



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

New Zealand Government Initiatives in Clean Energy Innovation

A presentation for the CEC/ICMC Conference

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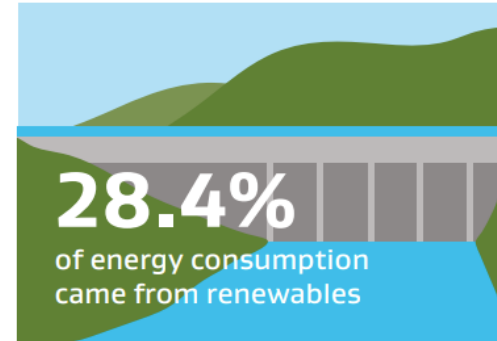
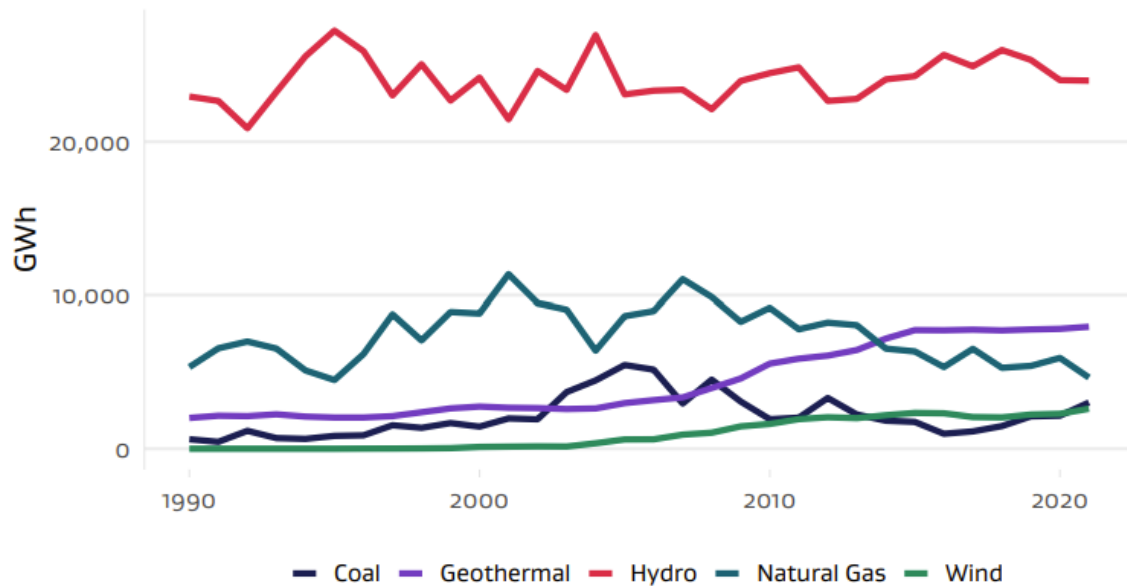


Introduction to MBIE

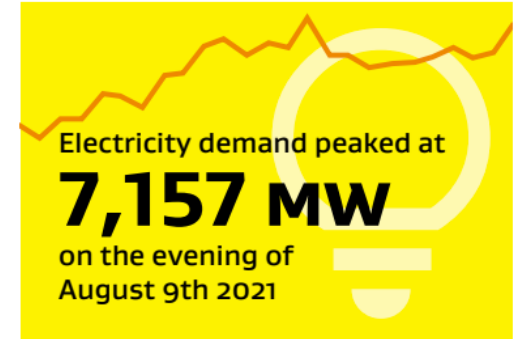
- The Ministry of Business, Innovation and Employment
 - Is a public service department in New Zealand
 - Delivering:
 - policy, services, advice and regulation
 - Contributing to New Zealand's economic productivity and business growth
- Several teams with the Ministry's branches are involved in projects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

Our energy system and future vision

82% of New Zealand's electricity generation came from renewable sources in 2021 (43,267 GWh)

