

# is your business sustainable?



[www.inperpetuum.global](http://www.inperpetuum.global)

## who we are

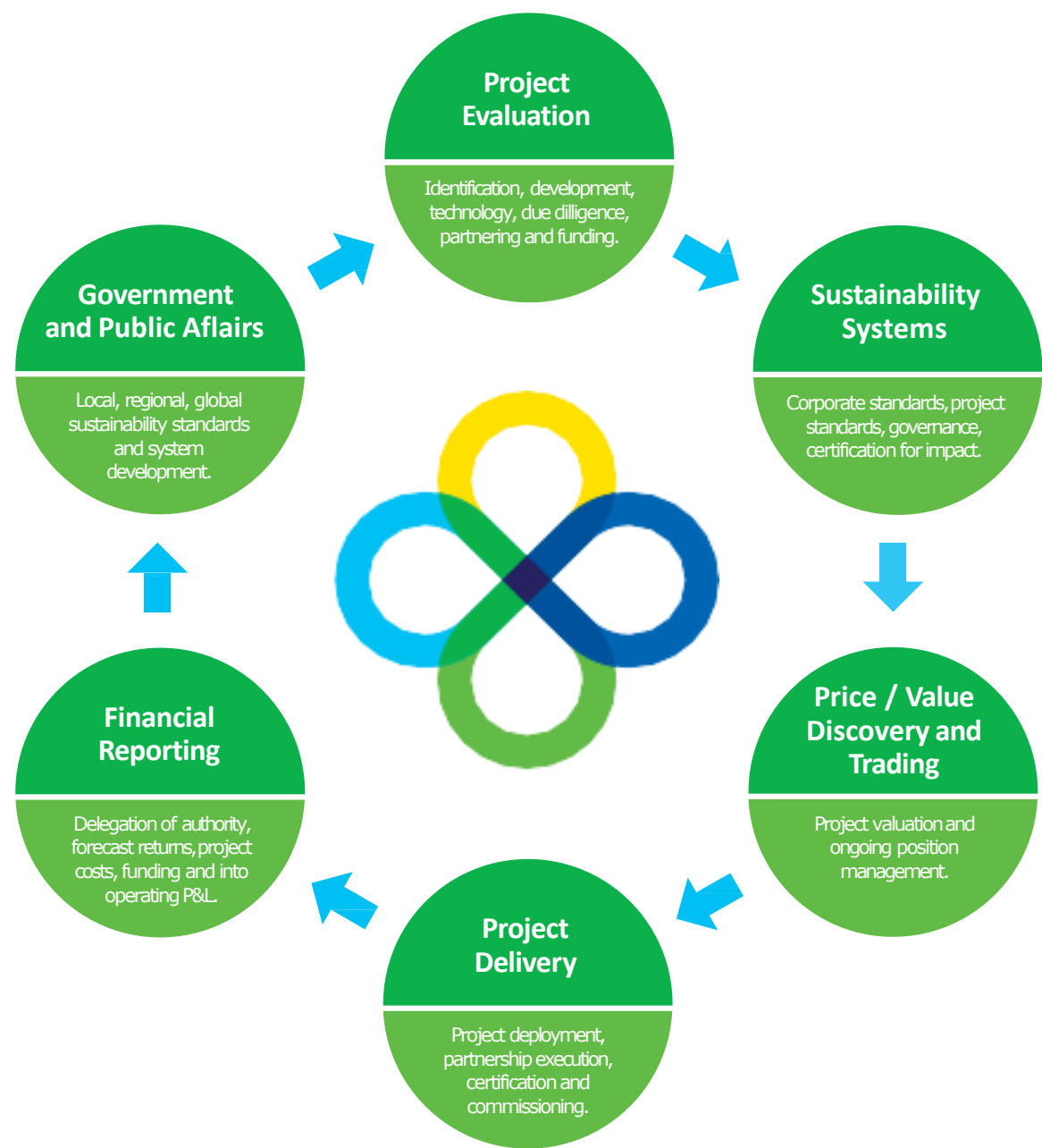
---

**In Perpetuum is the newly created entity to support Bio Energy Cluster investments around the Bio Power, Heat, Fuels and Chemicals markets globally.**

Biomass and Biofuels are highly regulated global B2B commodity markets that have suffered from market disturbances.

Many have been constrained by market/country regulatory regimes, leaving them distressed or with any growth limited to short periods of profitability followed by turmoil.

