INVESTIGATING THE USE OF GREEN HYDROGEN IN INDUSTRIAL HEATING SYSTEMS IN IRELAND

By Josh Watkins *mEng*

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University of Galway

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Ireland's Emerald Hydrogen Valley



COLAS: WHAT WE DO

ROADS



1

Construction, maintenance of roads, airports, urban development and environmental engineering.

CONSTRUCTION MATERIALS



2

Production, distribution, sale and recycling of aggregates, emulsions, asphalt, ready-mix concrete bitumen.

RAILWAYS



3

Design and engineering of large complex projects, construction, renewal and maintenance of rail networks.

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Colas also operates in the WATER & ENERGY TRANSPORT sector.

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Green Electricity

Electrolysis

Transportation & Storage

Combustion

Clean Hydrogen Partnership

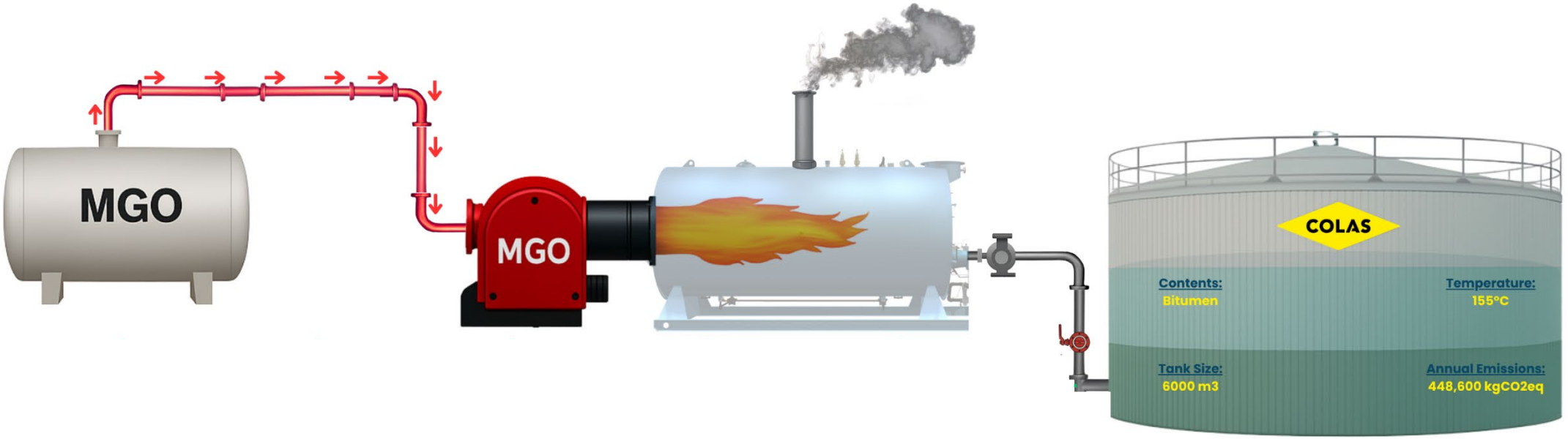
Co-funded by the European Union

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Industrial Heating System Fuel Transition: MGO to Green Hydrogen



Thermal Oil Line

Fuel Line - MGO

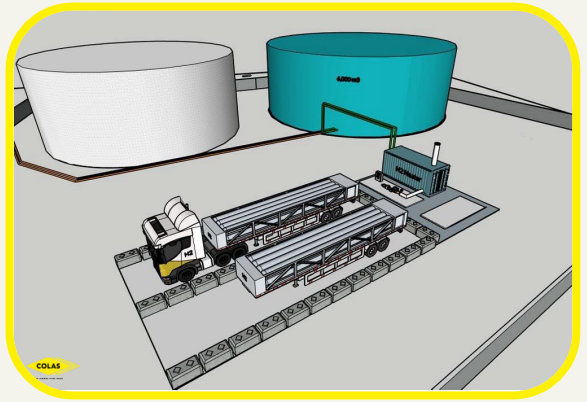
THE PURPOSE

INDUSTRIAL DECARBONISATION



- 90.2% of heat supplied in Ireland is fossil fuelled.
- Colas Group targets a 46.5% reduction in Scope 1 emissions by 2030 *(2019 Baseline)*

