



**MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT**  
HĪKINA WHAKATUTUKI

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# New Zealand Government Initiatives for Decarbonising Aviation

A presentation for Aviation Reimagined Webinar Series Session 2

12 October 2023



# Introduction to MBIE

- The Ministry of Business, Innovation and Employment (MBIE)
  - Is a public service department in New Zealand
  - Delivering:
    - policy, services, advice and regulation
  - Contributes to New Zealand's economic productivity and business growth
- Several teams with the Ministry's branches are involved in projects to do with hydrogen, aerospace and sustainable aviation fuels
  - Innovative Partnerships team
  - Energy & Resource Markets
  - Just Transitions
  - Tourism Policy

# Government Context

New Zealand has committed to targets under the Paris Agreement

- 100% renewable electricity system by 2030
- 50% of our total energy from renewable sources by 2035
- net-zero economy by 2050 (excl Biogenic methane)
- **Emissions Reduction Plan** sets out the actions to meet the first emissions budget under Zero Carbon Act and includes **The Circular and Bioeconomy Strategy**
- **New Zealand Energy Strategy** under development to support the transition to a low carbon economy
- **New Zealand Waste Strategy** outlines considerations related to the circular use of materials and net greenhouse gas emission reductions
- **The Economic Strategy** which the Industry Transformation Plans fall under
- **Decarbonising Transport Action Plan 2022-2025** which has a goal to reduce transport emissions by 41% by 2035



# Government Context Continued....

## Two Key Initiatives for Aviation

New Zealand Government launches its

- **Draft Tourism Environment Action Plan**

- Investment in finding low-carbon fuel options
- Aviation contributes up to 60% of tourism's emissions
- The tourism sector is reliant on aviation
- Partnership with Air New Zealand on feasibility of domestic production of sustainable aviation fuel (SAF)

- **Aerospace Strategy**

- The Strategy includes goals specific to space, advanced aviation and data
- Goal One – Build a sustainable air passenger journey



# SAF feasibility in NZ



In 2021 MBIE signed a Memorandum of Understanding with Air New Zealand to investigate the feasibility of producing SAF in NZ



A closed request for proposals was run



Four proposals were received from international SAF producers



Representatives from Air NZ and cross-government officials from MBIE, Ministry of Transport, Ministry for the Environment, and Ministry for Primary Industries made up the Evaluation Team



Proposals to Phase 1 feasibility studies finished last year and were reviewed by a cross-government panel



# Phase II SAF Feasibility Studies

Decision to proceed with two second stage feasibility studies

- LanzaJet - a consortium of Lanzatech, LanzaJet and Z Energy
- Fulcrum Bioenergy

Feedstocks of interest

- woody biomass (forestry residue)
- certain waste materials that would otherwise end up in landfill

Comprehensive feedstock characterisation studies

- Crown Research Institutes
- NZ based companies as subject matter experts

SAF currently represents the most viable option for reducing carbon emissions from long-haul aviation

- As a drop-in fuel using existing infrastructure
- Commercially available, although in very limited supply

# Sustainable Aviation Aotearoa (SAA)

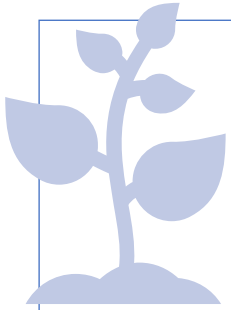
A public-private leadership group focused on decarbonising aviation, led by the Ministry of Transport

The SAA is not a decision-making body. It will provide strategic advice on future policies to support the decarbonisation of the sector

## Objectives:

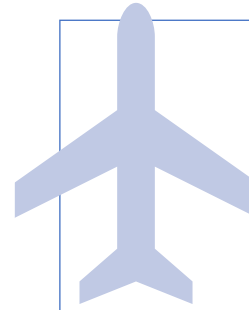
- provide industry leadership advice
- identify and optimise the strategic, economic, and international benefits for the industry
- accelerate the commercial operation of zero emission aviation systems in New Zealand
- consider what regulations need reviewing to enable a smooth decarbonisation pathway for aviation
- Establish government working groups to accelerate progress on decarbonising the aviation sector

