David Ryan CEO **April 2019** 



>300 Million tonnes of plastic produced every year

> >8 Billion tonnes of plastic produced to date

<10% plastic recycled



~38 million plastic bottles used every day in UK

> <30% plastic recycled in UK

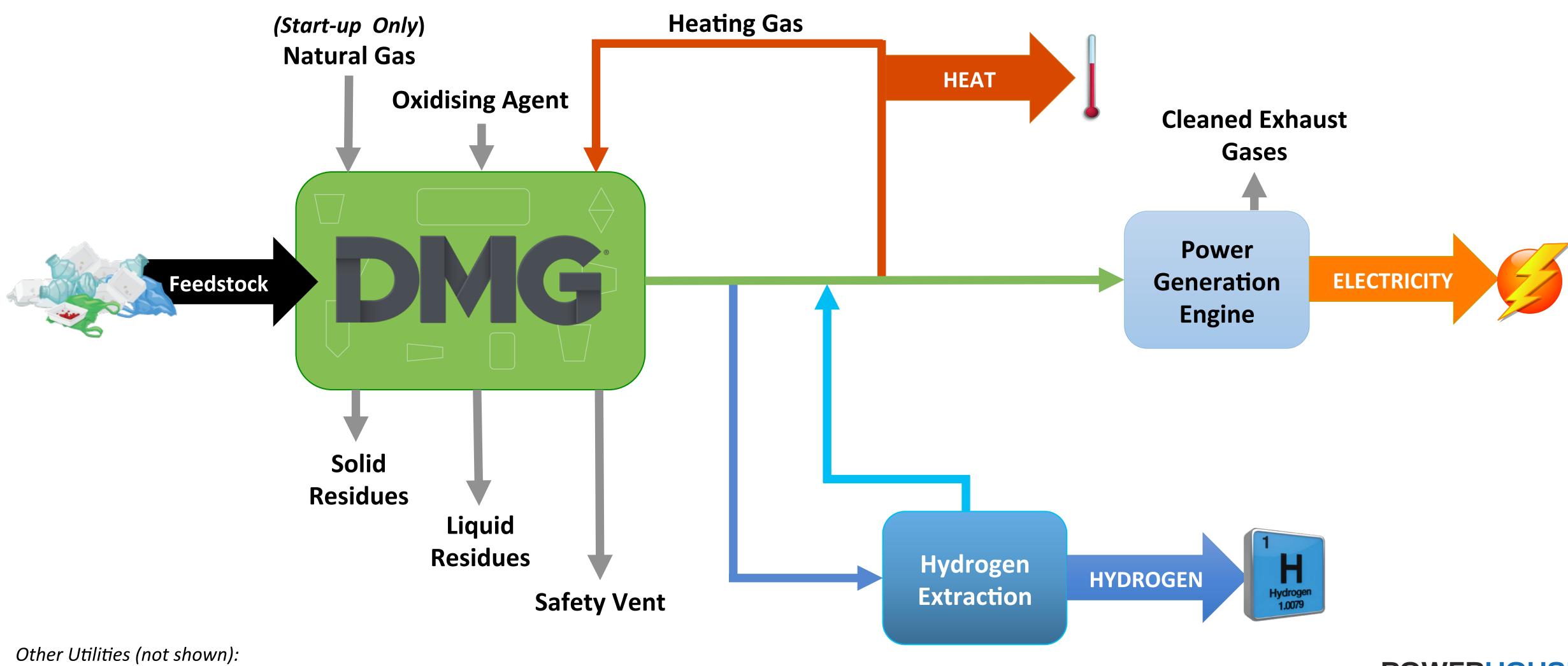
70 million end of life tyres every year in UK