# development activities



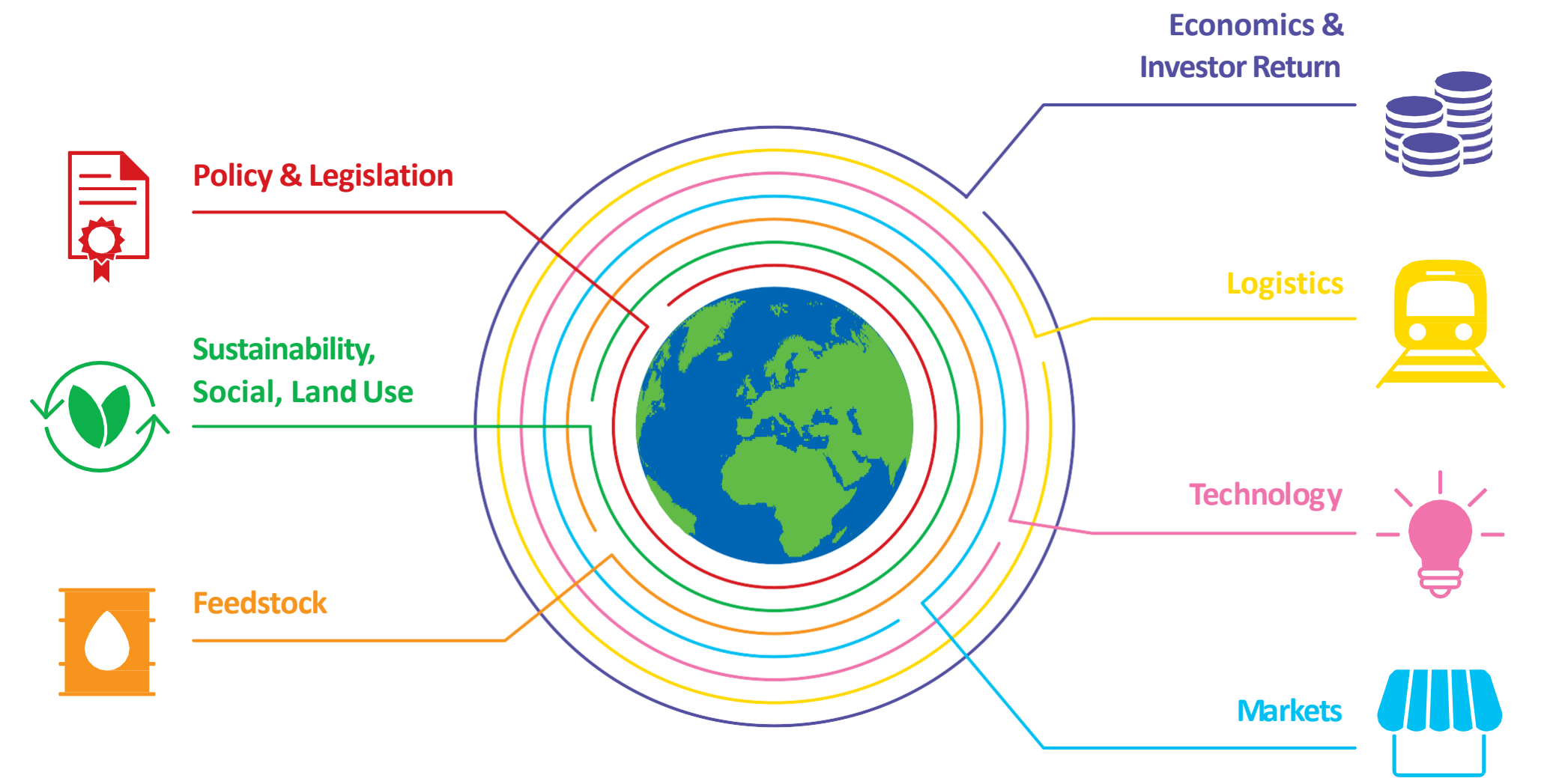
our experience

---

## 50 years of combined experience in this market sector

- Bio Mass / Fuels and Chemical markets
- New team / Market development
- Project evaluation & delivery
- Sustainability systems
- Price / value discovery and Trading
- Government and Public Affairs

# our approach



## Introduction

OFTEC is seeking to inform the UK Government Department for Business Energy and Industrial Strategy (BEIS) with regards to plans for off-gas heating policy in England following establishment of a joint task force between BEIS and Industry including OFTEC. OFTEC recognises the intention of BEIS to eliminate liquid fossil fuels from the off-gas heating networks over the coming years.

