



TRILEMA

TRansition to Low EMISSION Airport infrastructure from an energy systems perspective

Dr Nazmiye Ozkan

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www.cranfield.ac.uk

Key drivers

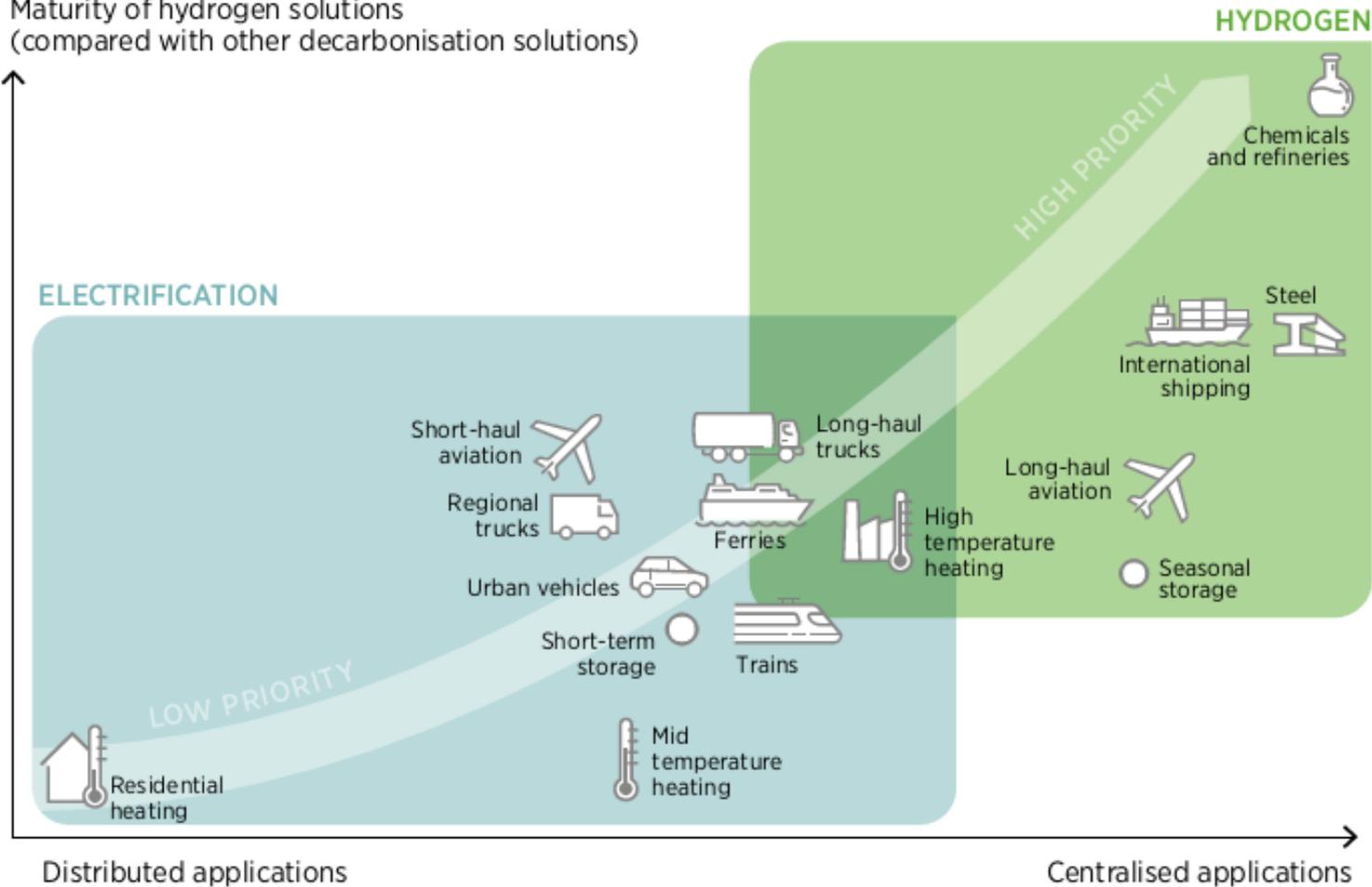
- Ambition for 10% SAF by 2030 & £180M funding
- Affordable renewable and low-carbon hydrogen is globally available by 2030
- EU 'Fit for 55' target for blending 5% SAF in 2030 and 63% SAF in 2050
- SAF Grand Challenge – 50% reduction in life cycle emissions & meet 100% aviation fuel demand
- WE Forum - SAF for 10% of global aviation fuel demand by 2030 and become net-zero by 2050.



