

Green Rubber Pty Ltd

**AUSTRALIAN GREEN RUBBER PROJECT
RECOVERY AND RECYCLING OF MINING INDUSTRY
WASTE TYRES**

“TURNING WASTE INTO A VALUABLE RESOURCE”

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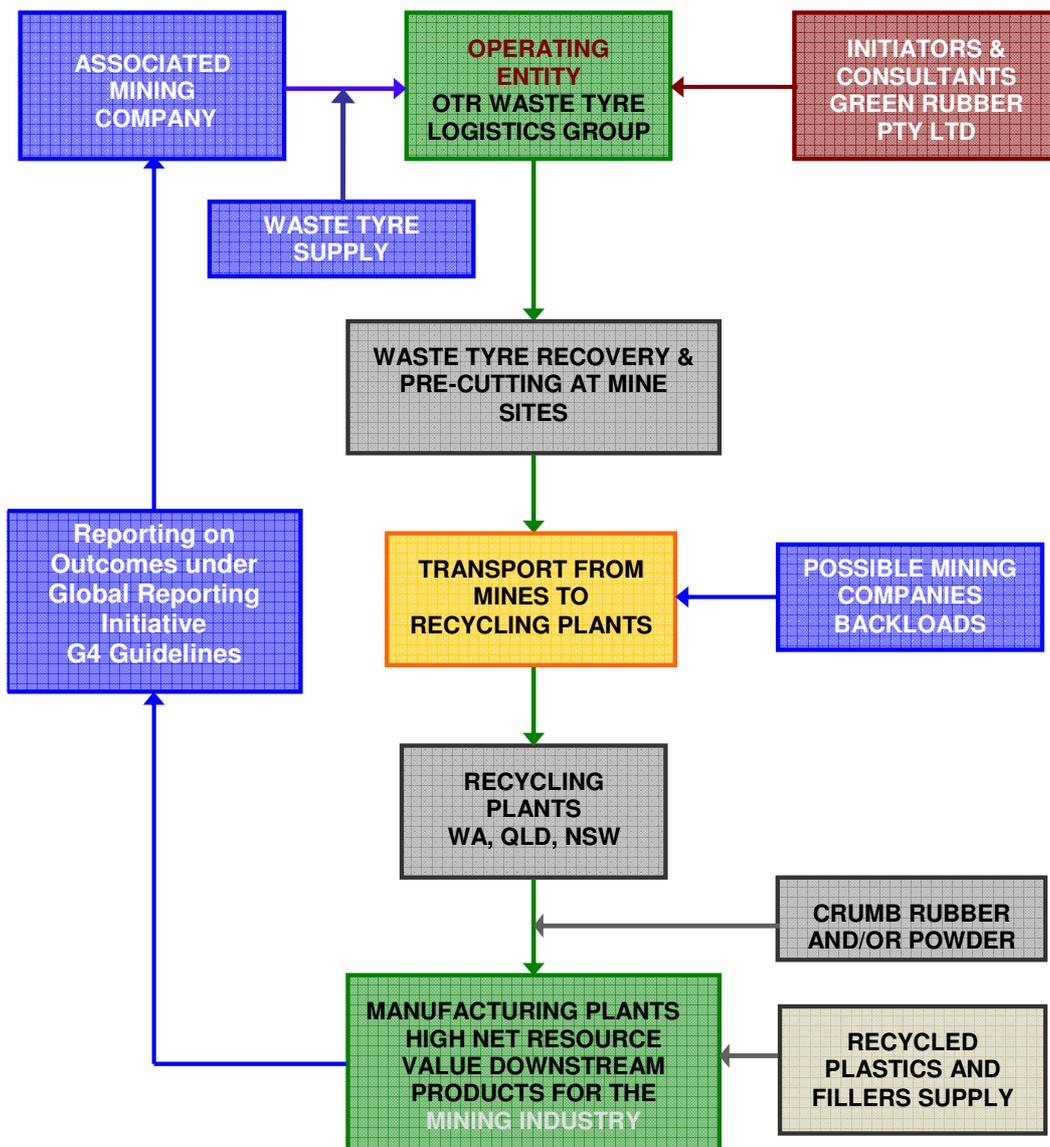


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AUSTRALIAN GREEN RUBBER PROJECT

The Green Rubber brand is so classified as a name given to recycled rubber that would be extracted exclusively from the Waste OTR tyres to be found buried in the mining sites across Australia. The Green Rubber Project has developed a **virtuous cycle** (refer to diagram below) of Waste to Resource using a holistic approach that takes into account collection, recycling and giving back to the mining sector products that would substitute for existing products made out of timber and other natural scarce and expensive materials. Over time the carbon reduction of the project along with cheaper and longer life products makes this project a unique example for Greener industries and better management of waste that can be utilized using the right technologies available to Green Rubber Pty Ltd globally.



