnet Grid Connection, ERF Project Registered (AWT Method).	✓
4	**WASTE FEEDSTOCK**	• ~78% secured for 2 Boiler Lines.	✓
5	**RESIDUE TREATMENT**	• 100% of solid residues processed into valuable by products.	✓
6	**CONSTRUCTOR**	• BESIX Watpac (Constructor) and Kanadevia Inova (Technology) submitted Best and Final Offer Q1 2026. • Cost of construction challenges.	✓
7	**PROJECT FINANCING**	• Working on Business case for Final Investment Decision. • 3 consortium partners equity stake plus >20 financiers interested.	WIP

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Thankyou.


Botany Mill Biogas Engine

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