Submission to the Productivity Commission Inquiry into Australia's Circular Economy

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Introduction

Recycling Technologies Group Pty Ltd (RTG) is an Australian leader in waste recovery and recycling solutions, specializing in high-efficiency biomass and metal waste recovery systems. For over three decades, RTG has partnered with industry leaders across Australia to create resource optimization strategies that contribute directly to a more circular economy. Our expertise, coupled with advanced technology partnerships, has enabled us to become a preferred provider of innovative waste-to-resource solutions. As a small family business we feel we punch a bit above our weight in this sector and have been doing 'circularity' before it was a concept.

Circular Economy Success Stories and Impact

RTG's track record in the waste recovery sector demonstrates practical, scalable applications of circular economy principles. Our solutions focus on extending product life cycles, reducing the need for virgin materials, and repurposing industrial waste into high-value resources. Examples of RTG's circular economy contributions include:

- **Biomass Pelletizing and Briquetting**: RTG has installed pelletizing and briquetting systems nationwide, converting sawmill, agricultural, and industrial residues into renewable fuel sources. These projects effectively reduce waste, lower carbon emissions, and provide our clients with sustainable, cost-effective energy solutions.
- **Waste-to-Energy Systems**: RTG's installation of a demonstration gasifier system in a Sydney CBD building provided a landmark solution, enabling the building to operate independently from the grid using timber and office paper waste as fuel. This closed-loop waste management system not only mitigated landfill contribution but also significantly reduced operational carbon footprints. These solutions offer circular opportunities for almost any industry that has a biomass residue stream to produce hot water and energy for internal use and feed-in to the grid. In the case of sawmills this will enable them to use waste woodchip to generate power and energy within their facility. A significant benefit

is that this technology continues to provide energy when other renewable energy isn't available.

- **RUF Waste Metal Recovery:** RTG offers a transformative solution for metal waste management, including Australia's defence sector manufacturers like Lovitt and Surman Metals. Through briquetting, this system compacts metal waste, capturing valuable cutting oils and emulsions that can be recycled multiple times. The process produces dense, high-quality metal briquettes, yielding a greater return from smelting due to increased material purity and reduced contaminants. This adds value to the recovered metal while significantly lowering the environmental impact. By minimizing the volume of oily swarf transported to waste facilities, RTG briquetting reduces truck journeys and the associated environmental footprint, aligning with sustainable practices crucial to the defence industry's commitment to resource efficiency and waste reduction.
- **Biomass Residue to Fossil Fuel Reduction:** C.F. Nielsen offers innovative solutions that transform various waste materials into valuable energy resources. Advanced briquetting presses efficiently convert wood, agricultural residues, and other by-products into high-density briquettes, providing a sustainable alternative to traditional fossil fuels. Notably, RTG's expertise in torrefied briquette production positions these briquettes as the "new coal," effectively replacing conventional coal in power generation, without the need for new boilers or handling. Torrefied briquettes offer higher energy density and improved logistics, making them a viable and eco-friendly substitute for fossil fuels.
- **Innovative Black Pellet Technology**: Our research and development project on post-production pellet torrefaction represents a significant advance in renewable biofuel. With a calorific value comparable to coal, black pellets are an attractive option for industries looking to reduce their reliance on fossil fuels. The post-pellet torrefaction process RTG employs enhances storage stability and energy density, meeting the demand for long-term, high-volume supply from industries such as steelmaking.

Each of the above contributes to narrowing, closing, and slowing material loops, effectively reducing waste and promoting resource reuse. RTG's work highlights how circular economy activities can improve both environmental outcomes and business efficiency.

Priority Opportunities for Circular Economy Expansion in Australia

Australia's circular economy potential is significant, particularly in sectors that produce high volumes of recoverable waste. RTG has identified several priority opportunities to support a more circular economy:

1. **Industrial Biomass Waste Recovery**: High-value applications of biomass waste, such as the production of black pellets, offer industries an alternative to

coal with far-reaching environmental benefits. Expanding this technology in Australia could provide both energy security and emissions reductions.

2. **Metal and Biomass Briquetting for Industrial Reuse**: Briquetting technology enables efficient resource recovery by compressing loose residues into manageable, high-density fuel or raw material. Metal and biomass waste briquettes reduce landfill dependency, and the compact format is more economical for transport and storage.
3. **Collaboration with Key Industries for Circular Integration**: RTG is uniquely positioned to facilitate collaborations across sectors, including construction, manufacturing, and energy, which have the most potential for circular economy integration. By partnering with industries committed to improving waste management, RTG's expertise and technology can accelerate the adoption of circular practices.

