

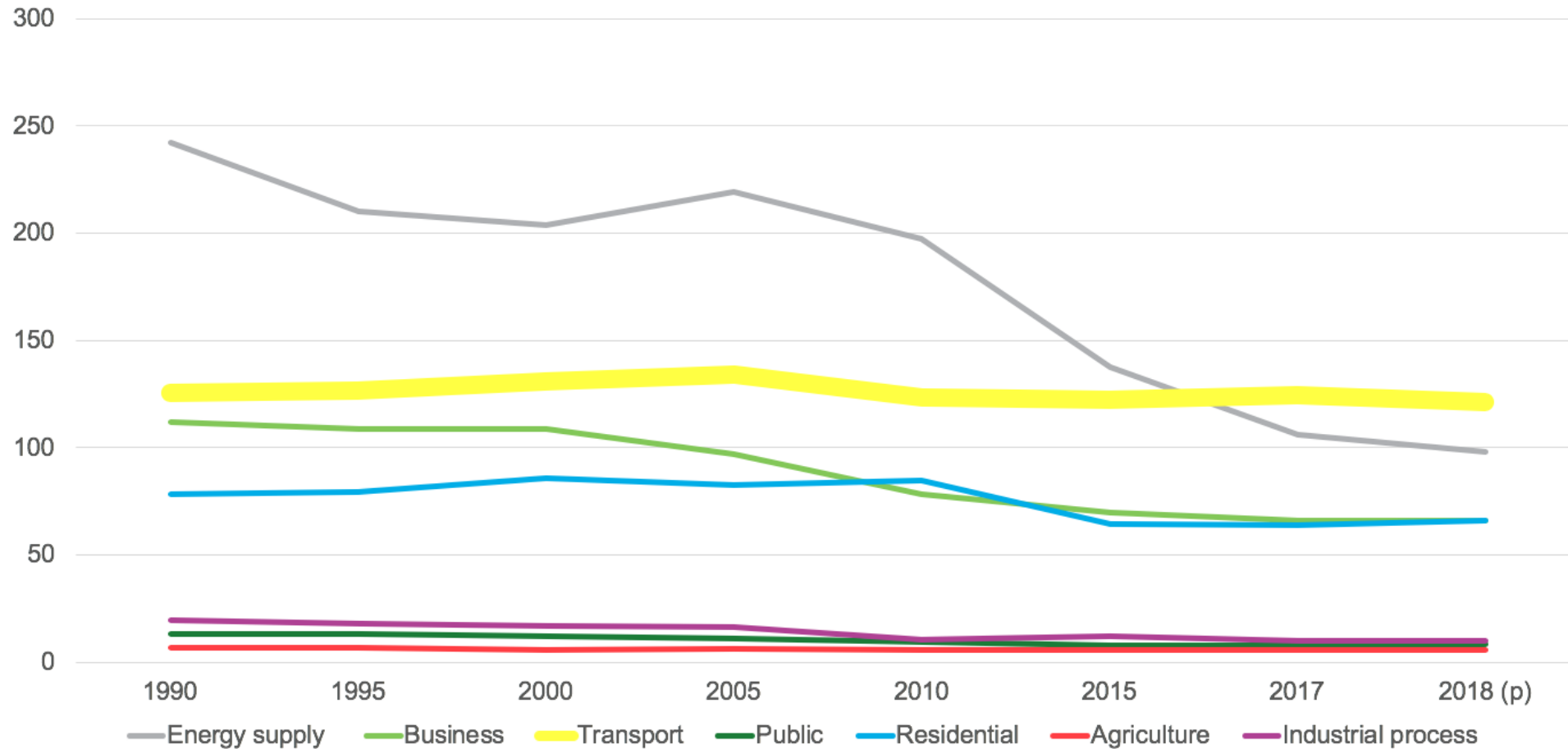
REA Renewable Transport Fuels Group: Decarbonising trucks, trains, boats, and planes
3rd December 2019
Andrew Morris, Chief Financial Officer and Executive Director

