# Powerhouse aiming to turn waste plastic into energy

**Website:** www.powerhouseenergy.net

**PowerHouse Energy (PHE:AIM)** has a strong belief in the nascent hydrogen economy and is exploiting this opportunity through its proprietary technology which converts waste, that today is typically incinerated or sent to landfill, into a clean energy rich gas.

Whilst every effort is made to recycle this waste, many plastic containers such as plant pots are not recycled, indeed, even bottles prove difficult to recycle due to the way they are manufactured.

As a result, much of our plastic is either uneconomic to recycle or 'contaminated' such that the majority of plastic is enveloped in a further layer of plastic. This waste, and of course single use plastics' are either being incinerated, landfilled here in UK or shipped in the 500,000 tonnes of waste plastic moved overseas where much of this volume is also feared to be landfilled.

With global plastic production increasing and environmental regulations tightening, there is no shortage of need for an economic solution.

**INTRODUCING... POWERHOUSE ENERGY**

**AN AIM-QUOTED COMPANY WHICH HAS DEVELOPED A PROPRIETARY TECHNOLOGY TO CREATE ENERGY FROM WASTE.**

## PROPRIETARY TECHNOLOGY

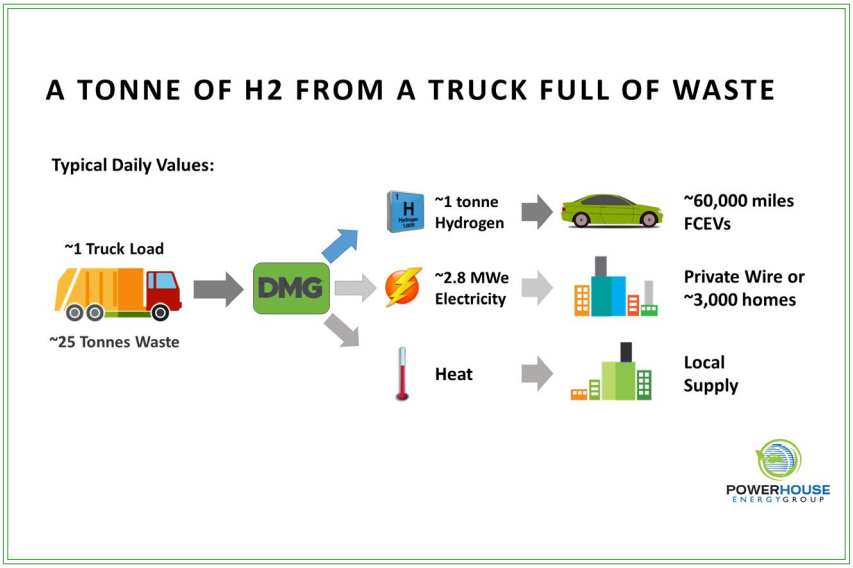
PowerHouse Energy believes its proprietary DMG technology can help address this problem by monetising the waste through energy recovery. This process, rather than focussing on oil, uses a thermal chamber to convert waste feedstock into clean gas. The gas can be used for road fuel quality hydrogen and for power and heat generation.

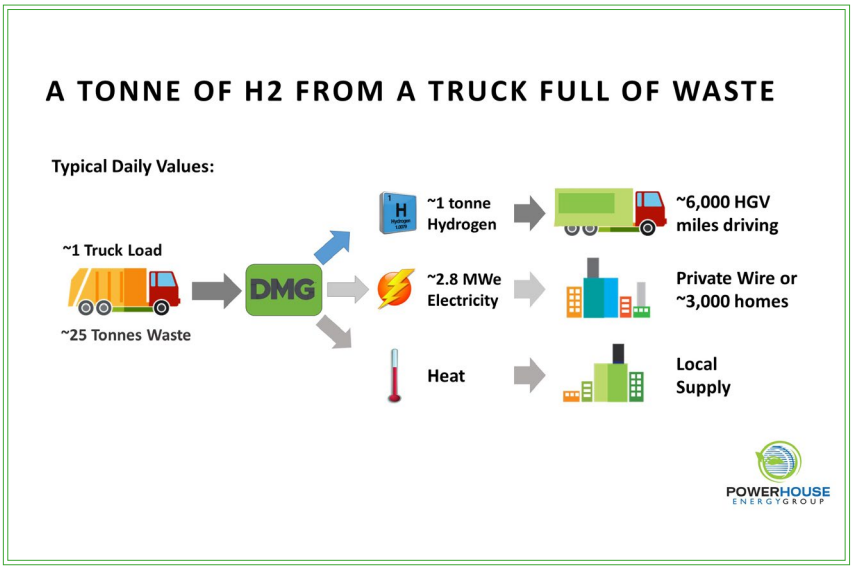
Most forms of waste are acceptable as feedstock, including all plastics, end of use tyres and waste streams, all of which do not need to be cleaned prior to processing. The process is controlled such that the constituents of the gas can be adjusted depending on output - with a high methane content, the gas is used to generate competitively-priced electricity, alternatively with hydrogen content separating the hydrogen to meet specifications for HGV vehicles and buses powered by fuel cells.

