

# PLASTICS RECYCLING OPPORTUNITY IN TROPICAL NORTH QUEENSLAND

This document presents an opportunity for investors to develop a plastics recycling facility in Tropical North Queensland (TNQ).

The TNQ region includes Cairns, a surrounding area of about 380,000 km<sup>2</sup>, and a population of almost 300,000. The region has the potential to support a circular pathway for plastics for use in local manufacturing, which is strongly supported by all levels of government.

Due to its commitment to support a circular economy, the Federal, State and Regional governments have investigated the opportunity for plastics recycling capacity in TNQ. These investigations have included:

## A feasibility study in 2020 that:

- « Mapped the material flows of plastics from waste sources to landfill and recycling
- « Found that only a small percentage of TNQ's plastic was being recycled (about 2 per cent)<sup>1</sup>
- « Concluded that investment is likely to be economically and financially feasible, and provide net benefits to the community.

## A business case in 2021 that included testing of the market's capacity and capability to deliver a suitable solution, including:

- « Assessment of potential solutions
- « Updating of the original feasibility assessment based on one of those solutions.

[View these documents on the RDA Tropical North website \(rdatropicalnorth.org.au\).](http://rdatropicalnorth.org.au)

**This Information Memorandum outlines the opportunity identified by those previous studies, which has not currently been capitalised upon.**

## A region supportive of investment

The opportunity is underpinned by the strategies of all levels of government including the Federal Government (through the *National Waste Policy Action Plan*), the Queensland Government (through the *Queensland Waste Management and Resource Recovery Strategy*) and the regional local governments (through the FNQ *Regional Resource Recovery strategy*).

These governments work together with private sector bodies such as the Australian Packaging Covenant Organisation (APCO) to support and invest in a circular economy for plastics.

## Risk-return proposition to investors

Indicative analysis commissioned by Regional Development Australia Tropical North (RDATN), which was funded by Cairns Regional Council, the Queensland Department of Environment and Science and the Commonwealth Department of Industry, Science, Environment and Resources, shows that investment by the private sector has the potential to be financially viable.

Key drivers of the investment opportunity are the currently low base of plastic recovery, the opportunity to avoid the freight costs of material that is currently recovered and being shipped to South-east Queensland (SEQ), and the buoyant market for recycled plastic pellets. **The modelling indicates an Internal Rate of Return (IRR) to equity of approximately 14 per cent.**

The main risks associated with the investment are the availability and cost of acquiring the feedstock, and the demand and value in end-markets. While these risks and potential mitigants have been explored through prior studies, investors should conduct their own due diligence and consider appropriate risk management strategies.



<sup>1</sup> While an estimated 5 per cent of Queensland's plastic was being recycled

# DRIVERS FOR INVESTMENT

## Demand

The demand for recovered plastics is strong, growing and supported by both market and government drivers.

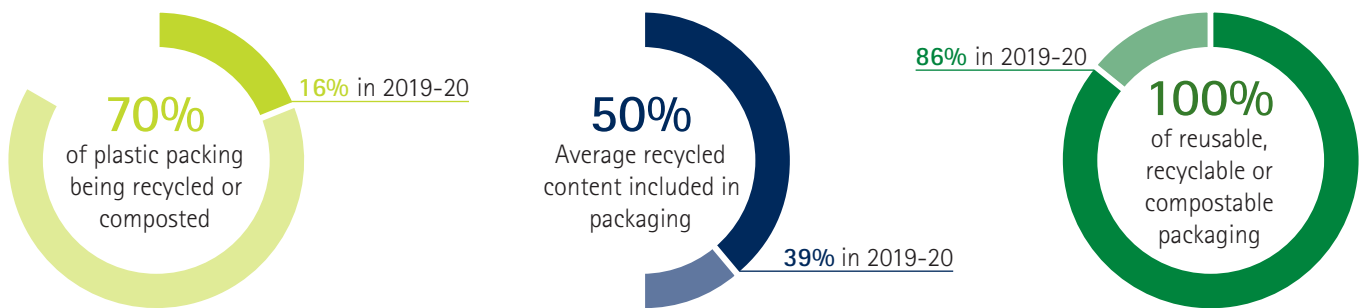
The major government driver has been an export ban on unprocessed plastics, which has coincided with a tightening of standards by export markets, as well as funding support to develop domestic recycling capacity. Working in tandem with this driver is the push for using recycled content in packaging and other plastic products. This has led to companies like Coca-Cola Amatil and the Asahi Group investing directly in plastics reprocessing facilities, or developing plans to do so.

