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14 December 2022

RE: AA1000627 – Coles Group Limited and other participating supermarkets – submission

Dear Ms Menon,

In response to your letter of 28 November 2022 regarding the application for authorisation AA1000627 by Coles Group Limited and other participating supermarkets to engage in conduct in connection with the Soft Plastics Taskforce, Qenos makes the following submissions.

1. Qenos agrees that the cessation of REDcycle's activities requires urgent action. In particular, the soft plastics that have been collected or may continue to be collected should not be sent to landfill and should be applied for the highest and best use possible. If this requires the Participants to work together for a limited period of time then Qenos does not object to this.
2. Priority needs to be given to circular plastic-to-plastic recycling solutions as described in the waste hierarchy in Figure 1. A Circular Solution for soft plastic means that waste plastic is recycled back into virgin quality plastic that can be used in the original application in place of fossil-based plastic, including food contact applications.
3. An Interim Solution for soft plastics must not negatively impact on the feasibility of long term domestic Circular Solutions.
4. While not expressly excluded by the scope of the proposed conduct, in Qenos' view offshore processing and recycling options should be considered for an Interim Solution until a local capability can be established, if:
 - a. infrastructure is not available locally to achieve the highest order solution in the waste hierarchy;
 - b. assurance can be obtained that the waste material is recycled back into circular plastic through a certified chain of custody scheme, and;
 - c. compliance with Basel convention protocols for transboundary movement of hazardous waste can be assured.
5. The current wording of the referenced Interim Solution includes *a solution for the storage, transportation, processing, recycling and/or management of soft plastics*. "Management" is a very broad term, and could extend to permitting the applicants the opportunity to employ a waste management solution that will most likely result landfill of these materials, thereby removing the waste plastic resource from supply to more beneficial options. Qenos submits that this scope should be narrowed by removing "management" from the scope or clarifying its meaning to exclude any solution that would send the soft plastics to landfill other than those plastics that have been determined as unsuitable for either mechanical or advanced recycling



for technical reasons. We note in any case that such conduct need not be done by the applicants working together.

Waste hierarchy for plastics

Figure 1 details a sophisticated view of the plastic waste hierarchy that distinguishes various forms of plastics recycling rather than grouping them all in one bucket.

Soft plastics are a highly efficient packaging material that avoids material use and associated greenhouse gas emissions through its lightweight and barrier properties compared to alternative materials such as paper, metal or glass [McKinsey 2022]. Reuse opportunities are generally limited as food hygiene and safety need to be maintained.