## Understanding of needs

In light of BEIS intention to eliminate liquid fossil fuels, OFTEC recognises the potential demise of the oil heating sector unless an alternate feedstock is found. OFTEC and its members face potential loss of market and subsequent loss of income and business uncertainty without an alternate. Liquid biofuels may be an alternate. However, some work is needed to convince BEIS that they offer a sustainable and available solution given the policy uncertainty and flip flop around use of liquid biofuels in the transport energy sector.

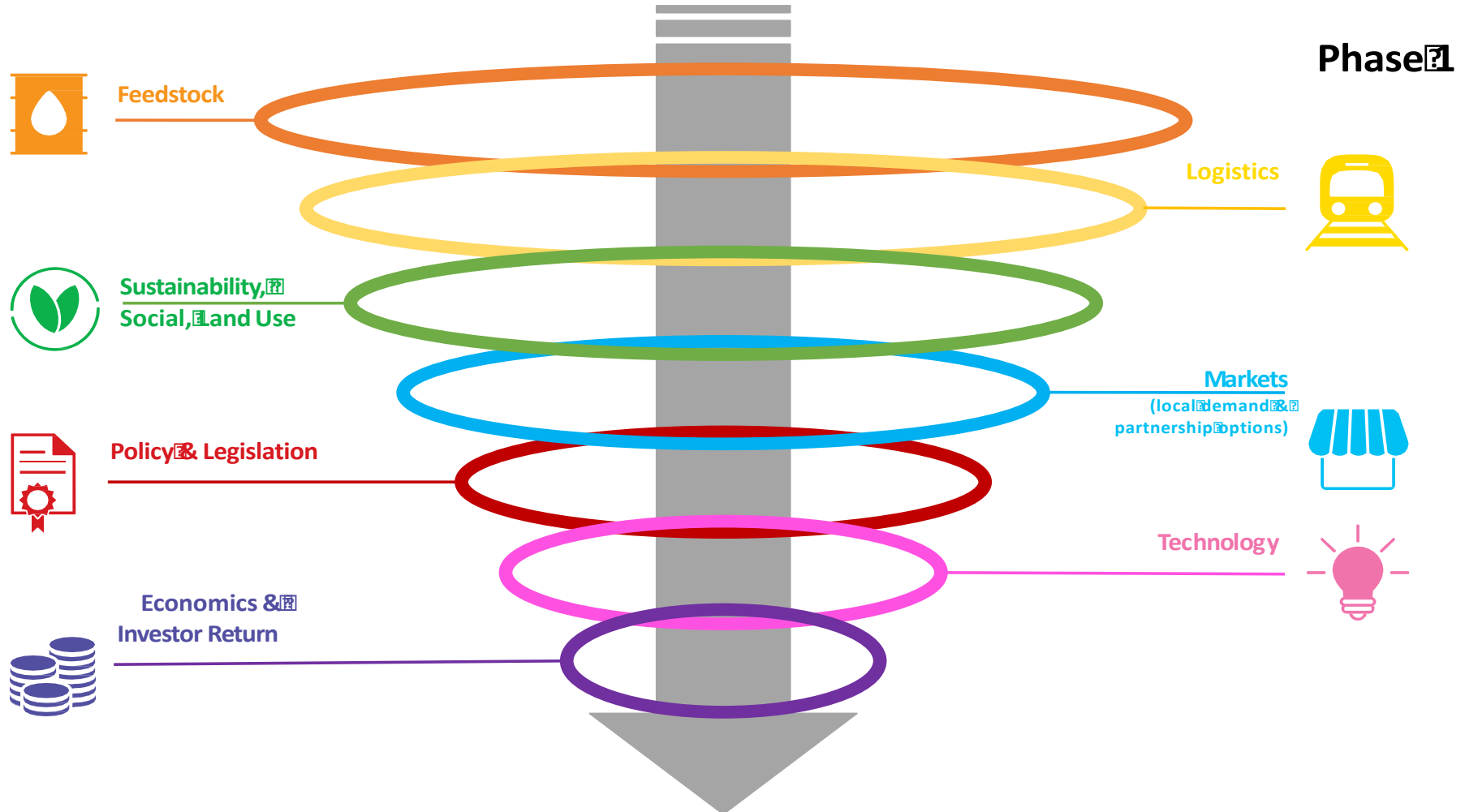
OFTEC intends to present to BEIS a roadmap of how to get to sustainable liquid biofuels in the off-gas heating network. This will be, by adopting In Perpetuum's approach, a robust analysis of the sector to underpin policy options. The approach will consider in full the following seven factors: Sustainability / Feedstocks / Technology / Logistics / Markets / Policy & Economics.

