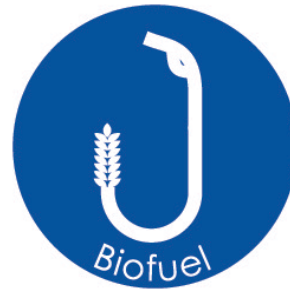


# **Biogas, carbon management and the bioeconomy**

Adrian Higson  
World Biogas Summit  
16<sup>th</sup> May 2022

## A specialist business consultancy with over 18 years of bioeconomy experience



Providing clients with a strategic view of feedstock, technology, policy and market development across the bioeconomy.

Enabling informed business decisions and sustainable business strategies.

# Biogas – A flexible friend

- Generating electrons?
- Supplying heat?
- Fuelling mobility?
- Building chemicals and materials?



Compound	Formula	%
Methane	CH <sub>4</sub>	50-75
Carbon Dioxide	CO <sub>2</sub>	25-50
Nitrogen	N <sub>2</sub>	0-10
Other	-	<5

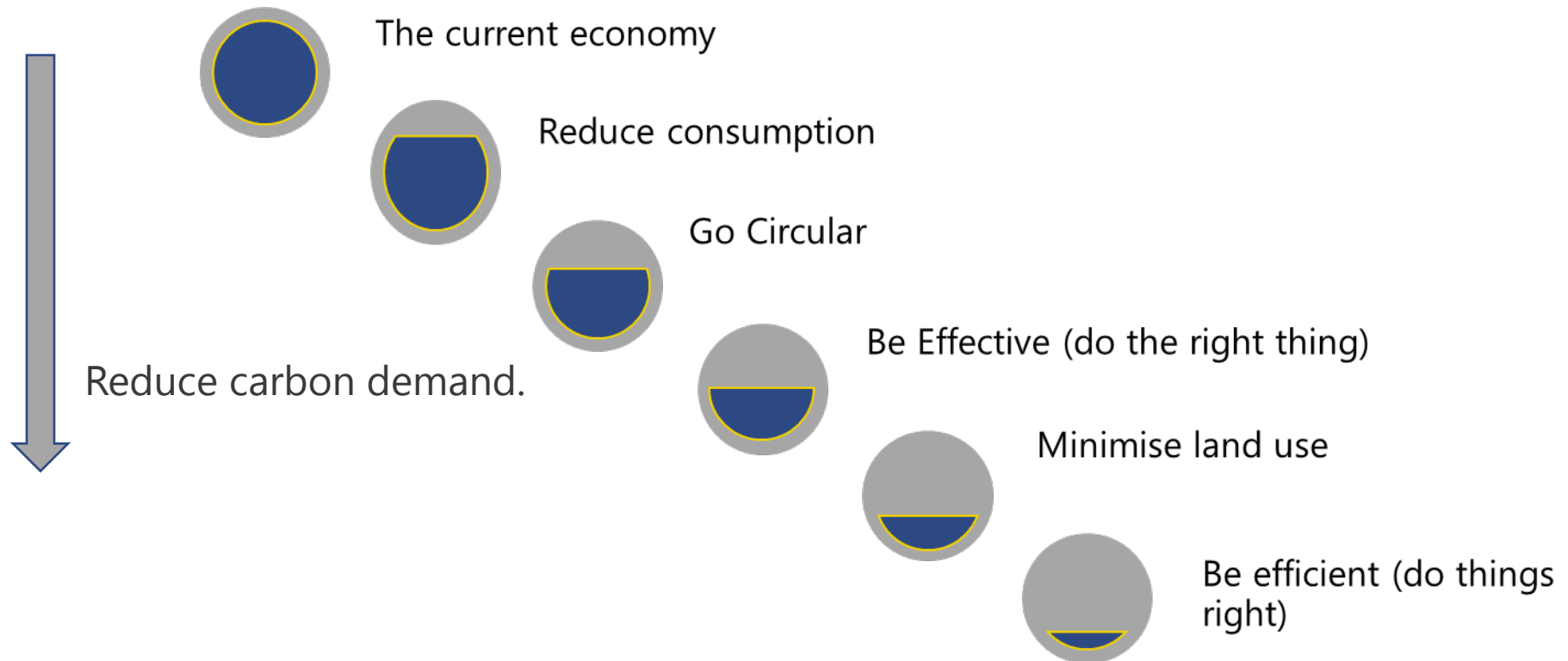
# Why carbon matters

- 🌱 Nearly half of all packaging is fossil derived.
- 🌱 Over two thirds of textiles are fossil derived.
- 🌱 Petrochemicals increasingly responsible for the growth in oil consumption.