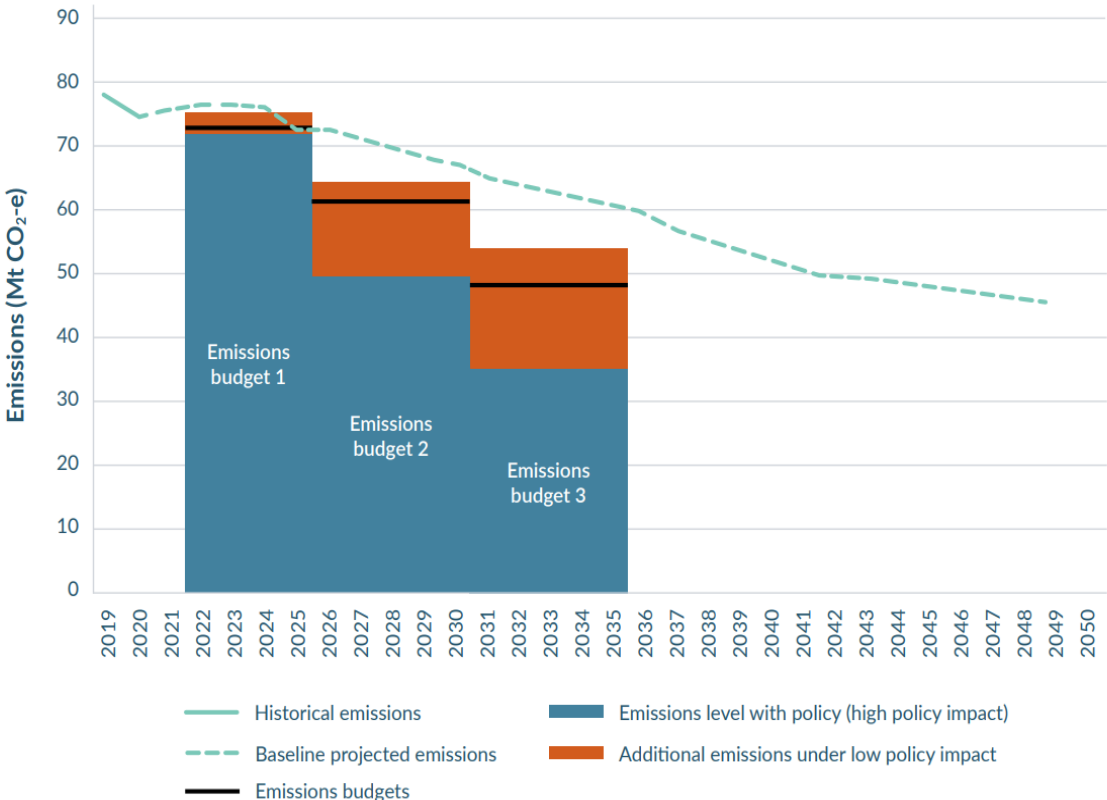


Gas – 68.72PJ
Oil – 272.63PJ
Coal – 20.57PJ



The Government has set targets to decarbonise our energy system and economy

Figure 1.2. Expected impact of the first emissions reduction plan on emissions⁶ over the first three emissions budgets



Key targets:

- 100 per cent renewable electricity by 2030 (Aspirational)
- 50% of total final energy consumption from renewable sources by 2035
- Net zero emissions (except biogenic methane) by 2050

