

Klean Industries & City Circle Group Partner to Build a Tyre Pyrolysis Plant to Recover Carbon Black & Renewable Fuels

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/EINPresswire.com/ -- Klean Industries Inc ("Klean") is pleased to announce that it has partnered with City Circle Group ("CCG") to build a fully integrated, [continuous tyre pyrolysis plant](#) to recover carbon black and biofuel in Melbourne Australia. Like Klean Industries, City Circle Group ("CCG") is a well-established family-run business. CCG was founded in 1981 and has built a reputation as a leading provider in demolition, decommissioning, remediation, excavation, and recycling in Australia. Since introducing recycling and reuse initiatives, CCG is now unique in its

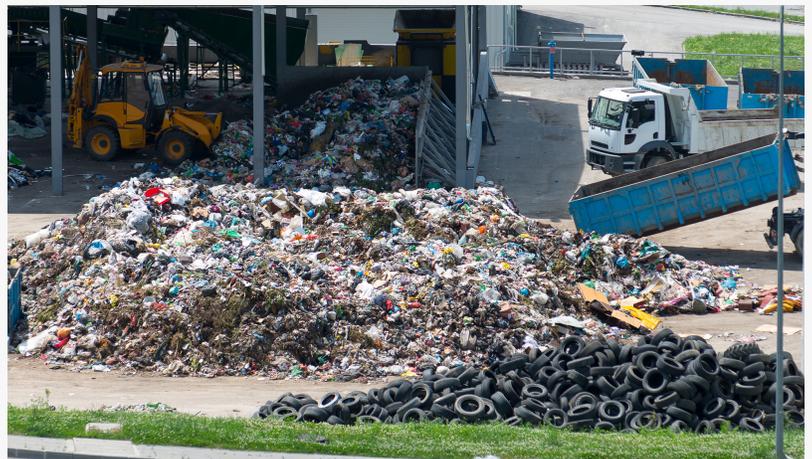
capacity to not only dismantle, demolish, and deconstruct buildings, but also is a leading company in transforming and recycling 100% of all the building materials that are a result of deconstruction activities. In doing so, CCG converts all the waste into new building materials and commodities for reuse. It is CCG's sustainability goals and practices that set it apart from competitors and its reputation for excellence and reliability has made it a preferred contractor to many of Australia's top-tier developers and builders.

It's no secret that Australia has a massive waste problem that is out of control with disposal fees that are continuing to rise. End-of-life Tyres ("ELT") and End-of-Life Plastics ("ELP") are piling up and being dumped in landfills all over the country. Klean and CCG aim to solve this



Klean Industries
Recovering Clean Energy & Resources From Waste

Klean Industries is the link between the low carbon, circular economy, and the goal of zero waste to landfill.



Klean Industries & City Circle Group Partner to solve the end-of-life tyre and end-of-life plastic crisis in Australia.

environmental crisis by teaming up and putting their combined skillsets together to create meaningful change that will help Australia develop a low-carbon, circular economy while reinforcing the goal of zero waste to landfill. Both parties see significant opportunities for creating hundreds of new and highly skilled cleantech jobs with enough project opportunities in Australia to invest billions of dollars into the Australian economy over the next decade.

Australia currently accumulates over 450,000 metric tonnes of end-of-life tyres annually or the equivalent of approximately 50m scrap tyres per year. That's enough waste tyres to build 8-10 commercial-scale projects across the country. Australia currently operates a voluntary Stewardship scheme operated by Tyre Stewardship Australia ("TSA"). TSA accounts for the management of approximately 25% of the scrap tyres produced and collected and is currently financed by the voluntary contribution of 49% of tyre importers and has almost 1,700 accredited participants, which include tyre retailers, collectors/recyclers, local government, mining, and fleet organizations. The Government of Australia has stated that the TSA Tyre Product Stewardship Scheme ("Scheme") has now reached its peak in its ability to effectively recover and reuse end-of-life tyres. The existing Scheme is still far from leveraging the full environmental, social, and economic benefits this recovered resource can deliver, and without timely regulatory intervention, the Scheme will be unable to shift the needle on these critical indicators or meet community expectations to maximize waste reduction, reuse, and recycling outcomes within Australia. At the most recent Australian environment minister's meeting in late October 2022, several waste streams were given priority status, amongst them, the tyre sector. TSA, as a voluntary Scheme has reached its limits which paves the way for negotiations to follow Tyrewise in New Zealand with a compulsory Extended Producer Responsibility ("EPR") scheme.