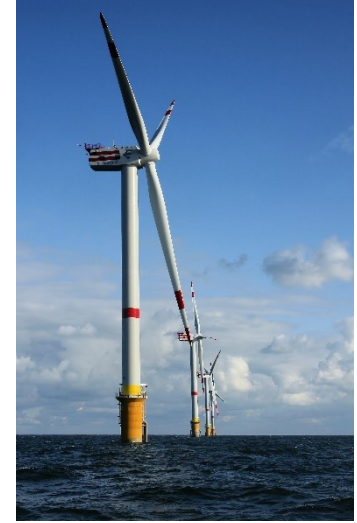
# Managing carbon

“Efficiency is doing things right; effectiveness is doing the right things,”  
*Peter Drucker*



# Effective carbon and biogas use?

- ❧ Energy needs should ultimately be supplied by technologies with no combustion emissions.
- ❧ Other sectors are harder to decarbonise, but it is possible, green hydrogen for the aviation sector and green ammonia as a fuel for maritime shipping.
- ❧ Organic chemicals and derived materials (including plastics) cannot be decarbonised, only defossilised.



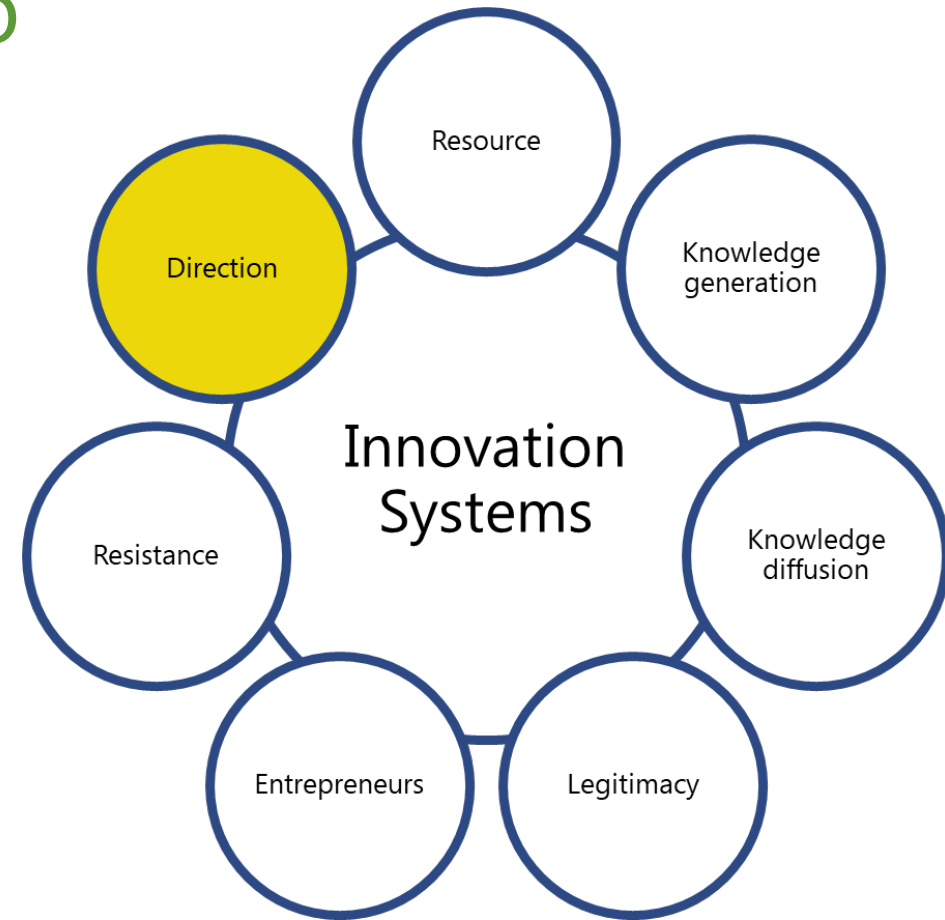
Airbus

# Climate change and net zero

**Decarbonising energy**

**vs**

**Defossilising the economy**



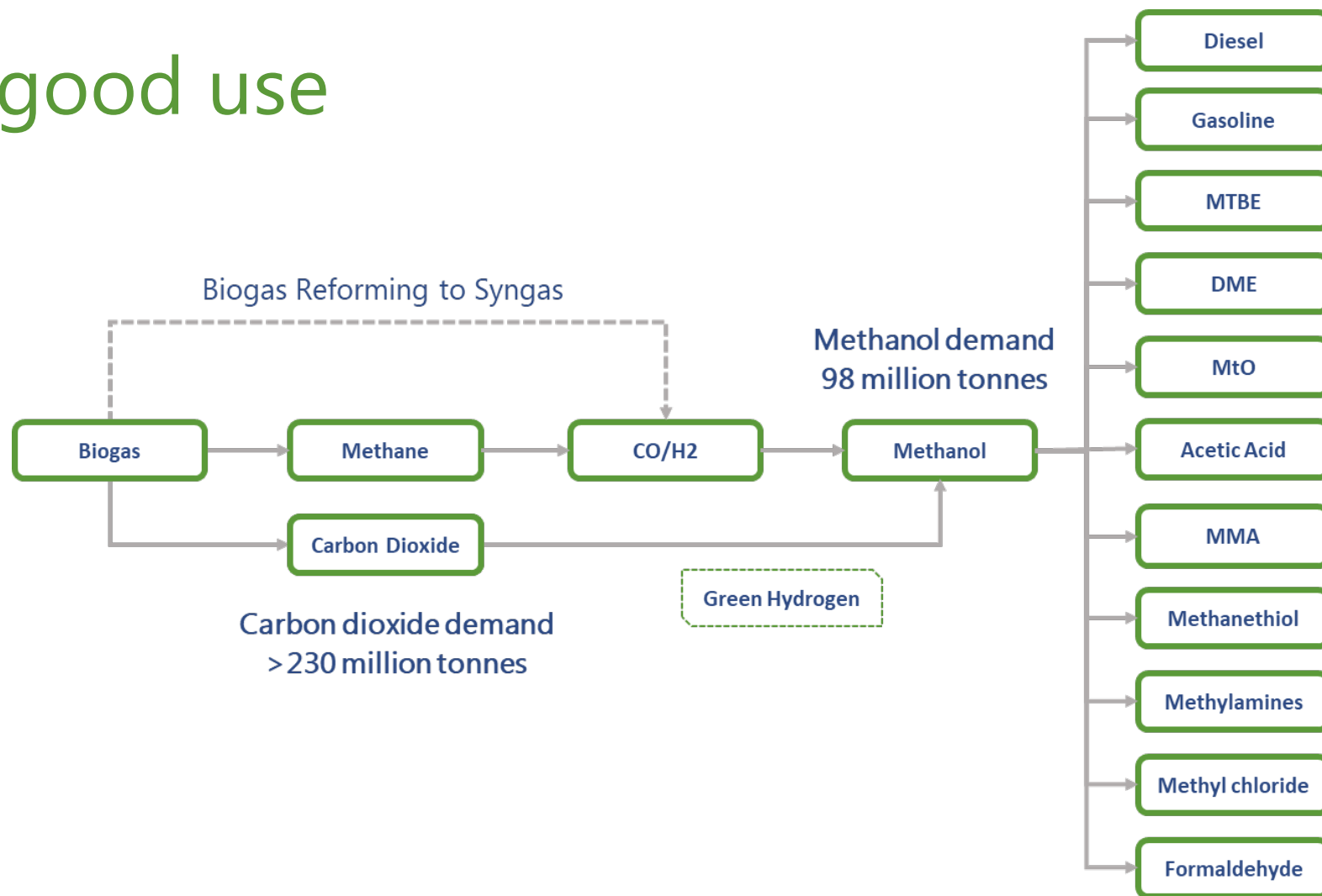
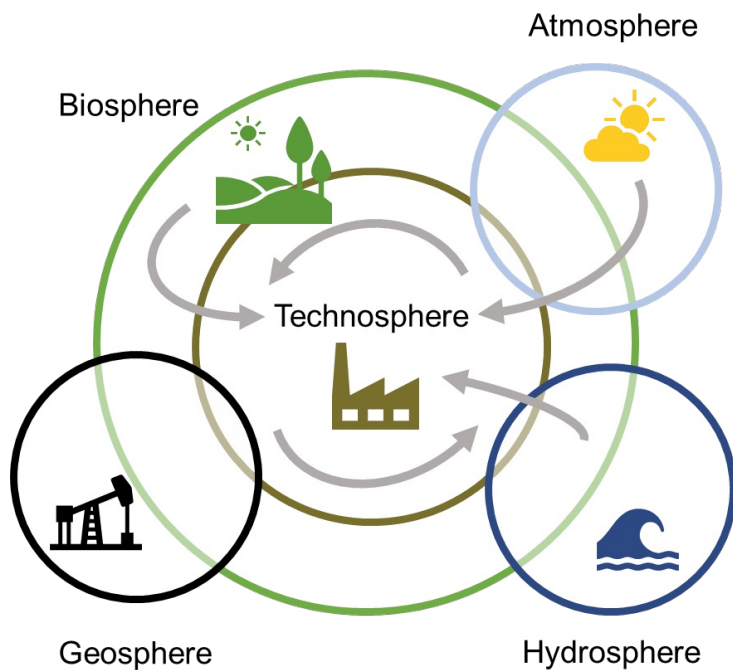
# The biogas push me pull you