Case Study: aviation fuel from waste



The Challenge

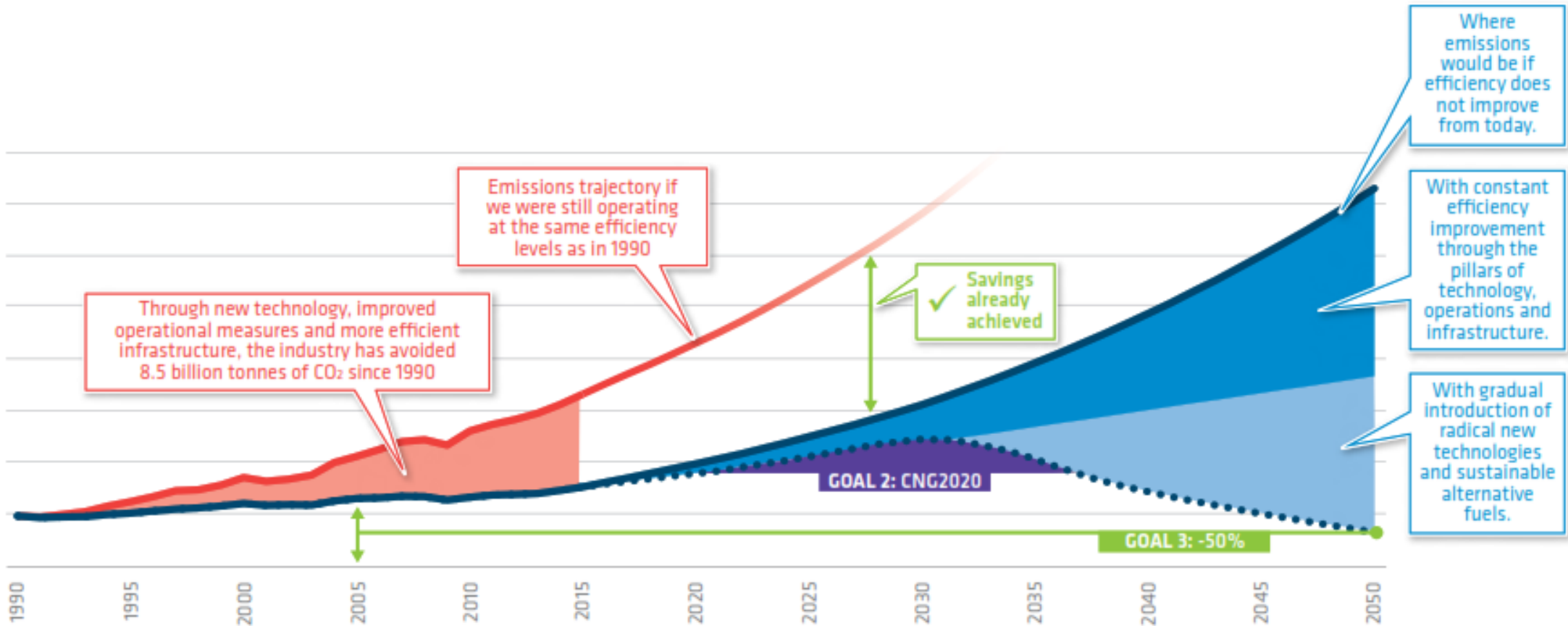
Transport sector remains the single biggest source of CO₂ emissions



*UK annual greenhouse gas emissions in MtCO₂e

Sustainable Aviation Fuels

Critical to achieving global CO₂ emissions targets



*Source: ATAG (Air Transport Action Group)

Velocys provides technology, integration and development

1 Experience

We have over **17 years experience** in developing and deploying XTL projects

2 Scale

Our technology has been **operated** at laboratory, pilot, demonstration and commercial scale

3 Feedstock

Velocys FT technology has operated on syngas derived from **multiple feedstocks** including natural gas, landfill gas, coal and biomass