Hurdles and Barriers to a Circular Economy

Despite the growing interest in circular practices, several barriers limit the widespread adoption of circular economy solutions:

- **Cost Constraints**: Many businesses face high initial costs when adopting circular technologies. This is particularly true for smaller operations where the upfront investment for equipment and infrastructure upgrades can be prohibitive without financial incentives or subsidies.
- **Regulatory Limitations**: Certain regulations around waste management and renewable energy can inadvertently hinder the adoption of circular technologies. Streamlining policies and introducing regulatory support for circular activities could encourage more businesses to participate in the circular economy.
- **Lack of Awareness and Information**: Many industries may be unaware of the benefits and long-term cost savings associated with circular practices. Greater awareness and access to information are essential to overcoming resistance to change and encouraging adoption.

RTG addresses some of these barriers by offering consulting and project feasibility services to clients, helping them understand the potential economic and environmental returns of circular solutions. However, broader support is needed to address cost and regulatory challenges at scale.

The circular economy's biggest hurdle is the restrictive barrier to entry imposed by regulatory bodies like the EPA and other state departments. This red tape stands in stark contrast to the world-class innovation and technological brilliance seen in initiatives like Ocean to Earth, AusKelp, and RTG's Black Pellet and Torrefied Briquette solutions. These groundbreaking projects should be championed and supported by the Australian Government, not hindered by outdated bureaucracy. Australia has a legacy as a global leader in innovation, yet over the past two decades, excessive legislation has strangled this potential. If this continues, we risk suffocating the very technologies

that can drive sustainable transformation. The government must act now to remove these barriers, empowering Australian innovation to thrive on the world stage.

It's beyond ironic—it's outright hypocrisy—that the EPA imposes sky-high dumping rates for industrial and commercial waste at landfills, supposedly to push industry toward innovation. Yet, when industry responds with cutting-edge solutions designed to eliminate waste and close the loop, the EPA is the first to throw up roadblocks. Why? Because they're addicted to the revenue from their "rivers of gold" waste levies. Instead of championing real progress, they protect this income stream, keeping a stranglehold on funds that should be reinvested to support world-leading, circular economy practices. This waste levy revenue isn't meant to fill coffers; it should be fueling incentives for industries to transform waste into renewable resources. This glaring contradiction is the elephant in the room, one the EPA refuses to address. They know it. We know it. Yet the status quo persists, crippling innovation and holding Australia back from genuine progress in the circular economy. It's time the EPA stopped talking about sustainability and started enabling it.

Recommendations for Government Action

To enable a more robust circular economy in Australia, we recommend the following actions by the government:

1. **Financial Incentives and Grant Programs**: Establish targeted grants and subsidies that reduce the initial investment costs for circular economy projects, especially for smaller businesses. Programs like matched funding for R&D could significantly boost innovation and adoption rates.
2. **Regulatory Reforms to Support Circular Initiatives**: Review and adjust waste management and renewable energy regulations to encourage circular processes. Flexible policies could better support businesses that seek to transition to circular practices without facing prohibitive costs or delays.
3. **Educational Campaigns and Industry Partnerships**: Invest in awareness programs that highlight the benefits of circular practices. Collaborative partnerships between government and industry could provide guidance and case studies, showcasing successful circular economy initiatives and their impact.
4. **Support for Innovation and Scaling**: Assist companies like RTG in scaling innovations, such as black pellets, that have the potential to impact high-demand sectors. This could include facilitating access to international markets or supporting large-scale production prototypes.
5. **Revaluation of the EPA:** The current model that the EPA works under is antiquated and stifles world class initiatives that will drive solid circular outcomes. This role needs to be redesigned and potentially a new division

(Natural Environmental Protection Authority – NEPA) could be established to encourage and support circular economy programs.

Conclusion

RTG's commitment to delivering sustainable waste recovery and recycling solutions aligns closely with the objectives of a circular economy. By converting waste into valuable resources and innovating new renewable fuel sources, RTG demonstrates the practical benefits of circular economy principles in Australia. We are eager to continue our work in this field and to support Australia's progress toward a more resilient, resource-efficient economy.

Discussion

RTG are happy to discuss any aspect of this submission and welcome your feedback.

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