Klean and CCG have been working together in the planning of a project in Melbourne for the past twelve months and have been engaged in the final analysis of a [Detailed Feasibility Study \("DFS"\)](#) to design and build a fully integrated tire pyrolysis plant. The result thus far has illustrated a significant opportunity and the parties are now in the final phases of contract negotiations with feedstock providers and offtake parties for all the project output products which are being pre-sold. Both CCG and Klean see the prospects of this project playing a significant role in creating a circular economy within the region as it addresses several key issues designated under the [United Nations Sustainable Development Goals \("SDG"\)](#) and will create economic opportunities and environmental benefits for the local economy in Melbourne. The parties plan to complete the DFS by the end of December 2022 and anticipate the project being financed before the end of the first quarter of 2023, with construction taking place in 2023 and operations starting in 2024.

A project site is already secured and planning permission and permitting are underway. The project is centrally located 45 km northwest of Melbourne, Victoria, and has access to a highly skilled workforce. Given the ease of establishing and conducting business in Melbourne, the decision to locate a tyre carbonization facility is compelling and logical, which offers numerous short-term and long-term benefits to the area.

The Melbourne project includes Klean's commercial scale, environmentally friendly scrap tyre

carbonization technology with a planned initial capacity of up to 120 metric tonnes per day ("TPD"), which is approximately 12,000 tyres per day and equates to approximately 40,000 metric tonnes per annum ("TPA"). The project is designed to convert the waste tyres into highly valuable recovered carbon black ("rCB") and recovered fuel oil ("rFO"). This plant will be fully integrated with Klean's proprietary tyre char upgrading technologies that enable the transformation of low-value tyre char into high-value carbon black replacements which can replace Virgin Carbon Black ("vCB") by volumes of 10% up to 100% depending on the specific application. Klean's pioneered the commercial scale process for converting end-of-life tires into desirable black carbon alternatives and renewable biofuels, that deliver significant environmental savings.

The manufacturing of new tyres uses tremendous amounts of petroleum and carbon black from non-renewable resources. When compared to the manufacturing of virgin carbon black Klean's CBk KleanCarbon uses +90% less water and emits +90% fewer greenhouse gases than traditional carbon black production and is an environmentally responsible alternative to virgin carbon black derived from end-of-life tires. Klean's CBk KleanCarbon performs similarly to certain ASTM reference grades of virgin carbon black but has unique physical properties and performance characteristics that not only improve environmental and function performance but also offer significant cost advantages.

The global effort to reduce CO2 emissions means that manufacturing companies are now facing growing regulatory pressure to decarbonize the supporting raw material supply chains and minimize their carbon footprint. Virgin carbon black is used as a primary resource for manufacturing products such as tyres, rubber, and plastics. Reducing the environmental impact of virgin carbon black is desperately needed in order to comply with current emission reduction targets and strategies to enable the transition to a low-carbon circular economy. CBk KleanCarbon offers a reduction of carbon emission of less than 450kg of carbon emission per metric tonne of rCB, while carbon emissions can exceed 2.5 metric tonnes of carbon emission for every metric tonne of virgin carbon black production.

The CCG plant will also include recovered fuel oil upgrading technologies for the conversion of the recovered pyrolysis oil. The pyrolysis oil is condensed and then split into two streams of which approximately 85% is a hydrocarbon product of similar quality to VLSFO 1% and 15% is a naphtha-like product. Additional attributes include notable reductions in carbon emissions as the resulting rFO contains a biobased content as a result of approximately 35-40% which is a result of natural rubber found in end-of-life tires. The CCG facility will be ISO 9001, 14001 certified and all products will also be ISCC certified as circular raw materials.