# Workstreams under the SAA



## SAF

- With a particular focus on a SAF mandate



## Zero Emissions Aircraft

- Including electric and hydrogen



## Strategy

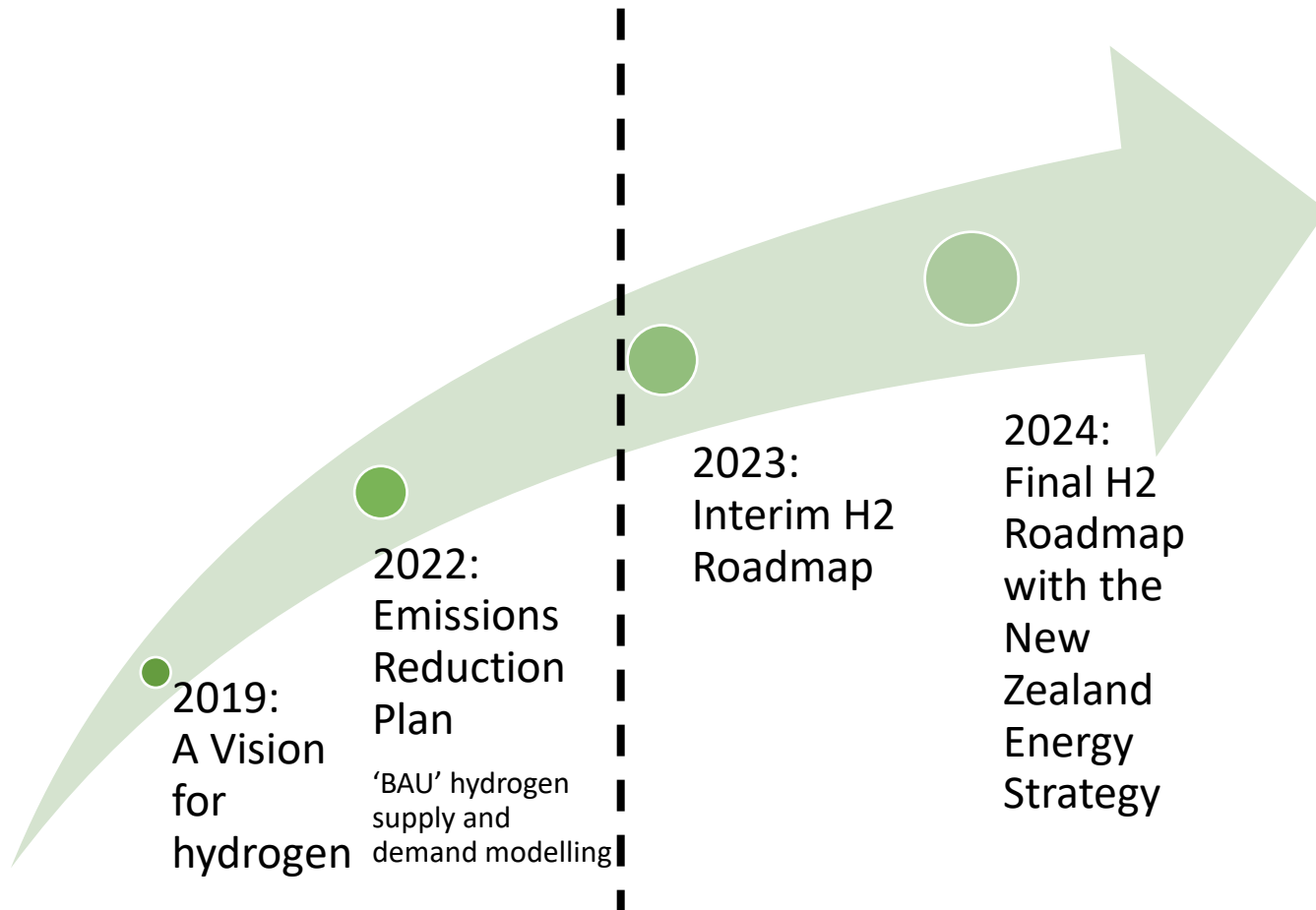
- Regulation
- Infrastructure
- Aviation emissions targets