- ❧ Optimise methane production - Biomethanisation?
- ❧ Feed the hydrogen economy with carbon capture and storage?
- ❧ And what about carbon dioxide utilisation?



# Putting carbon to good use



# Summary - Time for a boarder conversation?

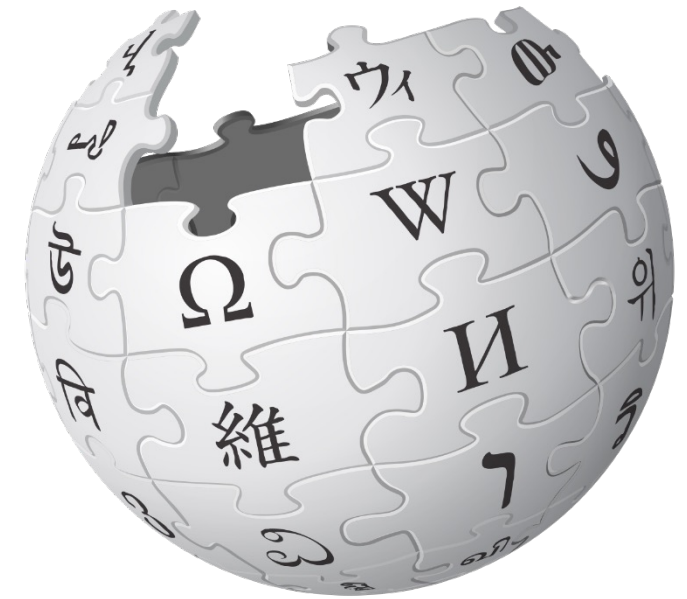
Anaerobic digestion is a sequence of processes by which microorganisms break down biodegradable material in the absence of oxygen.

*Move from*

**The process is used for industrial or domestic purposes to manage waste or to produce fuels.**

*To*

**The process is used for industrial or domestic purposes to recycle carbon and inorganic minerals, into materials, chemicals and fuels.**



*Wikipedia*

# Thank you for listening

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 @biobasedchem

'While the use of biomass to produce fuel, chemicals & materials isn't necessarily sustainable, the use of fossil fuels is unquestionably unsustainable.'



Full article available at [www.nnfcc.co.uk](http://www.nnfcc.co.uk)