## INTO A COMMERCIALISTION PHASE

Powerhouse Energy is now well into its commercialisation phase and has a site at Ellesmere Port for a potential stand-alone plant and a further six potential commercial sites co-located with waste management facilities, all of which appear technically and economically viable – contract agreement for outright sale or power purchase and plastics feedstock are in negotiation.

It's important to note that the DMG technology is not dependent upon grants or public subsidy – it is




commercially viable on its own terms, a DMG plant ordered today could be up and running within 12 months according to the company.

The UK market for the DMG technology is, the company believes, potentially huge. There is currently enough single use plastic going into landfill in the UK to build at least 500 of these units. The company's ambition is for at least 200 units in the UK alone.

The nature of the PowerHouse installed process will also change over time. In the first phase, the main application for plants located in the UK will be for generating electricity, initially using unrecyclable plastic waste, but then moving on to other feedstocks, such as used tyres, that, on a worldwide basis are also challenging to recycle and numerous in quantity.

The company believes that the adoption of the technology for hydrogen generation from waste, with worldwide take-up will follow on quickly from these initial waste destruction and power generation contracts.

## HYDROGEN FOR TRANSPORT

The company believes the first significant use of hydrogen within the transport infrastructure for the UK will, most likely, be for commercial fleets of buses and lorries, particularly those that operate on 'a return to base' model as they will be able to fill-up at their home depot. Being able to produce hydrogen close to lorry and bus users makes us attractive to these fleets and in turn will save the current CO2 emissions and particulate levels they generate.