Data Bridge Market Research expects the global post-consumer recycled (PCR) plastics market to grow at a compound annual rate of 6.3 per cent between 2022 and 2029.<sup>2</sup>

## Targets

Both the Australian Government and the industry have set targets for plastic recycling in Australia.

The Australian Packaging Covenant Organisation (APCO), which is an industry organisation who consults with Commonwealth, state and territory governments to set national recycling targets, has set 2025 targets to increase the:<sup>3</sup>



The APCO strategy is in line with the Australian Government's formal policy position to achieve an 80 per cent average resource recovery across all waste streams by 2030.

## Feedstock supply

As part of the feasibility study, discussions with the resource recovery industry suggested that during the period of the study (2020-21), the demand for recycled plastics in Australia was outstripping local supply. This led to, for example, the import of High Density Polyethylene (HDPE) pellets from European markets.

The material flows analysis conducted as part of the feasibility showed that while some of the HDPE and Polyethylene terephthalate (PET) material from TNQ was being recovered for recycling, the overall recycling rate was only around 2 per cent.

The total plastic waste in the region in 2021 was estimated at around:



**18,500 tonnes**

from municipal (i.e. household and council) sources



**14,500 tonnes**

from commercial and industrial sources.

The feasibility study identified that there was a potential relatively clean supply of around 5,000 tonnes of HDPE from businesses within a 150 km distance from Cairns, and that PET made up around 10 per cent of the municipal waste plastic stream. Plastic waste from the Cairns region is source-separated at the kerbside and taken to the Cairns and Tablelands council's Materials Recovery Facilities (MRF), where recyclable contents are separated both manually and with specialised sorting equipment.

<sup>2</sup> <https://www.databridgemarketresearch.com/reports/global-post-consumer-recycled-plastics-market>

<sup>3</sup> <https://apco.org.au/national-packaging-targets>

<sup>4</sup> <https://www.dcceew.gov.au/environment/protection/waste/publications/national-waste-policy-action-plan>

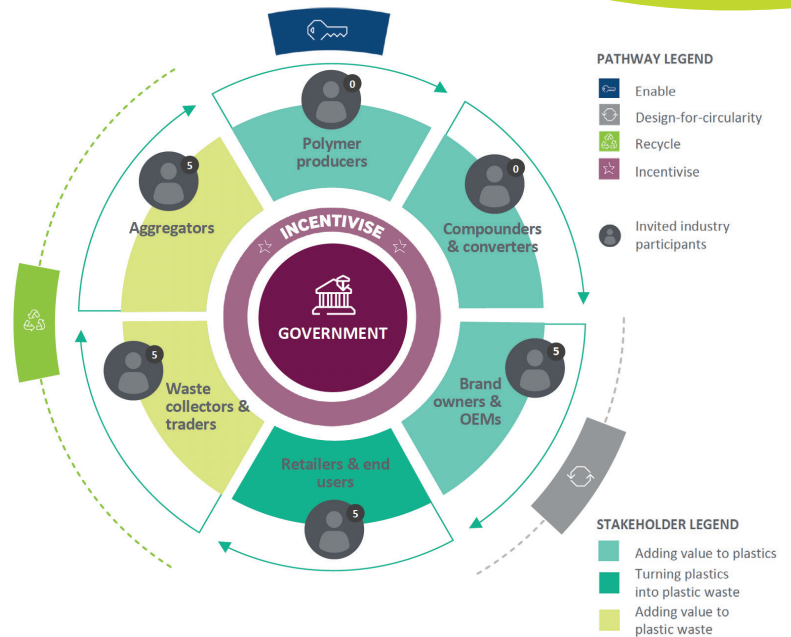


## INDICATIVE MODELLING

Analysis commissioned by RDATN estimated the potential rate of return from investment in a TNQ plastics recycling plant. The assumptions used in the modelling were drawn from the feasibility study, the business case and market testing, and desktop research on the potential costs and revenues from a recycling facility.

Importantly, the business case and market testing involved undertaking a quick and non-exhaustive scan to identify local businesses in the plastics ecosystem in TNQ. While the process did not identify polymer producers or compounders and converters, it did identify waste collectors & traders, aggregators, brand owners and end-users (refer to the figure).

This shows the potential for a circular economy for plastics within the FNQ region, including the potential for re-manufacturing using recovered plastic material.