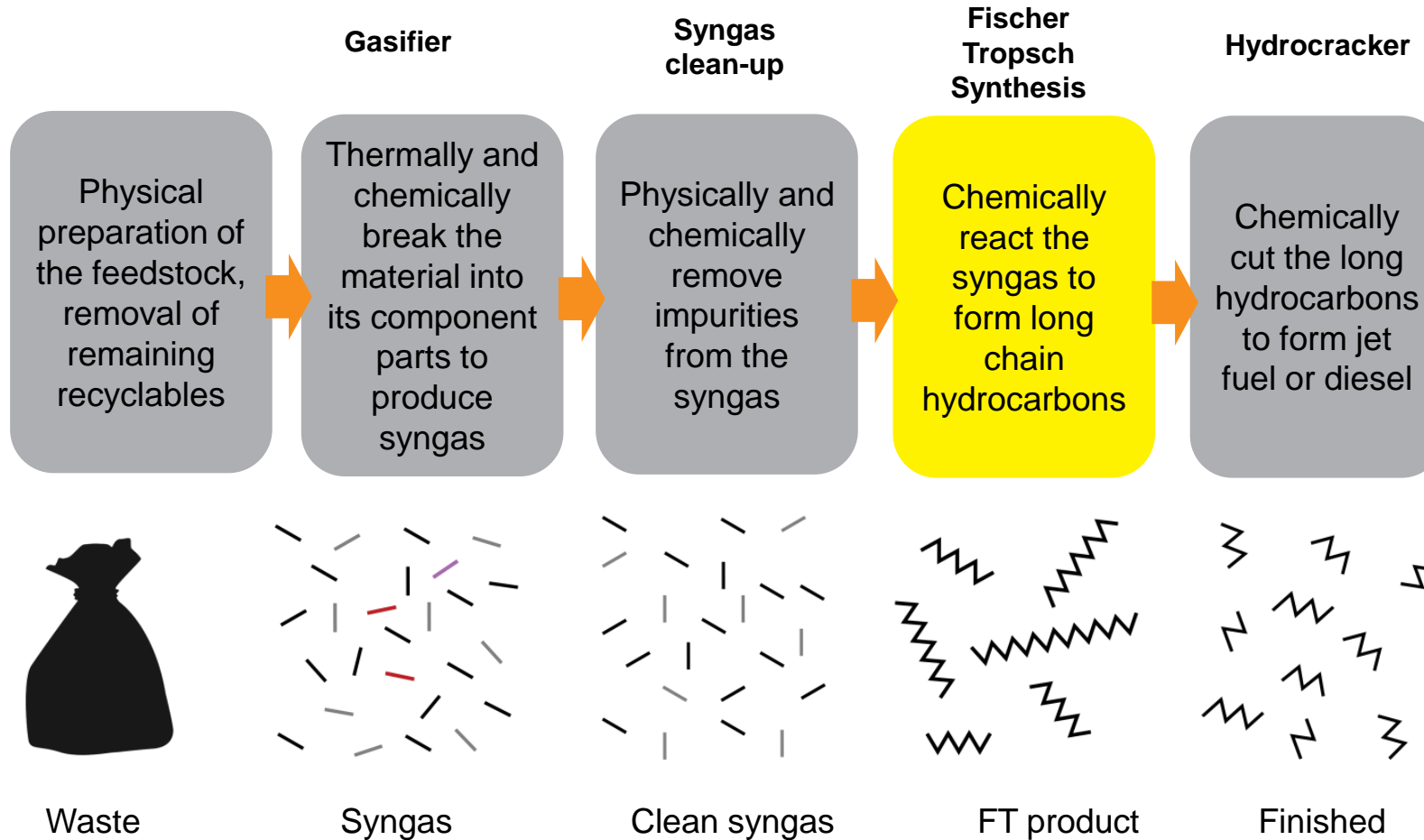
4 Presence

Velocys core personnel have been onsite for commissioning, startup and operation at all scales



Waste to jet fuel process overview

Using a ready available feedstock to deliver a high quality **drop-in** product



Synthetic FT fuel burns more cleanly than conventional fuel... ...as well as reducing net greenhouse gases by 70%



Diesel made using
Velocys process



Diesel from
filling station

Altalto: Europe's first commercial waste-to-jet fuel facility



A collaboration between British Airways, Shell and Velocys



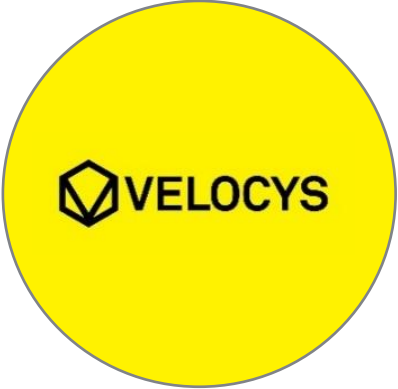
Taking 600,000 tonnes of "black bag" waste to create 68 million litres of clean drop-in fuel



Target start construction in 2021, production 2024



A globally repeatable model



Altalto plant walk through



Altalto: Project status

- Site option secured in Immingham, North East Lincolnshire
- Planning application submitted, awaiting consent
- Supportive local community