## Phase 1 – Feedstock & Sustainability scope

We will consider the potential feedstocks, and their respective sustainability concerns, that are globally available both now and in the future, which can be proven to come through certifiable sustainable supply chains to allay potential policy concerns and fit in with current and future technology options in order to support OFTEC's work to develop a roadmap for BEIS to decarbonise the off-gas heating network. In the first place, we will draw from learning in the transport and power sectors in the UK where there is directly relevant experience over recent years to show how feedstocks from other markets can be utilised to replace fossil fuel applications and the supply chains can be fully assured as sustainable. We will take steps to provide some thought leadership in the field to show how OFTEC can move industry solutions to being on the front foot with respect to new and innovation feedstock and supply chain solutions, both for today and in the future.



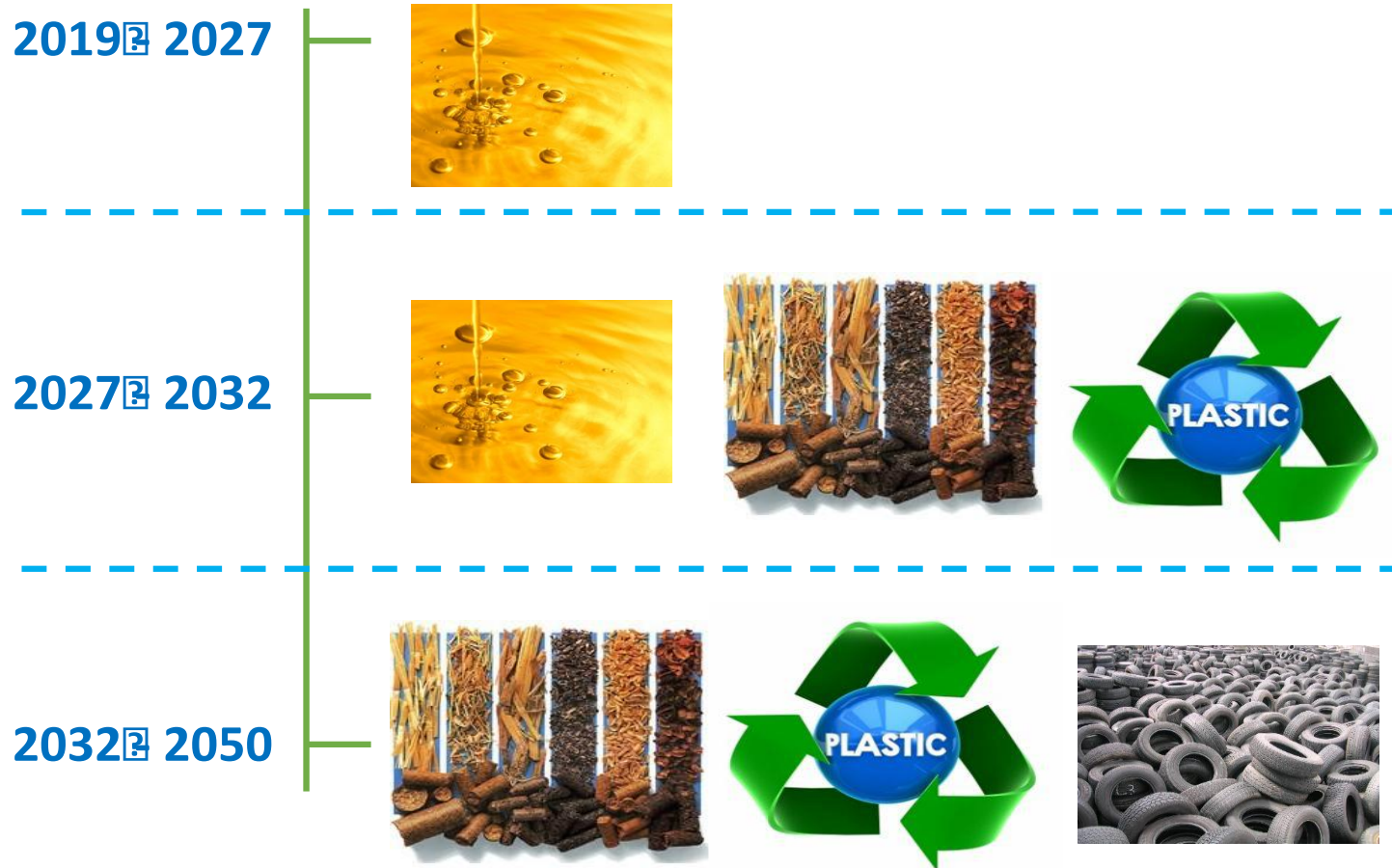
# Phase 1 – Methodology



## Phase 1 – Key findings

- Interested suppliers and blending options
- Strategic fit with aviation demand curve
- Focus on wastes and residues (local versus Global)
- No crop based feedstocks
- Lifecycle methodology unclear
- Adopt existing sustainability schemes (where practicable)
- Interesting timeline opportunities
- Greenpeace

## Phase 1 – Primary feedstocks



## Phase 1 – Primary feedstocks & delivered fuels

2019  2027