### Assumptions used in the modelling

Noting again that the selection of an appropriate business model as well as the assessment of risks and returns should be based on sound investor analysis, the indicative modelling used the following assumptions:

- « The plant would source 3,000 tonnes per year of HDPE from sources within 150 km of the site
  - This would be sourced from businesses that would otherwise send the plastic to landfill, and therefore at minimal cost, however the modelling assumes a more conservative value of approximately \$250 per tonne
- « A total capital investment of approximately \$14 million, inclusive of construction equipment, site costs, plant and equipment, manufacturing, staff, utilities and other overheads
- « Operating costs of approximately \$1 million per year
- « The plant would recover 80 per cent of the material processed and sell HDPE plastic pellets at an average price of around \$1,400 per tonne, depending on the value of and distance to end-markets
- « The plant would be financed through 50 per cent debt, with a term of 10 years and an interest rate of 6 per cent.



### Financial viability and risks

The expected internal rate of return (IRR) to equity based on the above assumptions is 14 per cent. The return is sensitive to and will depend on key assumptions such as pellet market value (net of transport costs), feedstock costs and the debt interest charge.

Using alternative values of these assumptions results in a different estimate of the IRR. For example, if the assumptions instead included:

- « A higher price of \$1,600 per tonne for HDPE pellets, the estimated IRR would be 22 per cent
- « Feedstock costs of \$0 (nil) or \$350 per tonne, the estimated equity IRR would be 25 per cent or 10 per cent respectively
- « The debt interest charge was 10 per cent, the estimated equity IRR would be 13 per cent.

It should be noted that the estimated IRR would be negative under certain combinations of unfavourable values for key assumptions. Also, while the modelling assumes a HDPE plant, other business models may also be feasible including ones involving the processing of multiple polymers.



### Environmental, social and governance (ESG) benefits

The feasibility study and business case, components of which were funded by various levels of government, showed that the investment would also deliver a broader range of non-financial benefits. These would include:

- « The avoidance of waste going to landfill
- « Avoiding the depletion of virgin material and fossil fuel use by producing recycled material
- « Avoided greenhouse emissions emitted from transporting feedstock to SEQ
- « Supporting the Tropical North Queensland (TNQ) region's clean, green brand proposition
- « Contributions to employment and economic activity
- « Contributions to achieving government priorities and targets.

# KEY SUCCESS FACTORS AND RISKS

As with any investment decision, it is important to consider the key success factors and risks prior to investment.

## The SUCCESS of this investment is supported by



The value of recovered plastic material in end-markets, which is underpinned by policy and consumer demand drivers.



All three levels of government being open to and seeking to encourage investment in the region.

## The main RISKS include the potential



For lower than anticipated market prices for the recovered material.



For higher than expected costs of obtaining the feedstock and transporting it to the site.



Distance to larger end-markets if the demand close to the site is unable to be secured and the costs of transportation are higher than expected.

To minimise and mitigate these risks, investors should investigate and validate assumptions relating to the availability and the cost/price of both the feedstock inputs and the material outputs. This should be done through independent research and consultation.

Investors should also consider that the region has a relatively sparsely distributed population and is more than 1,500km from the nearest capital city region (SEQ). As such, the viability of the investment is sensitive to the costs of transporting both the feedstock and the end-product.

To minimise these costs, investors should consider recommendations and lessons learned from other regional case studies. As a guide, APCO has published a report which outlines key considerations for remote and regional investment titled *Packaging Waste Collection and Processing Options in Remote and Regional Areas*.<sup>5</sup> The report recommends that regional and remote recycling facilities consider the potential for:

- « Shared transportation
- « Shared infrastructure
- « Negotiation of backloading contracts to minimise transport costs.

<sup>5</sup> <https://documents.packagingcovenant.org.au/public-documents/Remote%20and%20Regional%20Report>

## SUMMARY OF PROSPECTS

In summary, there is an opportunity for a potentially commercially viable investment that aligns strongly with government priorities. The opportunity for a plastics recycling facility in TNQ is supported by both market and policy drivers.

Prior studies and indicative modelling suggest that investment has the potential to deliver returns to investors of between 10-25 per cent in equity IRR terms. Investors seeking to substantiate the opportunity should consider the key success factors and risks, and the potential for returns to be different to those estimated in this Memorandum.

RDATN invites qualified investors to engage with the organisation and with local businesses to further explore this opportunity.



## FOR MORE INFORMATION, PLEASE CONTACT:

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