# What could a SAF mandate look like in NZ?

- A SAF mandate would require all obligated parties to blend a set amount of SAF into their jet fuel annually.
- MBIE is developing a discussion document focusing on three key policy considerations:
  - Who will the obligation fall on?
  - How will targets be set?
  - How can we ensure SAF is truly sustainable?
- Other key considerations:
  - The economic impacts
  - SAF's role in the aviation industry's wider decarbonisation efforts.

# We are developing a Hydrogen Roadmap



## Key questions:

- What role might hydrogen play in the broader energy transition?
- How might we prioritise various objectives for hydrogen? Decarbonisation, economic development, energy security/resilience.
- What role should the Government play?

## Interlinkages:

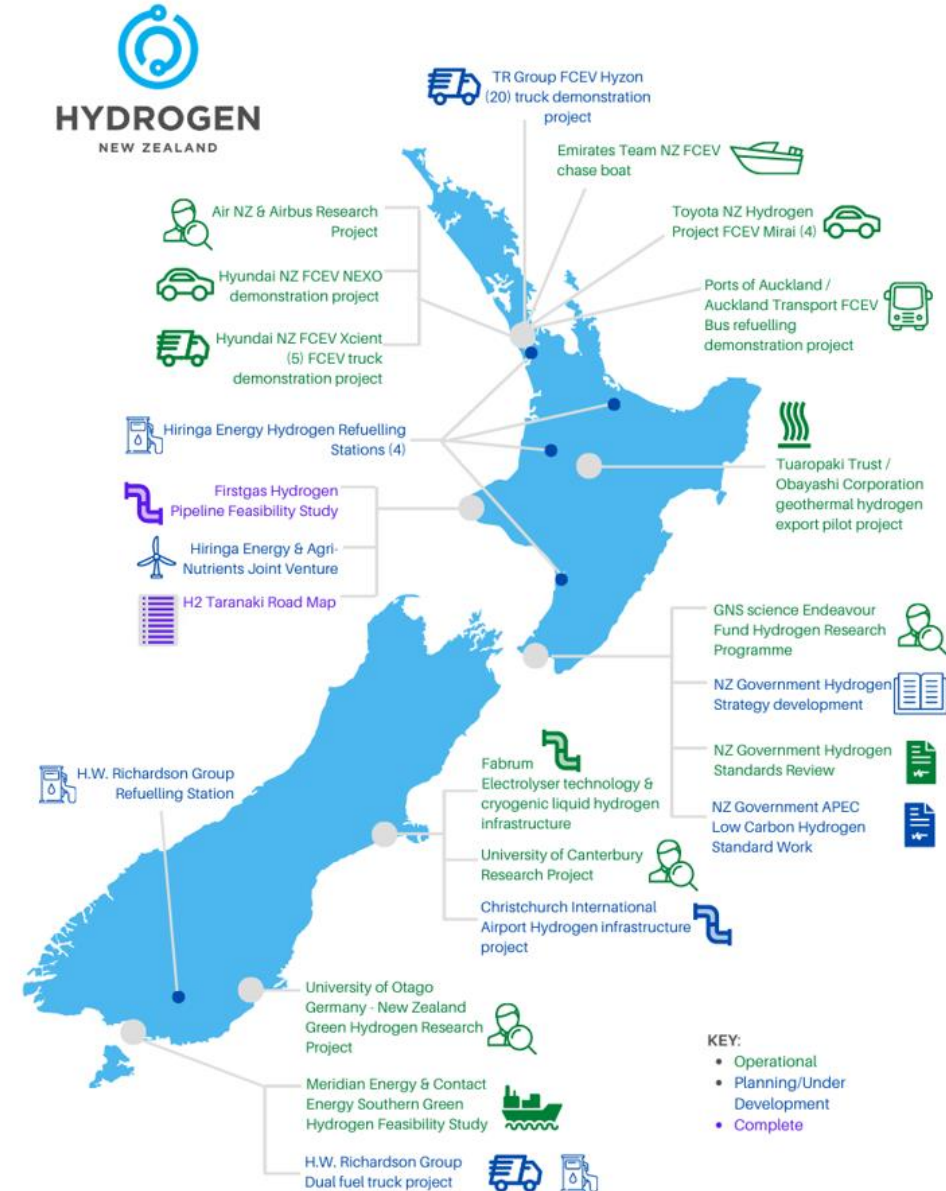
- New Zealand Energy strategy
- H2 Regulatory Settings project
- Gas Transition Plan
- NZ Battery Project
- Offshore renewable energy (wind, tidal, wave)
- Electricity market measures