2027  2032



2032  2050



BK30 - 50

BK50 - 75

BK75 - 100

DRAFT

## Phase 1 – Blend options (short / mid-term)

### Greenergy

Greenergy International Ltd is a British distributor of petrol and diesel for motor vehicles and has over a quarter of the UK market. It blends fuels at terminals on the Thames estuary in the south and on Teesside in the north. It sells more than 20 million litres of petrol and diesel a day.



Argent Energy was established in 2001 and acquired by John Swire & Sons (Green Investments) Ltd in 2013, Argent Energy is a privately-owned company with operations in Scotland and North West England. They specialise in the supply of high grade, sustainable diesel for fleet operators, delivering to over 100 UK depots from Kent to Dundee.

## Phase 1 – Blend options (mid / long-term)



At the heart of the LanzaTech process is their patented, microbes that convert carbon rich wastes and residues produced by industries such as steel manufacturing, oil refining and chemical production, as well as gases generated by gasification of forestry and agricultural residues and municipal waste into fuel and chemical products through a process of gas fermentation.



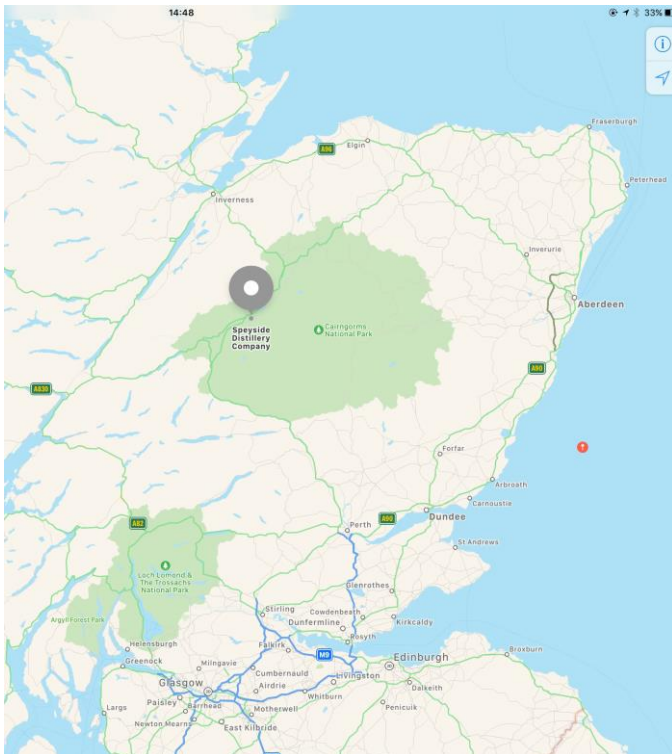
Velocys have been converting natural gas into liquid fuels and other products for many years. Now they are using that expertise to create renewable fuels that are fully compatible with today's engines and existing fuel infrastructure.