<15% recycled

## WASTE OR RESOURCE?



#### **DMG®** Energy Recovery Proven and Tested Technology

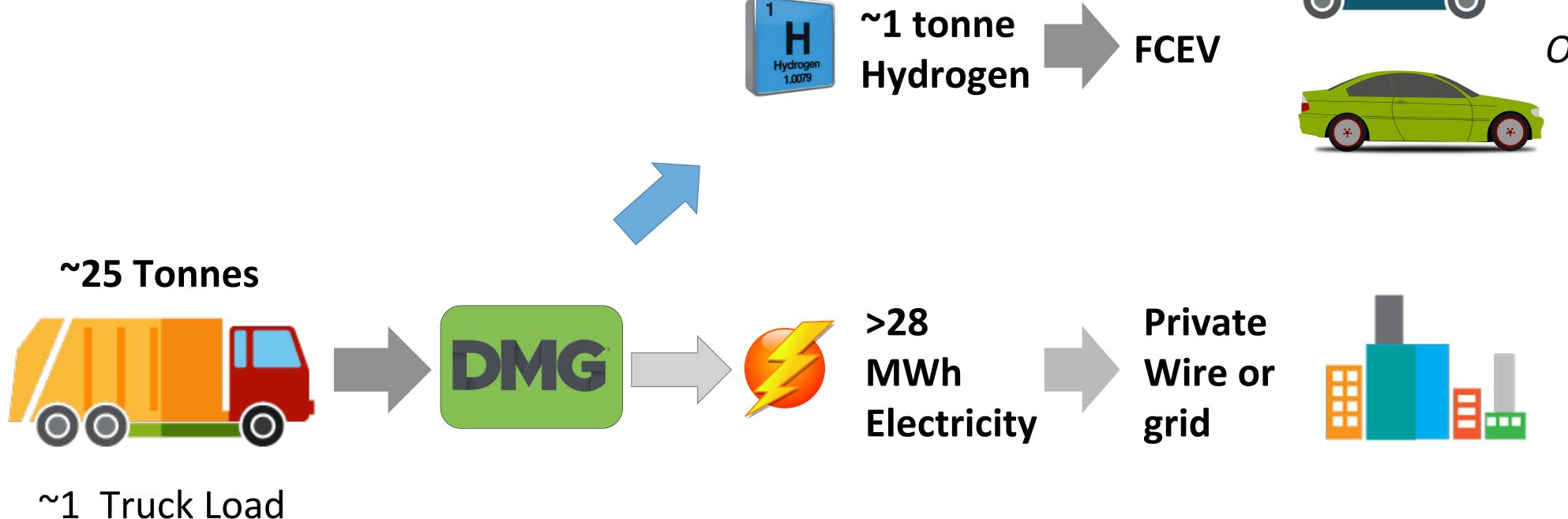


Water, Nitrogen, Electrical Power, Instrument Air, Heat





#### A Truck Full of UnRecyclable Plastic: Typical Daily Values per DMG<sup>®</sup> Unit







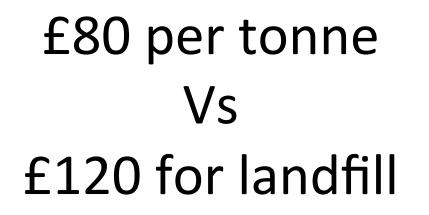
~1,400 homes

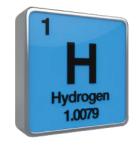


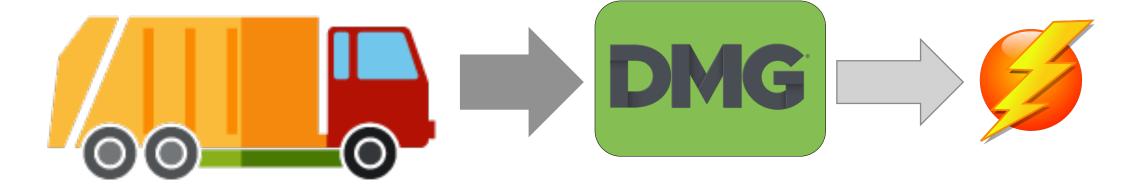
Heat or Cooling for industry



#### Enabling Lower Cost Waste Processing Saving Customers >£500,000 per year









Savings vs current market:



£5 vs £10 per kg



£75 vs £100 per MWh

Heat



## Why Hydrogen?

Hydrogen Fuel Cell Electric Vehicles are here

Replacing Petrol / Diesel Vehicles



- Zero emissions at exhaust ... clean air
- 5 minutes to refuel
- Long range
- More environmentally friendly than batteries



### A Vast Range of Global Opportunities

#### **Complimenting existing**

Waste Management

#### Services:

- Recycling Plants
- Material Recovery Facilities
- Incinerators
- Anaerobic Digestion
- Landfill Sites







Predictable Clean Energy for Industry and Communities:



- Transport
- Energy Storage (H<sub>2</sub> fuel cells)
- Local Energy supply
- Remote Communities
- Developing Countries



#### **Multiple Revenue Streams for PHE**

- Fees for use of Licensed DMG<sup>®</sup> Technology
- Fees for Regional Franchises
- Fees for Consulting services
- Fees for Engineering and Construction Services
- Fees for supply of specialist Operations and Maintenance Resources

#### **Optimized Roll-Out**

- Working with Partners, Developers and Operators to maximise implementation across regions
- Low CAPEX to PHE minimal dilution for shareholders, no hinderance to roll-out plans







#### **Strong Experienced Team** To Deliver Value from DMG®

- David Ryan CEO 38 years energy technology delivery
  - ex. Thyssenkrupp, Energy & Power, BHP
- Cameron Davies Chair 45 years energy developments ex. Alkane Energy plc

#### Working with industry experts

- EngSolve chartered Engineers inhouse technical experts
- Waste2Tricity Developers client liaison and financing
- Build Partner currently engaged in competitive process with blue chip





Waste2Tricity

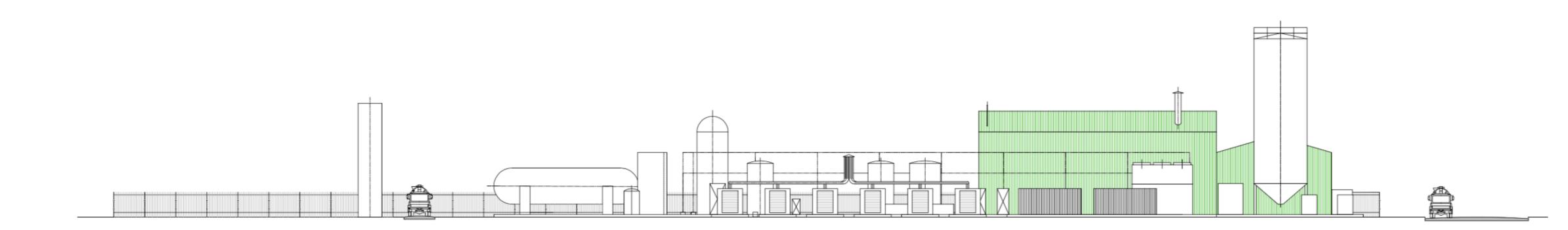






#### **Current Status to Operations and Revenues**

- Concept proven with Process Demonstrator at University of Chester
- IP wholly owned by PowerHouse Energy Group PLC
  - 8 patents being processed
- 6 sites in UK have been shortlisted for full scale commercial system
- Work Programs are being followed inline with commercial co-operation agreements
- Target Q2 for HoT agreements in place





## **RESPONSIBLE ENERGY RECOVERY**

- Straightforward, efficient and scalable modular design
- Enabling lower cost waste processing
  - Through Power, Heat and H<sub>2</sub> production streams
- Enabling low cost Hydrogen production
  - Through Feedstock Gate Fees, Power, Heat revenues
- Sound Business Model and Strong Team to deliver
  - Multiple Revenue Streams
  - Licensing and Partnership Models to enable
    - Rapid Roll-out of DMG<sup>®</sup> to meet growing demand
- We are on track with our plans





# Thank You

## **RESPONSIBLE ENERGY RECOVERY**

# AIM Ticker: DHHE

#### POWERHOUSE E N E R G Y G R O U P



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