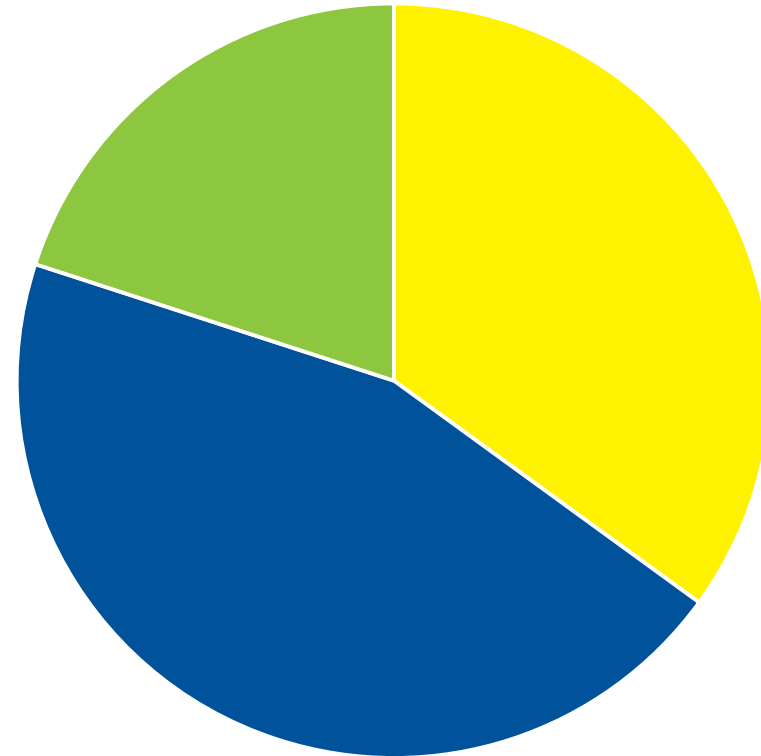
Three revenue streams

UK Renewable Transport Fuel Obligation

Gate fee on waste

Fuel value (at parity or modest premium)

Altalto revenue sources



- Waste treatment fees
- Development Fuel credits
- Base fuels value

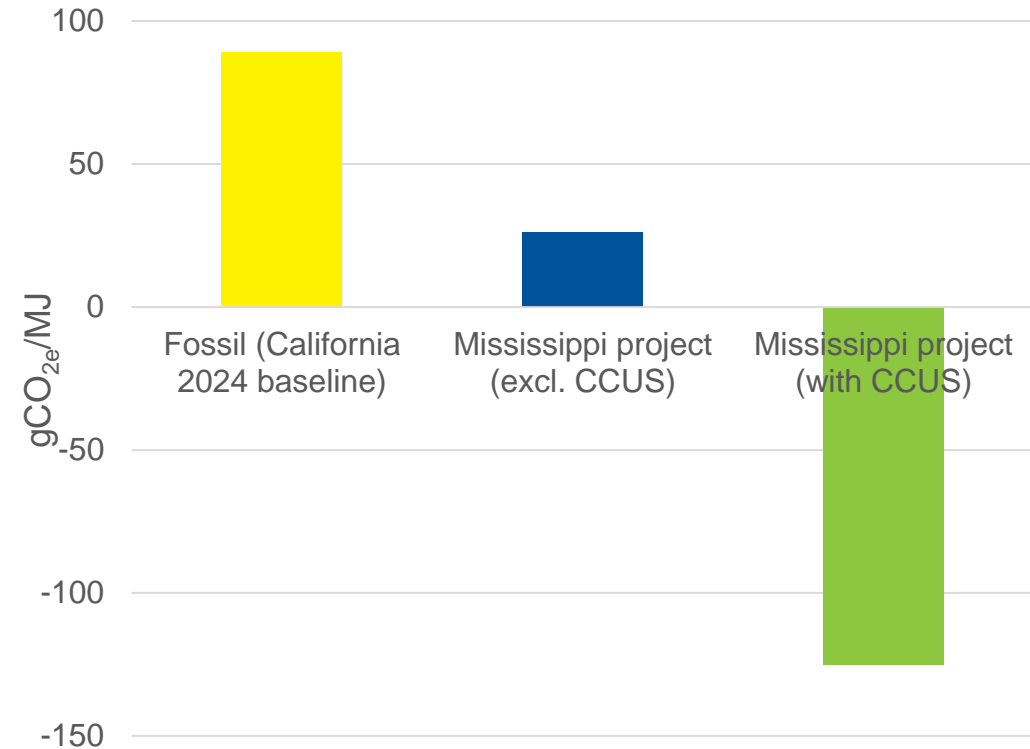
The potential for negative emission fuels

In parallel to the Altalto project, we are developing Bayou Fuels, a biomass-to-fuels project in Natchez, Mississippi

Our process provides a concentrated stream of CO₂ ready for capture and storage

This carbon negative solution could be replicated at our other sites

Carbon intensity
(net CO₂ entering atmosphere per unit of energy)



What we need from Government

Incorporate Recycled Carbon Fuels into the RTFO

Create an Office for Sustainable Aviation Fuels

Create a CCUS investment framework

Establish CCUS transport and storage infrastructure in the Humber cluster



The future market for sustainable aviation fuel

2018 supply < 0.1 billion litres