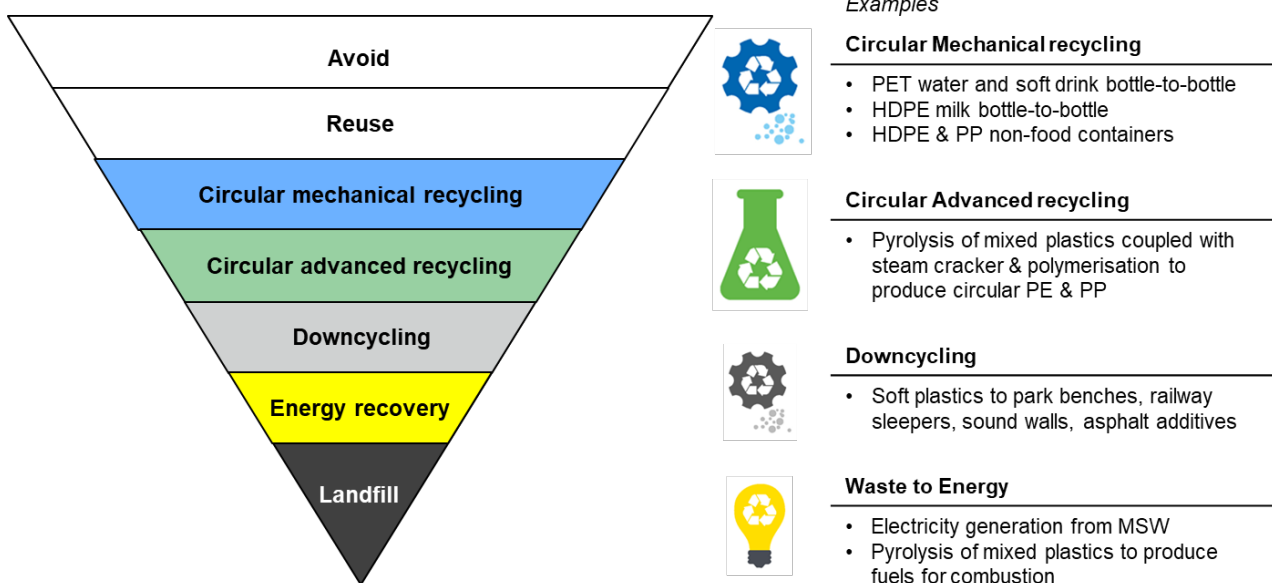


Figure 1. New waste hierarchy for plastics

Circular mechanical recycling solutions exist for rigid plastics such as PET (Polyethylene Terephthalate) bottles and HDPE (High Density Polyethylene) milk bottles where sorted bottles are shredded, washed, decontaminated and extruded into food grade pellets for use in the same application.

The thin and often multilayered structure of soft plastic films present a unique set of challenges to the development of a circular recycling solution. The composition of predominantly LDPE (Low Density Polyethylene) and PP (Polypropylene) allows the film to readily absorb contaminants along with the heavy use of inks and dyes are barriers to the development of circular mechanical recycling solutions for this class of material. This situation is unlikely to change in the future given it is the inherent properties of soft plastics that make them so efficient and effective in so many applications.

Circular advanced recycling is an emerging technology that is able to convert plastic back to the molecules it was made from and then reconstruct it utilising existing plastic manufacturing processes. Circular advanced recycling technology uses pyrolysis and other techniques to break down a mixture of end-of-life plastics containing predominantly LDPE and PP into oil, gas and an inert residue. The oil and part of the gaseous fraction are purified and then fed into petrochemical or refinery crackers to create monomers such as ethylene and propylene, which are the building blocks of the two most commonly used plastics globally. Polymerisation of these monomers



creates virgin quality food grade plastics that can go back into the soft plastics circular economy. This technology is already applied at scale in facilities in Europe and North America, and we expect on the basis of announcements by plastics producers globally that by the end of 2025, more than 1.5 million tons of circular advanced recycling capacity will have been installed.

The infrastructure exists in Australia to create a plastics circular economy for LDPE and PP through the manufacturing facilities of Qenos in Altona VIC and Botany NSW and of Viva Polymers in Geelong VIC. Both manufacturers are separately working with value chain partners and technology providers to adapt their facilities to transform waste plastic derived feedstock into circular plastics. The use of these assets is therefore critical to achieving a circular economy for plastics in Australia.

Qenos and Cleanaway have announced their intended investment in this space and opportunity for local job creation, see infographic in Figure 2 and refer to AFR article from 23 November 2022 [AFR 23/11/2022]. The first of these new facilities is expected to come online in 2025 or 2026.

