

PowerHouse Energy Group

With the challenge of how to best manage the treatment of end of use tyres from both an economic and socially responsible perspective becoming greater by the day, particularly with an increasing focus from the public and pressure from politicians on how we as a society deal with our waste, new processes which address this issue are always going to be of interest. And with 70 million end of life tyres amassing in the UK each year, of which only 15% are recycled, it is not surprising.

One such process in the form of a new technology, from Chester based PowerHouse Energy Group, may be just what is needed. It has developed a process termed DMG® which converts virtually any biomass or carbonaceous waste stream into clean energy and road fuel quality hydrogen. And it focusses on the most challenging types of waste, being end of use tyres and unrecyclable and contaminated plastic waste.

Of critical importance to any end of life tyre business is that the DMG® process can make a good return; the road fuel quality hydrogen it produces

can for example be sold at a price on a par with petrol and diesel. It is also attractive from an environmental perspective having a low carbon footprint and manages contaminants well by depositing any toxins as an output that can be safely disposed of or re-used.

The technology has been developed following over a decade of research and development, interestingly using tyre crumb as its main test feedstock. There is now a demonstration unit, located at Chester University's Energy Centre at Thornton Science Park and in November 2018 PowerHouse Energy was granted a Feasibility Certificate from global leading technical assurance firm DNV-GL. The company is now well on track to having the first commercial plant being built utilising the DMG process. This places PowerHouse in a good position relative to many potential energy from waste technologies which are still some years away from becoming a reality – PowerHouse's technology process could be up and running commercially within under a year and be helping address the end of use tyre challenge head on.

To give an idea of the efficiency of the DMG® process, a typical plant utilising this technology consumes 25 tonnes of tyre crumb a day from which it produces 1 tonne of road quality hydrogen, enough for 6000 miles of HGV motoring, 28MWh of electricity and 12-24,000 MWh/d (th) of heat in the form of water and steam.

Licensing is at the heart of PowerHouse Energy's strategy allowing for the DMG® process to be applied globally both quickly and efficiently and whilst it may not be a panacea to solving the world's used tyre problem it would seem well positioned to have a meaningful role to play.

Keith Allaun, CEO of PowerHouse Energy sums up as follows "We view end of life tyres as a resource which can be used very efficiently and profitably to produce clean energy, thus killing two big birds with one stone – reducing the ever accumulating mountains of used tyres and meeting the growing need for affordable clean energy."