FEASIBILITY TESTING



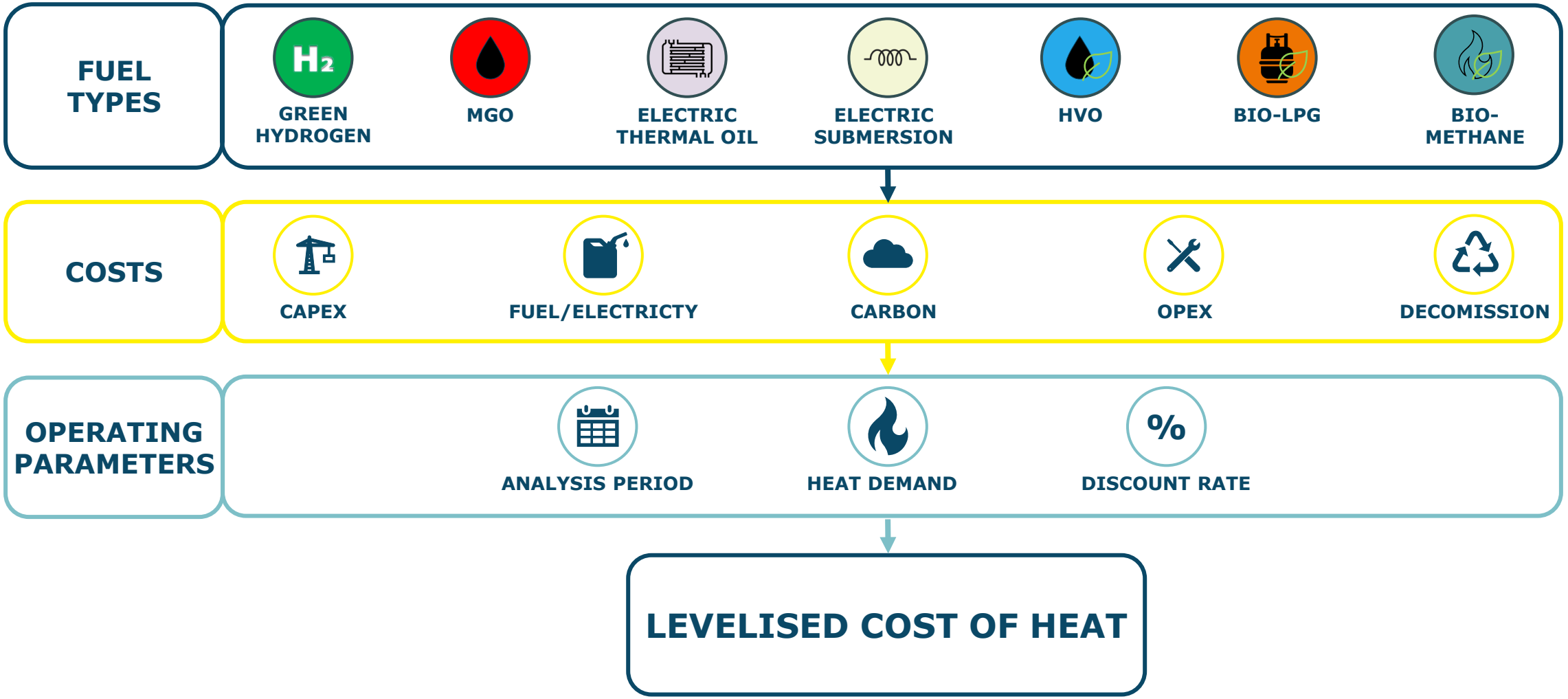
- Test the economic, technical & environmental viability of hydrogen as alternative to fossil fuels