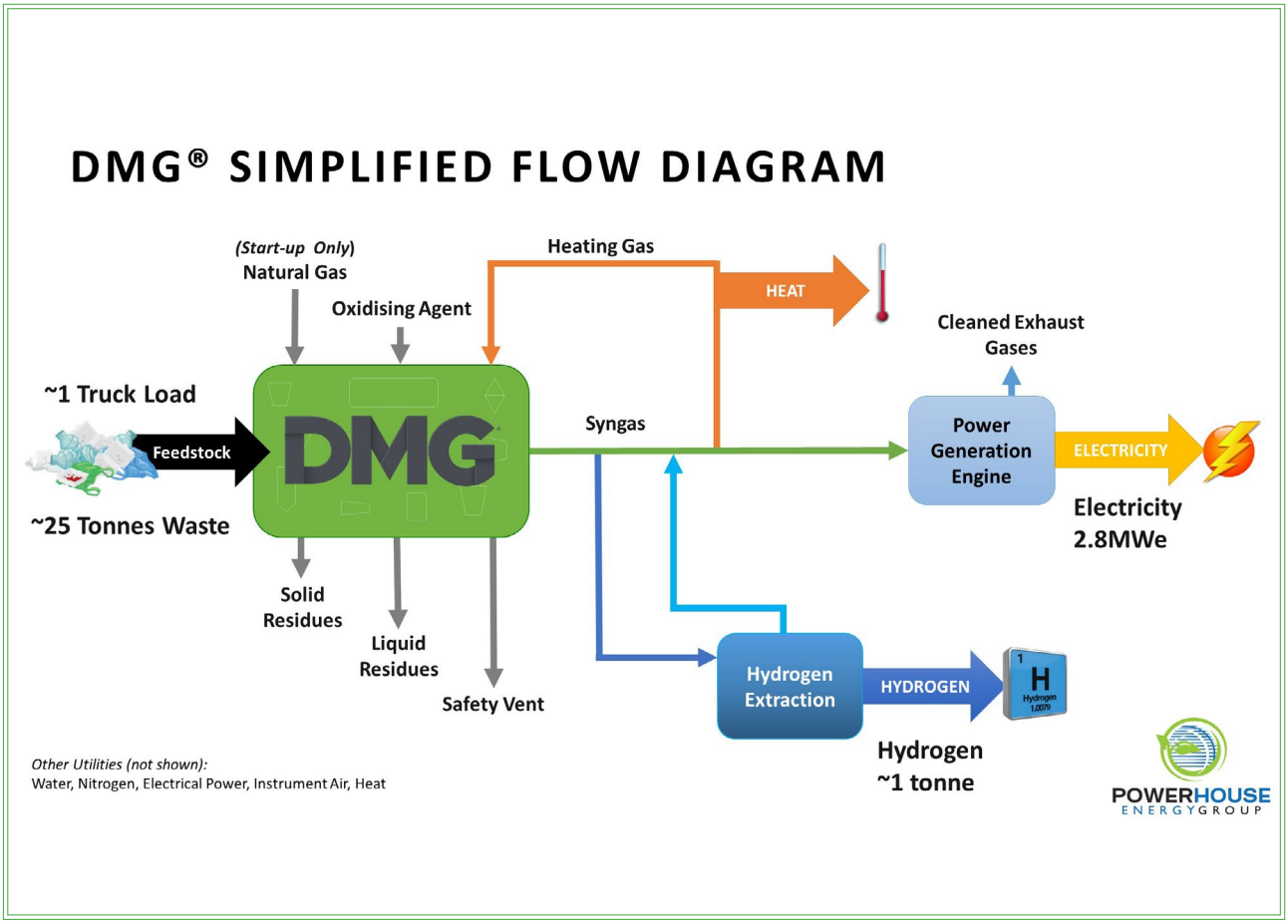
There are also numerous industrial processes for which there would be a market for DMG generated hydrogen.

Importantly in addition to the UK there are many other attractive markets to be seized in almost every country of the world. Indeed, Korea, parts of the US, and Japan, are globally leading the drive for a hydrogen economy.

In particular, working alongside its development partners Powerhouse Energy was particularly pleased when, following a detailed technical review process, it was invited by Toyota Tsusho to enter into formal discussions to enter a commercial review phase which could lead to Toyota Tsusho being one of the companies introducing the DMG technology into Japan and then other Asian markets. A proposed Heads of Terms agreement received from Toyota Tsusho is currently being progressed.

## NEW CHIEF EXECUTIVE

The CEO newly in position is David Ryan, a veteran of energy technology, with 38 years' experience under his belt leading teams of engineers working on




projects, technologies and new developments. His career includes founding and growing a consultancy - Energy & Power, and MD of ThyssenKrupp UK. Prior to becoming CEO he spent almost two years as technical director of PowerHouse Energy, testing feedstocks leading and refining the design of the DMG technology for commercial implementation.

Ryan emphasises that the operational systems of PHE are now ready, not only the engineering and design, but also the operational systems are now in place to manage the technical and commercial aspects to take opportunities to contract, not only for sites but also for feedstock and power sales.

Furthermore, he explains the project delivery is to be executed through a contractor partner and this engineering procurement and construction (EPC) contractor partner competitive engagement is under way with several blue chip companies in the UK.

The company has its primary focus on delivering its first commercial plant in the UK, with targets to have contractual agreements signed for the construction of such a plant in the second quarter of 2019.

## IN A NUTSHELL

In summary PowerHouse Energy believes it offers a low profile, easily installed process fully compliant with international regulations that offers buyers and partners profitable returns on handling the worldwide challenge of plastics in the waste stream and furthermore gives visibility to a new fuel vision of cleaner haulage and bus transportation.

Whilst PowerHouse's management would not claim that its DMG technology is the panacea to dealing with plastic waste it does believe its DMG technology is very well placed to play a significant role as one of the approaches that will be part of the road map for the responsible management of plastic and other hard to breakdown types of waste.