

TPE - TYRE PROCESSING & ENERGY PLANT

The Opportunity – Advanced Thermal Treatment

Development of Waste to Energy Plants processing 108,000 tonnes of End of Life Tyres (EOLT) producing Energy and Recovered Carbon Black (RCB)

- i. The UK produces in excess of 360,000 tonnes of EOLT annually, which can no longer be sent to landfill, due to EU directives.
- ii. Turning waste tyres into fuel is an environmentally positive and cost-effective solution.
- iii. Advanced Thermal Treatment units operate in a sealed environment, converting rubber crumb into synthetic diesel and RCB. This process does not produce noxious emissions.
- iv. The RCB is further refined, turning it into a valuable commodity. This is used as a raw material in a wide range of industrial processes, such as tyre manufacture and the production of plastics, rubber products, paints, and dyes.

Business Executive Summary

The business will purchase/lease sites, which have current/identified near term export grid connections of 10MWe+ and ideally hold planning permission for waste to energy developments.

Tyres will be shredded, breaking them down to scrap steel and rubber crumb. Advanced thermal treatment units will then convert the crumb into fuel and recovered carbon black. The fuel will be used to generate steam and renewable electricity. The Carbon Black will be further refined and sold to a subsidiary of Hankook Tyres.

This will involve:

- i. Electricity supply to National Grid and potentially neighbouring industry at enhanced prices
- ii. Tyre suppliers identified regionally and base load to each project will be contracted
- iii. Environmentally friendly processing, using proven, technology, substantiated with reference sites.
- iv. Multiple revenue streams – energy sales, RCB sales, gate fees and sale of recovered steel.
- v. Proven Advanced Thermal Treatment technology owned by a subsidiary company of a leading tyre manufacturer Hankook with reference site available to view. We have an exclusivity agreement on the technology.
- v. Flexibility around construction and O&M optimising efficiency and cost for the project and to meet funder requirements.
- vi. Robust operational infrastructure and processes and sustainably profitable business model.
- vii. Flexible approach to corporate structures to meet investor requirements
- viii. An investment of £92.5m is required for the first UK project.
- ix. An investment of £10m in the form of matched funding has been secured from a major tyre manufacturer.

UK Project 1 (10MWe) – Key Financials

Refer to model doc for detail

Capex: £92.5m (including £8m contingency)

Revenue: £20.3m

EBITDA: £15.3m

IRR: 18.6%

UK Project 1 Current Situation

- i. Multiple sites identified – the first in Eggborough Yorkshire - has planning permission for a waste to energy plant and a (20MWe) grid connection, with discussion on purchase/lease active with owner.
- ii. Sufficient area is available to install an initial 10MWe plant using the proven Advanced Thermal Treatment. This project is perceived as a landmark project by the technology provider and is committed to delivering a successful working plant in the UK.
- iii. Electricity will be exported to National Grid under a PPA.
- iv. Recovered Carbon Black offtake agreement with technology supplier (Hankook) who is experienced in delivering (and using) high quality recovered carbon black.
- v. Tyre Suppliers identified in the region and in discussion over supply
- vi. O & M will be delivered by the core technology provider - Anothén Guemsan
- vii. Options to build out as an EPC, EPCM, or multi contract subject to funder requirements. Current model is based on a proposed EPC arrangement with Kolon Global.

Project Revenue Streams

The project benefits from multiple revenue streams including:

- i. The sale of energy produced from the fuels recovered from the Advanced Thermal Treatment process. Electricity will be exported to National Grid under a PPA.
- ii. The sale of Recovered Carbon Black.
- iii. Gate fees for taking in the tyres,
- iv. The sale of steel recovered from the tyres,
- v. The EOLT facility qualifies under the UK Government's Contract for Difference (CFD) renewable energy subsidy scheme. (However, due to the uncertainty surrounding the subsidy programme this income has been excluded from the financial modelling).

Project Expansion

Following successful establishment of the first 10MWe project, further sites are planned in the UK and Europe. As the core technology is available in process trains of 1MWe and so future expansion by increasing tyre collection and adding process units is also an ambition for the Eggborough project.

Project Founder

For further details and to discuss our proposals please in the first instance contact the business founder Mark Hargreaves .

Biographies Executive Team

Mark Hargreaves – Chief Executive Officer

- Mark Having originally trained as an aeronautical engineer, moved into the world of finance, working in the banking sector in London as a Vice President for a division of Citi Group. He has gained significant experience in fund raising and deal structuring across the property, leisure, mining and infrastructure sectors. Mark has national and international experience across the entire deal lifecycle from origination to fund raising, financial modelling and project management. Mark has been responsible for raising funding for a number of large-scale renewable energy projects. Earlier as an engineer in New Zealand he delivered a new product range from product inception to detailed design, costings, manufacturing process and raw material sourcing then delivery to the end user with substantial and sustainable profit margins. He also doubled production of a butterfly valve moulding plant through process control and rubber compound chemical change.

Peter Williams - Chief Operating Officer

- Peter's experience covers more than 40 years in the power generation sector providing executive project and engineering leadership on many and diverse major international power generation and desalination projects. Recent work has included the provision of engineering services in support of EIA and DCO submissions for UK CCGT projects, utilising H & J class CCGT technology and including full carbon capture provision. Peter's experience has also covered extensive smaller scale embedded power generation in the United Kingdom including co- and tri- generation projects and recent advisory work on developing pyrolysis WtE projects utilising confidential proprietary processes.

George Matharu – Financial Director

- George has 30 years commercial experience, and has worked for some of the largest and most respected countries in the world, including BP, ExxonMobil, Shell, Unilever, Mars Confectionery, Paramount/Universal, and Whitbread. He is the founder and CEO of Elite Capital & Co. Limited, a company that specialises in providing turnkey solutions for the Engineering, Procurement, Construction (EPC) and Finance for major infrastructure projects. George has invaluable knowledge in structuring finance for power projects, and understanding the EPC process, and will therefore be instrumental in the development stages of the Tyre Processing Project.

Mark Paulson – Business Development Director

- Mark has been involved in developing and operating Renewable Energy projects for over 20 years. Starting in the mid 1990's, Mark's activities were initially in commercial biomass fuel supply and processing, and research into new technologies. The business developed to be a leader in providing processed fuel to coal fired power stations during the early phase of testing co firing and continues to supply dedicated biomass generators and smaller scale operators. Marks activity evolved to cover the development and funding of international scale biodiesel, anaerobic digestion, PV and wind projects. Alongside project development roles, Mark and his business partner provide feedstock, operating and digestate offtake services to the 3MW AD plant at their base in a JV agreement with Biogen and so are well placed to ensure that the project development strategy accounts for optimising the longer-term operation of the plant.

Paul Briggs - Project Construction Manager

- Paul has over 30 years of International Oil and gas Industry experience encompassing Prospect Evaluation, Feasibility, Conceptual, Detailed Design, Construction, Commissioning and Operations. With degrees in both Chemical and Mechanical Engineering and extensive experience of Field Developments including: technical, operational, safety, environmental and economic aspects, with a broad view of the requirements for Oil and Gas Field Developments. Extensive international fabrication and installation site experience both onshore and offshore as both client and contactor covering most roles from engineer to project manager.