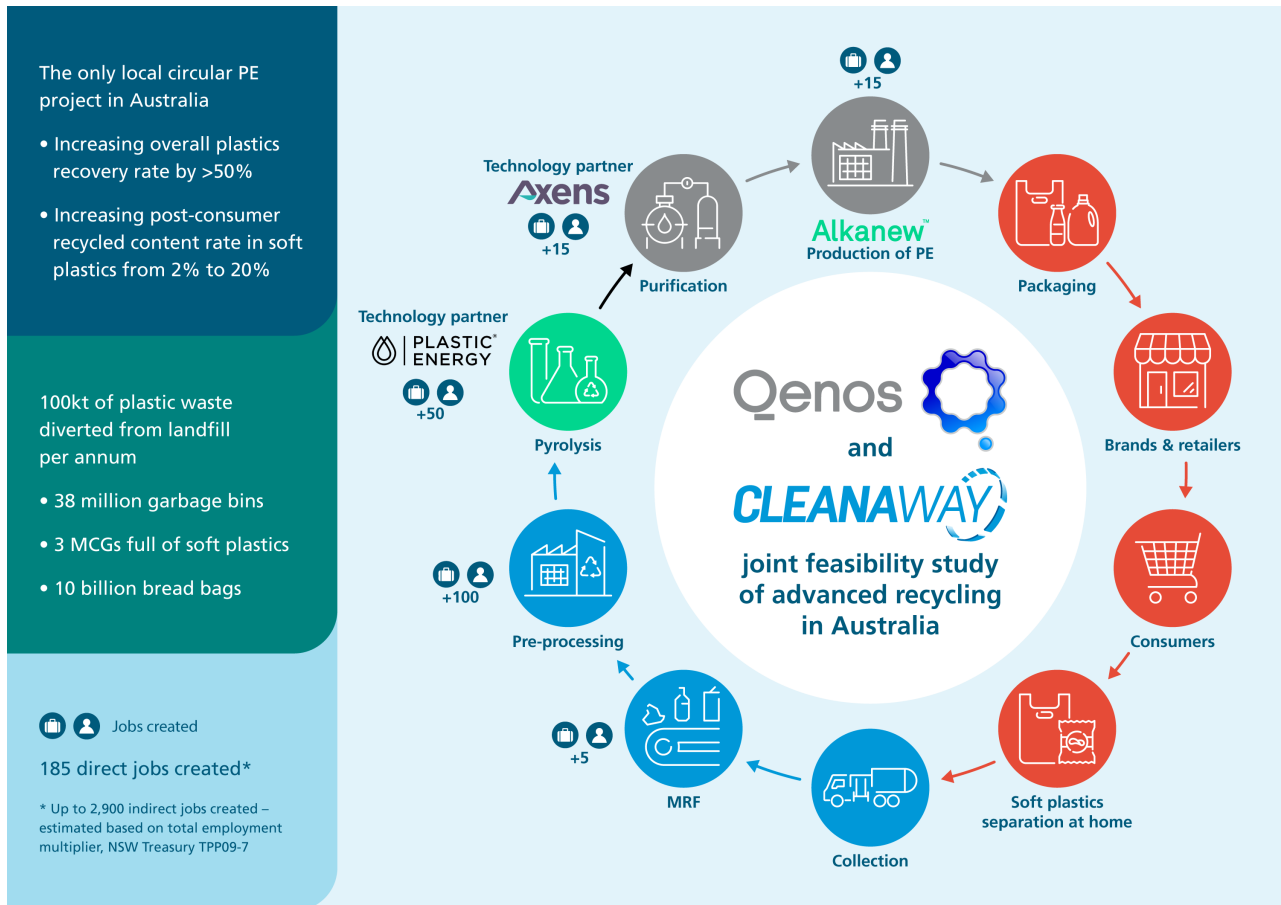
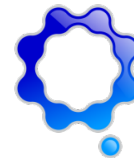


Figure 2. Qenos and Cleanaway Circular Plastics Project

Up until now soft plastics collected through the REDcycle scheme have been used predominantly in downcycling applications to produce items such as park benches, bollards and railway sleepers as well as concrete and asphalt additives. Whilst these applications are able to absorb a proportion of the waste plastics produced each year in Australia, technical limitations mean that in each case only a small segment of the market can be targeted. For example, the use of soft plastics as a concrete additive has only been demonstrated in non-structural low-use



applications such as footpaths and parking lot curbing. Through the suspension of the REDcycle scheme in November 2022 and lack of end market issues that date back as far as 2018, these applications are now thought to have reached the limits of their capacity [SMH 26/11/2022].

