

# AVIATION CO<sub>2</sub> REDUCTIONS



STOCKTAKING SEMINAR  
TECHNOLOGY · OPERATIONS · SUSTAINABLE AVIATION FUELS



# Ground Operations

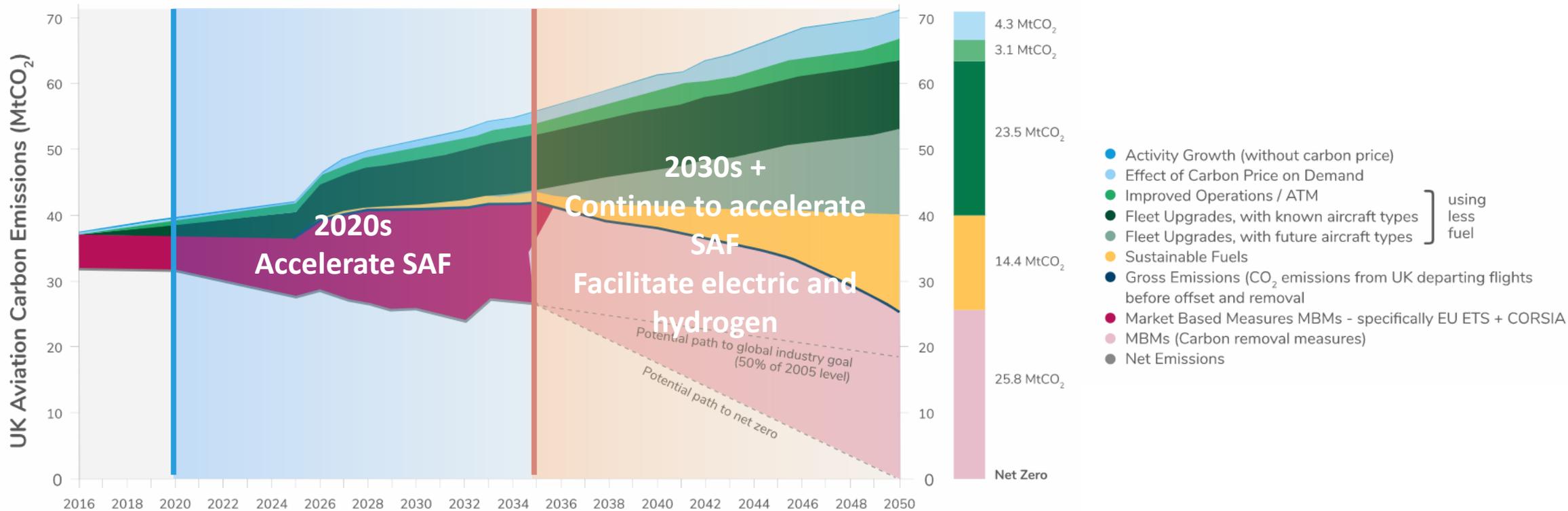
**Matt Gorman**

Director of Carbon Strategy, Heathrow  
Airport



# Sustainable Aviation Roadmap

## Airport Implications



UK Aviation has a plan to achieve Net Zero by 2050 in line with UK law



# Sustainable Aviation Fuels (SAF)

## Airport Implications

- We are focussed on second generation SAF and synfuels with waste-to-biojet key to near-term UK production.
- Analysis by the World Economic Forum's *Clean Skies for Tomorrow* Coalition shows that up to around 10% of EU aviation fuel from SAF by 2030 is ambitious but deliverable.
- SAF should require no significant airport infrastructure changes – blended/dropped in off-site and delivered by pipeline or train
- Our focus is on encouraging supply and stimulating demand. Heathrow is calling on UK government to act with urgency and purpose to address the "chicken and egg" of limited/high-cost supply and hence limited demand.

# Electric Propulsion

## Airport Implications

Provision of a range of infrastructure requirements to support fully zero-carbon flight – planning for the first generation of hybrid-electric short haul services

Our current research and innovation programme – **AIREPS** – is assessing the nature and scale of infrastructure changes to enable electric flight. A larger programme is set to follow which will model a complete domestic sustainable aviation system.