H2 colour spectrum

Where to deploy H2

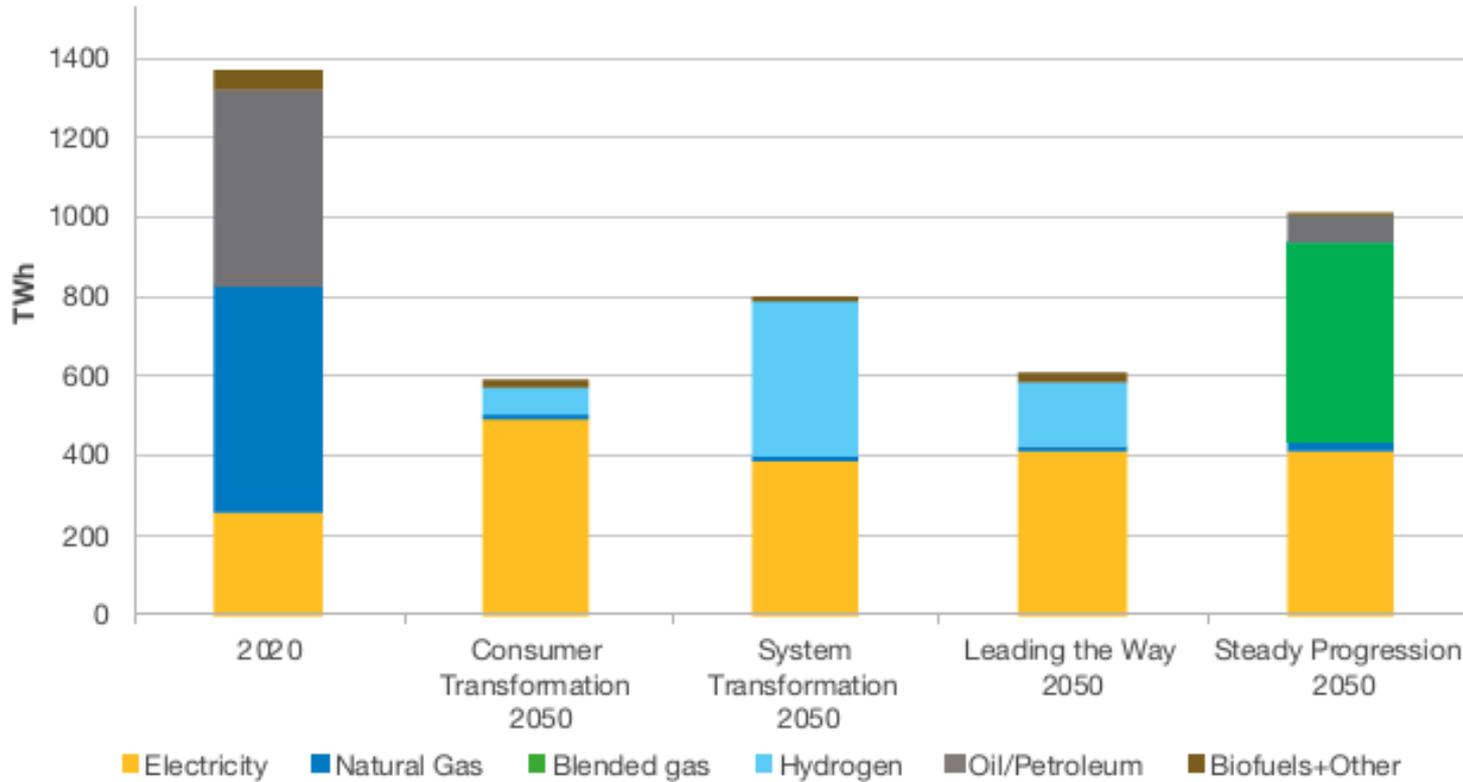
Maturity of hydrogen solutions
(compared with other decarbonisation solutions)