The Australia-wide Green Rubber Project provides a proven solution to the logistics, environmental and financial feasibility of fully integrated facilities for recovery, downsizing, transport and recycling of mining industry “off the road” (OTR) tyres which at their end of life represent around 65,000 tonnes of waste annually, of which around 15,000 tonnes annually is produced in the NSW Hunter Region. The Project provides an opportunity to turn an end-of-life product into a valuable and beneficial resource at an initial facility in the NSW Hunter Region followed by facilities in Queensland and Western Australia. A brand referred to as Green Rubber has been created by the Authors and established widely as belonging to the OTR rubber category uniquely, given the properties of the recycling process, the quality and purity of the rubber and the zero waste element involved in the creation of new green products.

Handled like most waste at the end of its useful life, a cost of disposal is involved and the current tyres given their size and difficulty in handling as well as transport distances are presently costing mining companies considerable annual expense in collection, burial and “environmental protection”. Furthermore, waste tyres in all States in Australia have come under a great deal of attention and discussion over several years by all environmental authorities. After much support from the Federal Government and industry, Tyre Stewardship Australia Pty Ltd was established in January 2014 as a basis for promoting and administering a Voluntary Product Stewardship Scheme for all classes of waste tyres.

Mining companies in Australia currently bury around \$1.5 billion in initial value of new tyres which simply becomes “waste”. The carbon footprint of the Green Rubber Project is less than 1% of the initial embodied energy of the new tyres, which is a compelling case for the need to ensure that the mining companies work closely with the tyre producers and the recycling industry to arrive at an environmentally and socially acceptable solution for the disposal of the waste and its conversion into Green Rubber.

Extensive research and contacts have been made with stakeholders such as the mining industry, service providers, Governments and downstream products industries and the structure for moving forward with commercial agreements and contracts is imminent and ongoing. However, more needs to be done to convince the mining companies to stop burying the OTR tyres and to work together in the local community to create a new green industry which will then create economic wealth, green jobs, innovation, the transfer of technology from key mining countries in the world as well as the establishment of better practices in waste management for a relatively low cost to balance sheets. The Green Rubber Project, however relies on its ability to secure large quantities of waste OTR tyres continuously over a number a years to ensure economies of scale and growth impact on the local community over time.

A worldwide search was conducted by the authors as Directors of Green Rubber Pty Ltd, to find the right green technologies for the project. Equipment not available in Australia from manufacturers in the USA and Europe will provide unique downsizing machines which can reduce the weight of the OTR tyres from over 5 tonnes to small pieces for efficient transport and for subsequent feed into a recycling plant. Valuable steel will also be obtained for further use. A mechanical process recycling plant which uses the World’s latest technologies to produce high and variable quality crumb rubber and additional steel is now under serious consideration alongside the alternative of an air cryogenics plant which can be supplied from

Italy with each able to produce multiple crumb rubber sizes and quality and also granule shape to suit the needs of downstream markets all with **minimal energy** use.

Considerable progress has been made in analysis of potential downstream products, working with local companies for manufacturing as well as Universities, Government Agencies and current buyers of natural products for substitution of Green Rubber in the usage of feedstock for road surfacing, blasting material for mining, a multitude of moulded construction products, some utilizing the benefits of mixing with recycled plastics to produce railway sleepers, mine posts, flooring underlay etc. Products which replace valuable timbers as well as creating zero waste and numerous recycled products will benefit the community and the mining industry in New South Wales, Queensland and Western Australia.

The capital investment of implementing the Australia-wide Project is in the order of \$65 million with additional significant further investment in downstream product manufacture providing valuable investment and employment opportunities.

The Green Rubber Project will bring financial benefits to the mining companies not just in substitution of the raw material but also in the safety and longer life-cycle performance of the Green Rubber products and the virtuous cycle of reducing and working towards a zero waste in this area for the miners and the producers of OTR tyres across the world.

The Project seeks participation from all relevant stakeholders to come forward and be part of this development for greener and better management of mining industry waste OTR tyres in their local communities across Australia. Green Rubber Pty Ltd is particularly interested in commencing the project in the Hunter Region shortly and possibly Western Australia and would be interested in hearing from the relevant audience and handlers of the OTR waste tyres.

Let's do it!