The resulting products from the Melbourne project will then re-enter the virgin raw material supply chain through the local marine fuel market, new tyre, rubber compounding, and virgin carbon black manufacturing industries. This enables these industries to create product circularity by re-integrating recovered resources back into the marketplace enabling these industries to improve environmental performance and lower raw material product costs while also offsetting emissions associated with their respective industries. It's estimated that the

Melbourne facility will offset carbon emissions in excess of 50,000 metric tonnes annually.

This project will also include the KleanLoop™ software as a service ("Saas") platform which will create a fully transparent end-of-life tyre recycling and tire manufacturing marketplace. The CGG plant will be the second tire recycling project to combine all its operation data on the Blockchain and will feature a fully integrated track and trace program for everything it receives and produces that will cross several supply chains. From end-of-life tyre collection to recovered carbon black sales to the carbon emission offset produced by the project.

"It is with great excitement that we announce this project and partnership with Klean Industries. Through a long process, we are committed to realizing this facility that we see combines the world's best practices with local knowledge to solve one of Victoria's most troublesome waste streams. The concept of waste to commodity recycling is something that fits within our vision to become a truly circular economy business that provides real and positive outcomes to our communities" Matt Skidmore City Circle Group CEO.

"We are thrilled to be taking resource recovery to a whole new level in Australia. With CCG as our partner, we are going to define a new era in what it means to develop clean industries. Our industry partnerships speak to our credibility, and it is these relationships that support and enable our team to build world-class facilities that set the global standard in Environmental, Social, Governance ("ESG") but will also enhance Corporate Social Responsibility ("CSR") to a level not seen before in Australia." commented Jesse Klinkhamer, Klean Industries, CEO.

The Project investment is estimated to be US \$100 million with a construction period is approximately 12 to 18 months. The project is eligible for additional incentives under various programs that support the low carbon and circular economy and both CCG and Klean are exploring several opportunities for such grants.

About City Circle Group

Established 40 years ago, City Circle Group, is still a wholly owned and operated family business. CCG has built a reputation as a leading provider in demolition, decommissioning, remediation, and recycling in Australia. It has grown to offer a diverse range of expert services tailored to each project and through a ceaseless commitment to every client along the way. CCG constantly strives for innovation and best practice with its core principles focused on expertise, sustainability, and safety while delivering the highest level of service to its clients and the environment.

City Circle currently employs over 150 highly experienced professionals and a range of machinery and equipment. In 1999, we established City Circle Recycling (CCR) to complement our demolition operation and advance our 'zero-waste' ambitions. Since then, it has grown from a one-facility operation turning over 3,000 tons per month to three facilities across Melbourne, producing well over a million tonnes of building materials from the very waste its demolition

activity generates.

For more information about City Circle, please visit www.citycirclegroup.com.au

About Klean Industries

Klean Industries ("Klean") provides best-in-class technologies and solutions in the waste-to-value industry. Our international team of award-winning experts has decades of experience in the design, engineering, and manufacturing of the highest-quality equipment to convert waste streams into valuable energy and resources. Klean's unique products and services are a result of combined knowledge in the design of recycling, resource recovery, waste management, and power generation projects. Our global project management expertise safeguards timelines and budgets enabling projects to be delivered in less time and at lower costs.

Klean uses proprietary technologies to rapidly develop projects that produce the highest quality fuels, recovered carbon blacks, and green hydrogen from various kinds of feedstocks. Our know-how and skillfulness provide a specialization in building projects that use advanced thermal technologies such as pyrolysis, gasification, and carbonization, which convert end-of-life tires, waste plastics, and municipal solid waste into domestic energy, sustainable commodities, and new cleantech jobs. We create a symbiosis between waste, resources, and energy. Klean Industries is the link between the low carbon, circular economy, and the goal of zero waste to landfill.

For more information about Klean Industries, please visit www.kleanindustries.com

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