Source: IRENA (2022)



Future Energy Scenarios – H2 demand



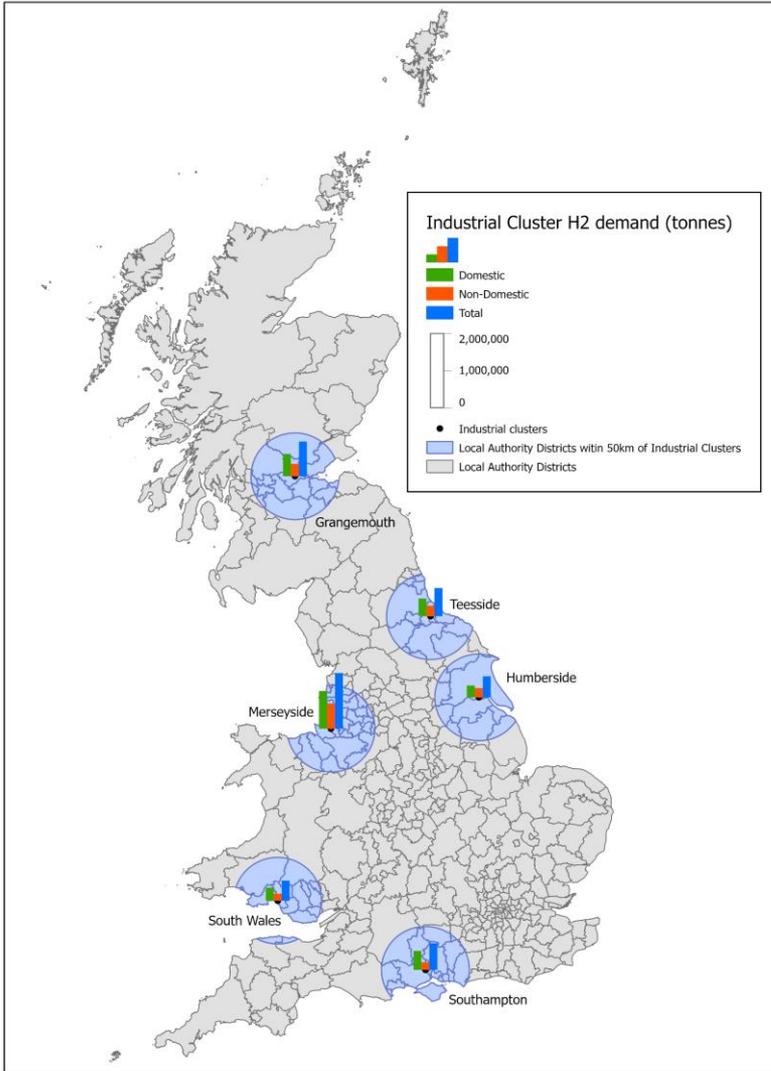
Source: National Grid, FES (2021)