Key considerations include issues such as:

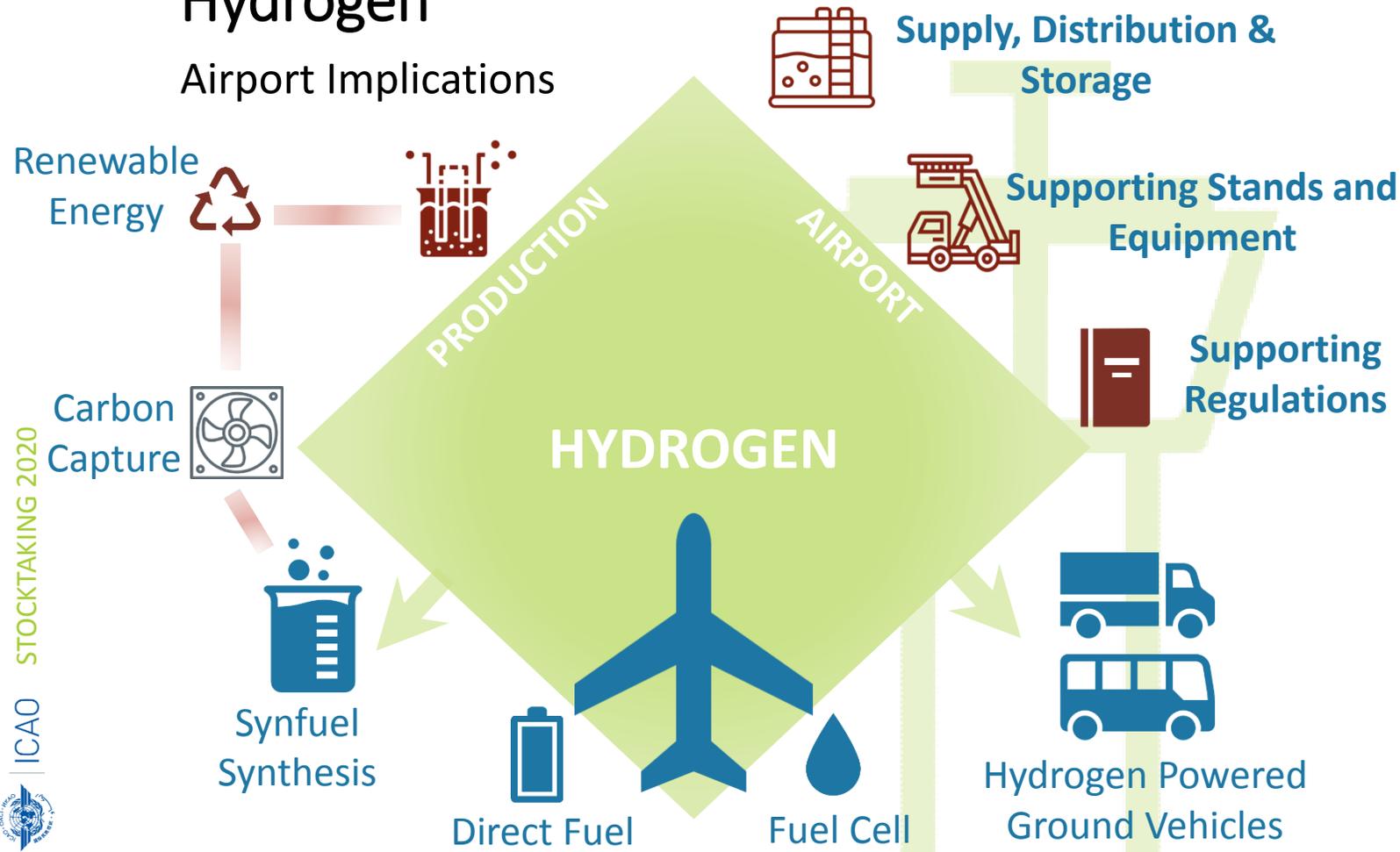
- Power demand and network infrastructure
  - High Voltage cabling retrofit required and the key cost barrier to overcome
- Battery charging, storage, associated business models
  - Flexibility in charging to limit demands at peak times
  - On-stand options require less battery swapping hence faster turnaround
- Mixed mode 'sustainable propulsion stands'
- Operational considerations such as safety, ground movements and airspace



**Heathrow**

# Hydrogen

## Airport Implications



- Potential for regional aircraft by 2030s, with some uncertainty
- **Supply & Distribution:** Pre-2040 tanker delivery likely to satisfy demand (CleanSky 2)
- Post-2040 more substantial supporting infrastructure for **stands, storage and distribution**
- 2040 global demand for LH<sub>2</sub> could reach 10m tonnes (CleanSky 2)
- On-airport **safety regulations** must be advanced – the focus of Horizon 2020 projects ‘ENABLEH2’ and Hytunnel



- **Action:** Airport coordination with fuel providers, manufacturers and airlines to ensure value chain evolves in line with uptake

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# Thank You



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