There is an emerging hydrogen ecosystem in New Zealand



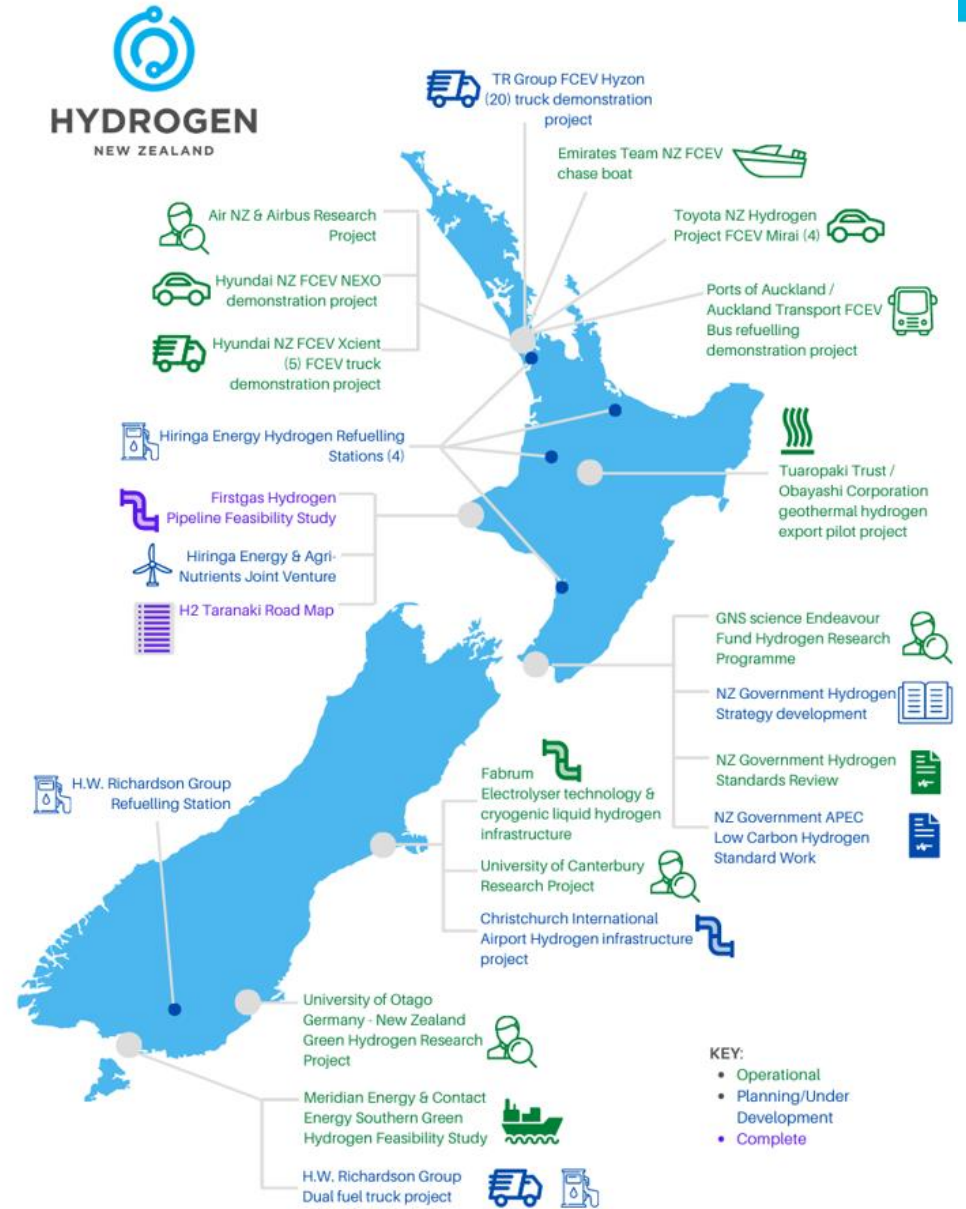
Auckland Transport hydrogen bus (built by NZ company Global Bus Ventures)



Tuaropaki Trust and Obayashi joint venture in green hydrogen production from geothermal energy



Team NZ hydrogen chase boat using Toyota fuel cells.





Hyundai hydrogen truck trial with local partners (including NZ Post)



Hiringa hydrogen refuelling network for heavy transport (under construction)



Toyota Mirai hydrogen car sharing scheme in Auckland



Planned electrolyser plant for green urea production for fertiliser

Research and development in (for example):

- hydrogen use in green steel production
- using local metal hydrides for stable ambient storage of hydrogen
- efficient catalyst materials for electrolyzers, fuel cells and ammonia conversion



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

Hydrogen Consortium - A Partnership Formed

Hydrogen Consortium Partners are:

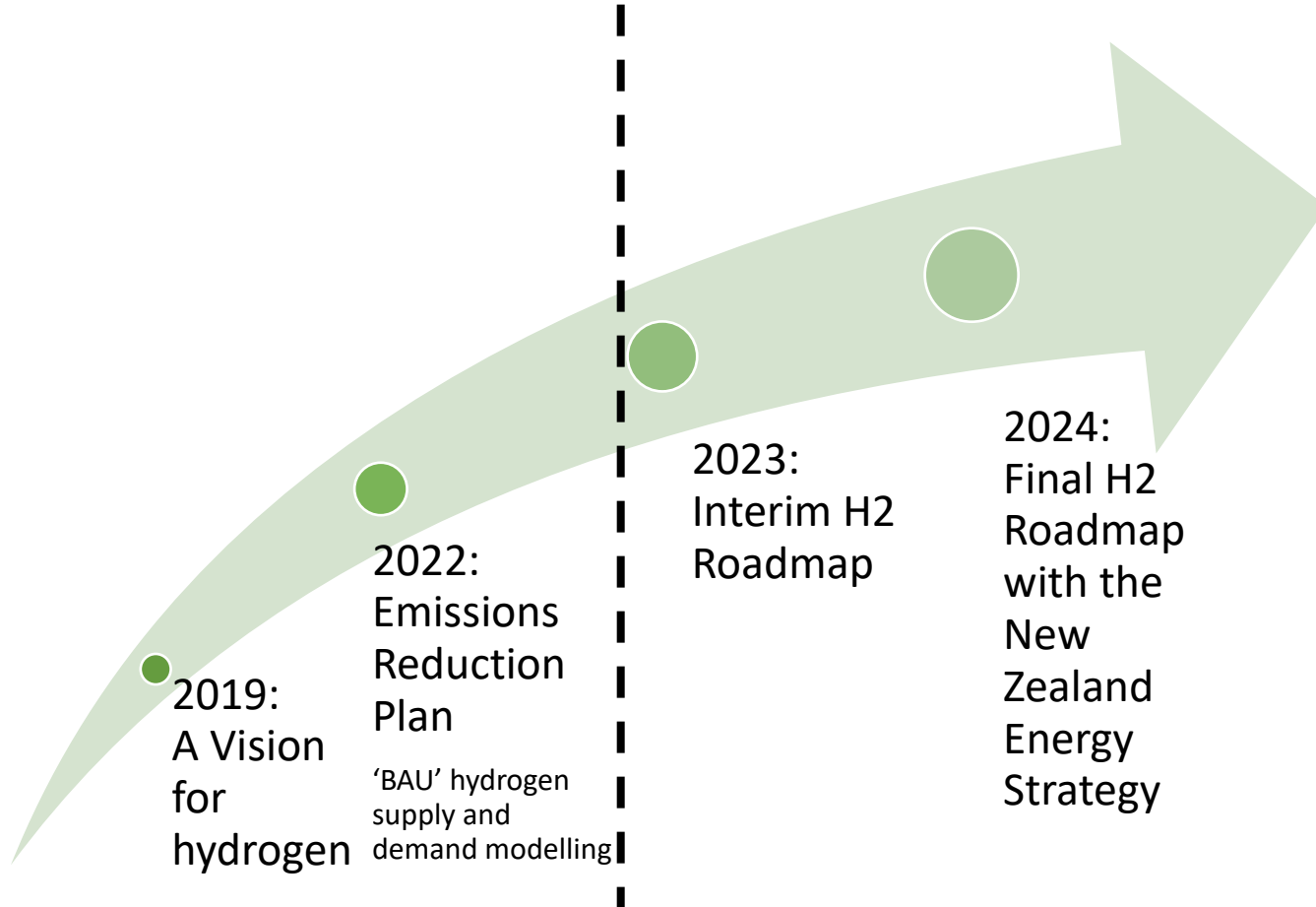
- Christchurch Airport
- Air New Zealand
- Airbus
- Hiringa Energy
- Fortescue Future Industries
- Fabrum

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



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

We are developing a Hydrogen Roadmap for New Zealand



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

Government investment in Hydrogen

A Regional Hydrogen Transition

- The Government recently announced \$100m to deliver the Regional Hydrogen Transition
- Just transition regions will benefit from greater economic, social and environmental resilience through the Regional Hydrogen Transition
- The Regional Hydrogen Transition was developed in response to the planned closure of the New Zealand's Aluminium Smelter
- The Regional Hydrogen Transition initiative will support early consumers of green hydrogen in New Zealand by bridging the price gap between hydrogen and fossil fuel alternatives, The goals of the initiative are:
 - Decarbonising hard-to-abate sectors
 - Economic diversification
 - Supporting the wider goals of the just transition
- Alongside these regional goals, the initiative has been designed to support delivery of the Hydrogen Roadmap. A prospectus for detailed industry engagement will be released alongside the draft Roadmap
- The Ministry anticipates conducting a subsequent competitive process to select participants in early 2024

Sustainable Aviation Aotearoa (SAA)

- A public-private leadership body focused on decarbonising aviation
- New Zealand's Ministry of Transport is the lead agency
 - Representatives from Ministry of Business, Innovation and Employment, Ministry for the Environment, The Civil Aviation Authority, Airlines, Airports, Pilots and Airports Associations are part of the core body

Some of the SAA's objectives are to:

- 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 regulatory barriers need addressing to enable a smooth decarbonisation pathway for aviation
- Establish cross-government working groups to accelerate progress on decarbonising the aviation sector
- The SAA is not a decision-making body. It will drive advice on future policies to help the aviation sector decarbonise.

Sustainable Aviation Feasibility Studies

- Launch of the Draft Environment Action plan under the Tourism Industry Transformation Plan
 - Investment in low-carbon technologies is a key action under the draft action plan
- Aviation contributes up to 60% of tourism's emissions
- A government partnership with Air New Zealand to co-fund:
 - Two studies into the feasibility of the domestic production of sustainable aviation fuels
- The evaluation will look to consider technical, economic, supply chain and environmental aspects
- Sustainable aviation fuel 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



Thank you