TWh=3.6M tonnes of H2

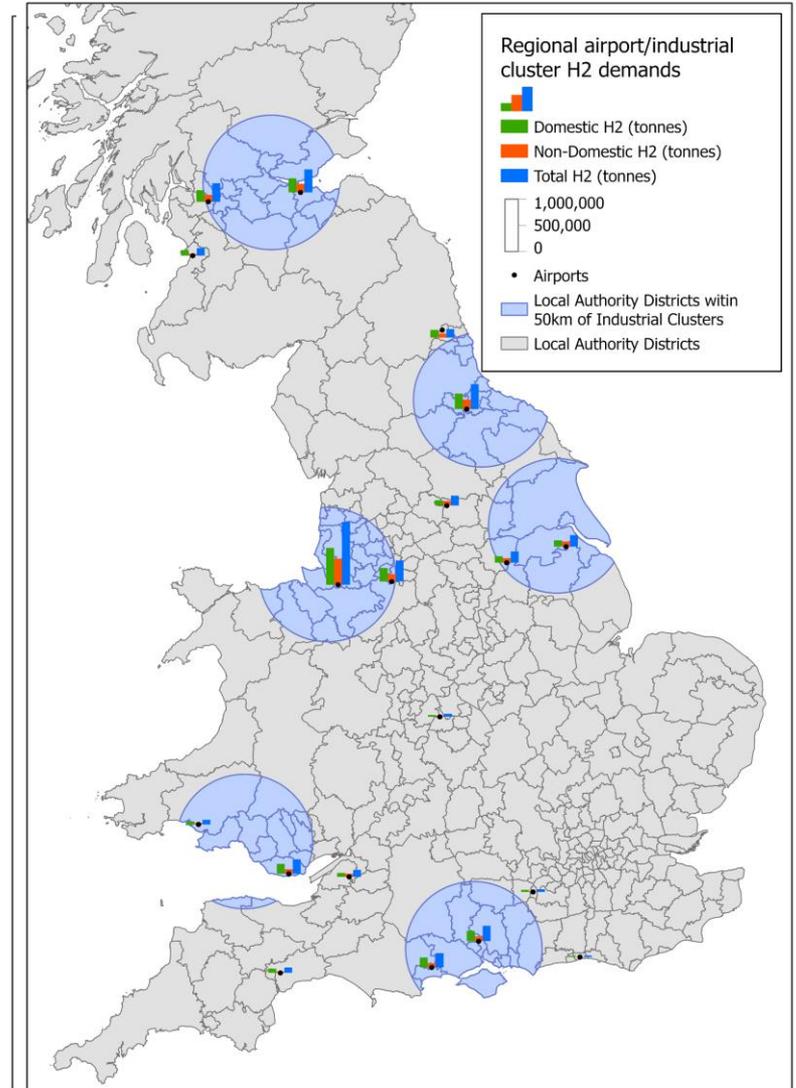


1- H2 regions

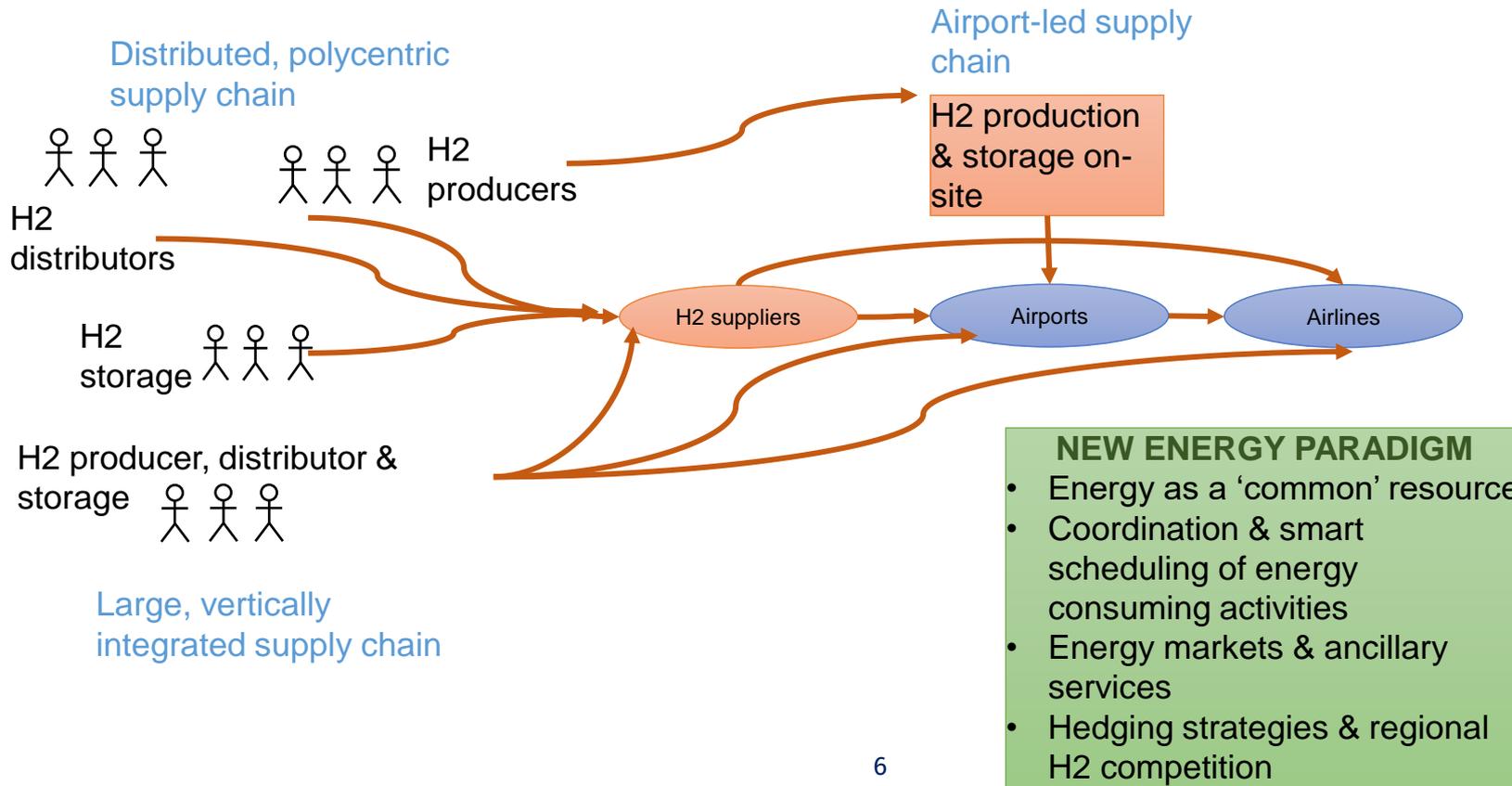
5.2MT H2



5.2MT H2



2- Airport H2 infrastructure





Today's objectives

- Synthesise existing knowledge on zero-carbon emission aircraft technology development and regulation and certification management
- Generate a shared understanding of low carbon airport infrastructure development opportunities and challenges
- Identify key research questions and a roadmap of activities for industry, policy and academia





Housekeeping & ground rules

- Go to [vevox.app](https://vevox.com)
- Use Meeting ID: 198-837-129
- No fire drill planned
- Keep your phone on silent mode
- No attributes to individuals
- 13:00 DARTeC tour – sign up sheet





Agenda

- 9:00-9:15 Registration and tea & coffee on arrival
- 9:15-9:25 Introduction of the project and objectives of the day
Dr Nazmiye Ozkan – Cranfield University
- 9:25-10:30 Assessment of state-of-the-art of hydrogen technologies