Further, there is growing concern around the generation of microplastics from downcycled plastic used in outdoor furniture or other outdoor applications. As most of the input material was not designed for long life outdoor applications, the end products can lack much of the protection required to prevent UV degradation and oxidative aging. This can lead to embrittlement and the release of microplastic over time.

Waste to energy may be considered as a viable solution for municipal waste containing significant amounts of organic waste that would otherwise decompose in landfill and generate methane emissions. However, it is not a preferred solution for plastics as the combustion in the waste to energy process releases the embodied carbon as CO₂ emissions. It has been demonstrated that Circular Advanced Recycling can reduce CO₂ emissions by more than 50% for soft plastics when compared to waste to energy [CGF 2022].

Public detriments from the Interim Solution

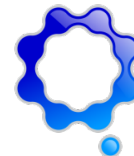
We foresee the following potential public detriments if a short term downcycling or waste to energy solution were to become entrenched and compete with circular recycling solutions for waste plastic feedstock.

- The commercially viable market size for downcycling applications is limited. The supply of soft plastics far exceeds the demand in park furniture, bollards and low value concrete and asphalt applications.
- Given the low investment barrier to entry, downcycling can attract smaller scale operations to an industry which may be more challenging to regulate and can be economically vulnerable to changes in market conditions.
- Waste to energy options would lead to increased carbon emissions as all the embodied carbon in soft plastics is converted into CO₂

Public benefits of encouraging a long term circular solution

If an authorisation is granted for an Interim Solution that expressly prioritises a long term Circular Solution for soft plastics - most likely through circular advanced recycling – it will likely provide a significant boost to the establishment of Circular Solutions in Australia, which would provide the following public benefits.

- Material will be directed back into soft plastic food grade packaging in a closed loop process. This market is always larger than the amount of circular recycled soft plastics due to collection and processing losses. Because circular LDPE & PP have identical properties to virgin resin, there is no technical limitation to the end use application.
- The substantial investment required to build a circular advanced recycling capability requires high quality industry participants with a long term commitment to a sustainable business model.
- The circular advanced recycling process preserves the embodied carbon within the material and offers a significantly lower carbon footprint than waste to energy.
- The circular advanced recycling process lends itself to the scale needed to make a significant contribution to achieving three of the four 2025 National Packaging Targets.



- i. 100% recyclable: A circular solution for soft plastics waste would significantly increase the proportion of plastics that is recyclable, going a long way to closing the gap on the recyclability achieved by paper, metal and glass.
 - ii. 70% recycling rate: If all suitable soft plastics packaging were to be collected and recycled through a circular advanced recycling process, the recycling rate for total plastics packaging would lift to 52%. As this technology is also suitable for rigid plastic packaging that is not currently recycled, a figure of up to 70% could be achieved.
 - iii. 20% recycled content in plastics packaging: In the circular advanced recycling process, about 60% of the plastic input into the process is converted back into circular food grade LDPE & PP. If all suitable plastics packaging were to be recycled through circular advanced recycling, a recycled content of 42% could be achieved for all packaging plastics.
- Circular LDPE & PP produced by circular advanced recycling will initially need to carry a premium compared to virgin resin in order to provide a return on the capital investment. As scale increases there is significant scope to drive costs down.

Conclusion

This submission describes the need for an Australian circular economy for plastics and the important role that could be played by the Participants and the soft plastics that would otherwise be recycled through the Redcycle scheme. In our view, any Interim Solution should not stand in the way of building this capability in Australia and the Interim Solution should be scoped in such a way to prioritise circular recycling solutions.

Qenos remains at your disposal to answer any questions from the ACCC regarding our submission and provide information and assistance to the Soft Plastics Taskforce.

Yours sincerely,



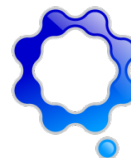
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