KNOWLEDGE DISSEMINATION



- Distribute learnings and challenges across Colas Group & SH2AMROCK partners

RESEARCH METHODS

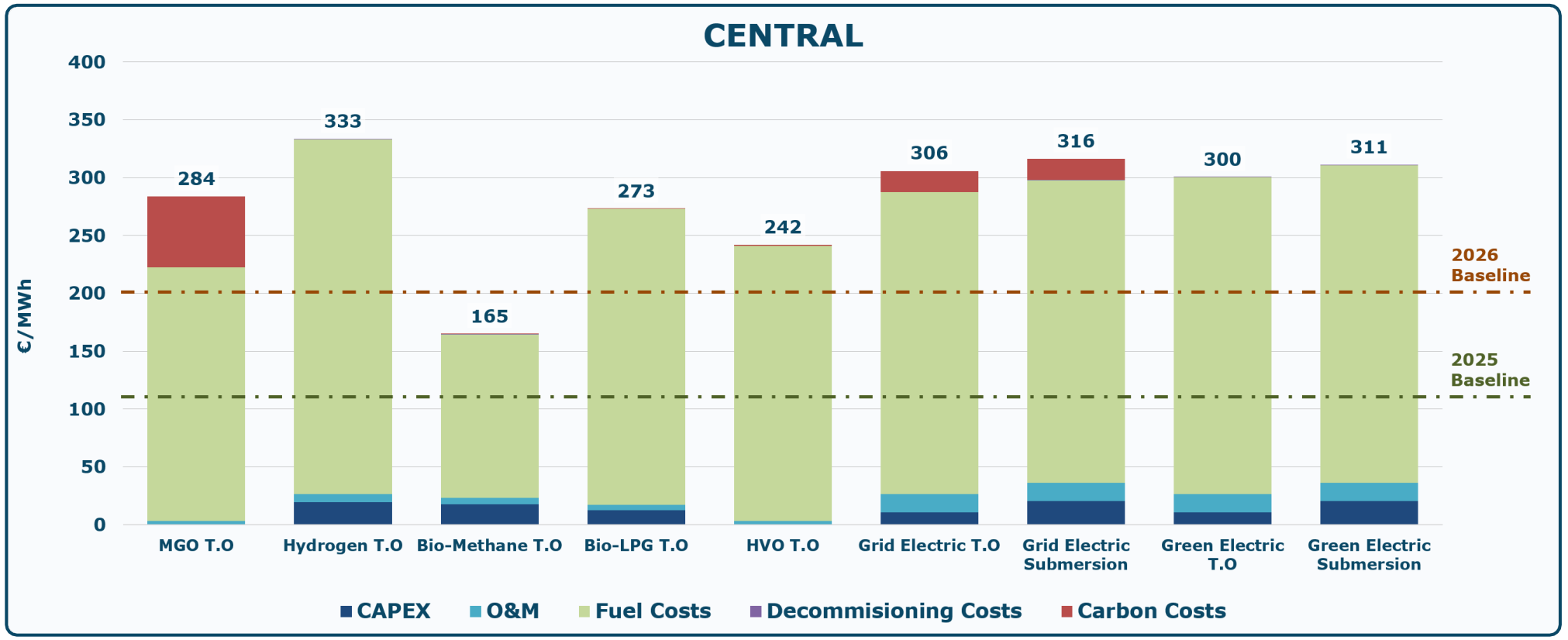


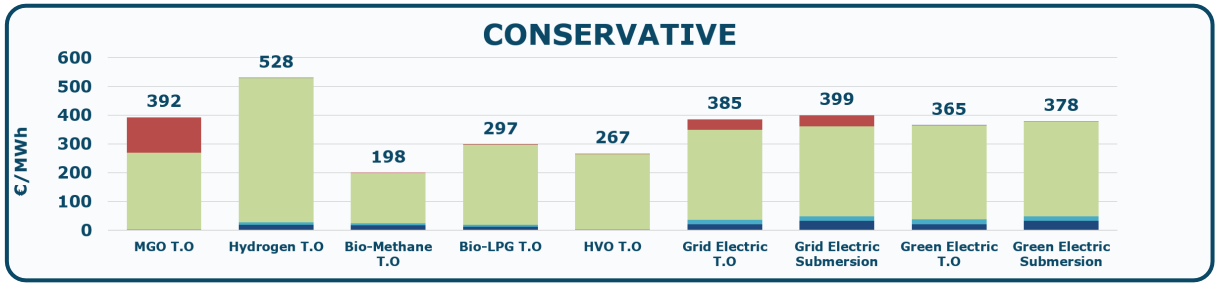
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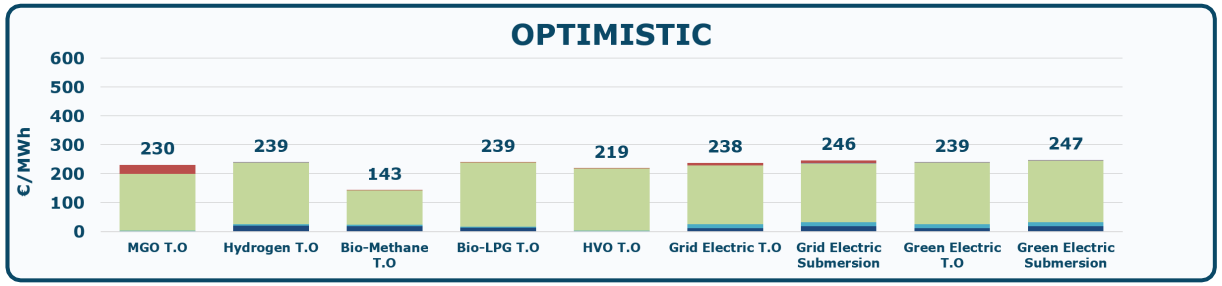
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LEVELISED COST OF HEAT BY TECHNOLOGY







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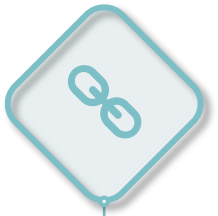
** T.O – Thermal Oil **

BARRIERS



COST

5.28 €/kg is the cost where hydrogen reaches cost parity with the existing fuel



IMMATURE SUPPLY CHAIN

Green hydrogen supply will be dependent on a sole supplier, SH2AMROCK



SITE SUITABILITY

Hydrogen installations may not be feasible on all industrial sites



SAFETY & REGULATIONS

Hydrogen projects face evolving safety, permitting and compliance requirements

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THANKS FOR LISTENING

I would like to thank Colas Ireland and SH2AMROCK Partners for their support throughout this research.

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