- [H2 generation technology](#) – Dr Peter Clough
 - Low NOx Hydrogen Combustion – Dr Bobby Sethi
 - Fuel cell applications – Jenny Kavanagh & Rob Marsh, Cranfield Aerospace Solutions Ltd
 - Holistic assessment of H2 demands – Prof Pericles Pilidis
- 10:30-11:15 Panel debate – chaired by Dr Russell Fowler, National Grid
- Abrar Bajwa – Airbus
James Shearman – Bristol Airport
Gia Kroeff – Civil Aviation Authority
Lahiru Ranasinghe - Easyjet
Ruth Mallors-Ray – RMR consultancy
Peter White – Western Power Distribution
- 11:15-11:30 Tea/ coffee break



Agenda

- 11:30-12:15 H2 regulation and certification - Chaired by Henrik Rothe
- H2 safety – Dr Paul Holborn
 - H2 safety and training for airport fire and rescue– Dr Tom Budd
- Panel debate
- Abrar Bajwa – Airbus
- James Shearman – Bristol Airport
- Gia Kroeff – Civil Aviation Authority
- Lahiru Ranasinghe - Easyjet
- Ruth Mallors-Ray – RMR consultancy
- Peter White –Western Power Distribution
- 12:15-12:30 Final remarks – Dr Nazmiye Ozkan and Dr Russell Fowler
- 12:30-13:30 Networking lunch