## Phase 1 – Blend options (mid / long-term)



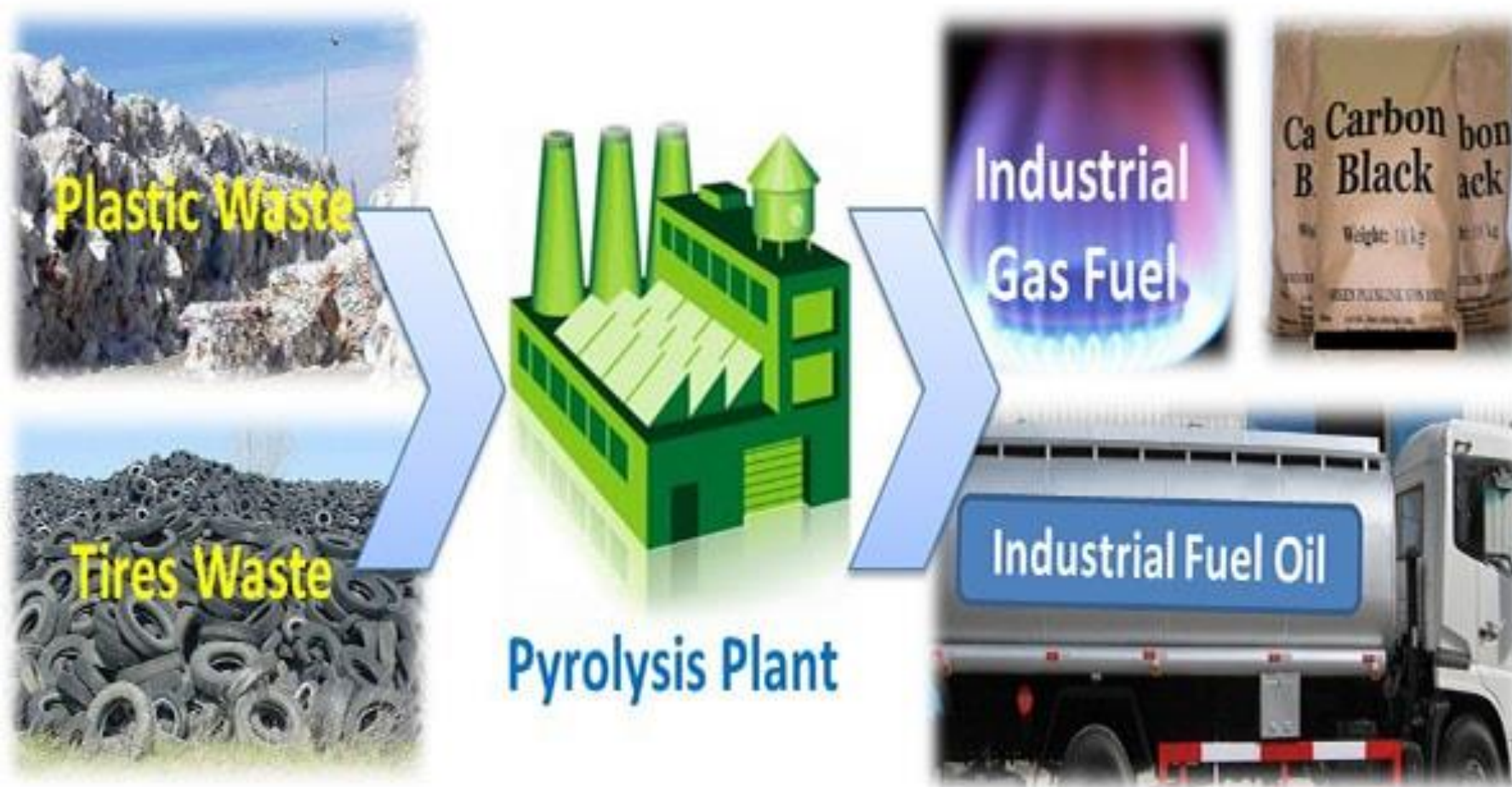
Celtic has technology that can deliver a bio-kero fuel. However they are completely focused on plant 1 at Grangemouth and higher value chemicals markets in the short term.

Celtic consider that in the medium to longer term future projects, potentially at Speyside, may deliver a bio-kero fuel for home heating.





## Phase 1 – Blend options (long term)





## Phase 1 – Next questions to be answered

- Competing supply chain technologies
- Competing market technologies
- Market dynamics
- Supply chain risks and opportunities
- Current BioEconomy policy landscape
- Supply / demand balances
- Economic and policy options
- Policy recommendation to BEIS

# is your business sustainable?

**thank you**

Ian Waller

+44(0)7720 411779

[ian@inperpetuum.global](mailto:ian@inperpetuum.global)

Jason Woods

+44(0)7880 356767

[jason@inperpetuum.global](mailto:jason@inperpetuum.global)



[www.inperpetuum.global](http://www.inperpetuum.global)