# The Role of Hydrogen

- Emerging hydrogen ecosystem in NZ
- Accelerated by the transport industry
  - Buses
  - Heavy trucks
  - Prototype cars



- Hiringa - hydrogen refuelling network for heavy transport





# Hydrogen for Advanced Aviation

- MBIE commissioned a global consulting firm to produce a report on the feasibility of trialling a pilot hydrogen hub at an airport in New Zealand.
- Highlights include:
  - Green hydrogen for aviation is being actively pursued internationally
  - New Zealand has an opportunity to play a role in the R&D needed to bring hydrogen to market in aviation
  - Key infrastructure needed for a hydrogen hub at an airport

This report is publicly available on MBIE's website - [Pilot Hydrogen Hubs for Trialling Advanced Aviation in New Zealand \(mbie.govt.nz\)](https://www.mbie.govt.nz/pilot-hydrogen-hubs-for-trialling-advanced-aviation-in-new-zealand)

# Hydrogen Consortium - A Partnership Formed

Hydrogen Consortium Partners are:

- Christchurch Airport
- Air New Zealand
- Airbus
- Hiringa Energy
- Fortescue Future Industries
- Fabrum



“The Consortium brings together a number of pioneering partners with a common interest: to make hydrogen-powered aviation in New Zealand a reality.”

**AIRBUS**

Karine Guenan

VP of the ZEROe Ecosystem

Investigation into future hydrogen-powered aircraft and hydrogen-derived synthetic aviation fuel



Fabrum enters a manufacturing agreement with Clean Power Hydrogen (CPH2)

# Air NZ's Mission Next Generation Aircraft

- In August Air NZ opened an expression of interest to airports to be home to next generation aircraft
- Air NZ expect to announce by early 2024 which type of lower emission commercial demonstrator aircraft will be flying from 2026
- Aircraft will initially fly cargo only services
- Next generation aircraft technology
  - battery electric
  - hydrogen fuel cell
  - hydrogen combustion
  - hybrid concepts
- NZ's domestic network is largely short-range routes
- New Zealand's largely renewable electricity grid for cost effective infrastructure



# Airspace Integration Trials Program (AITP)

**VISION** – NZ as a location of choice for the safe development, testing and market validation of advanced uncrewed aircraft and adjacent technologies.

Wisk NZ

Kea  
Aerospace

Dawn  
Aerospace

Merlin Labs

Envico  
Technologies

Swoop Aero

Airshare

Pyper Vision

Aeronavics

Maui63

OneReg

Aerosearch



Some of the technologies:

- Autonomous air taxis
- Solar powered stratospheric aircraft
- Integrated software platforms for aviation
- Fog dispersal at airports
- Monitoring marine mammals
- Drones with sensors on board



# The Challenges

- Refuelling/recharging logistics
- Safety
  - [Hydrogen standards review](#)
- Transport
- Feedstock risk
  - Including competition for feedstocks by others in New Zealand
- Technology risk
- Policy risk



Thanks for your attention



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