IEA Hydrogen Forum - New Zealand Update
80th ExCo February 2019 Rotorua, N.Z.
Dr Jonathan Leaver Co-Vice Chair IEA Hydrogen
Ministry of Business Innovation and Enterprise via Unitec NZ

UniQuad H2 Farm Bike
Kawerau geothermal field – H₂ potential
Recent In-Country Developments / Update on Policy

- **National Energy strategy**
  - In November 2018 legislation ends new offshore oil and gas exploration in New Zealand.
  - **Targets:**
    - GHG emissions to 5 per cent below 1990 levels by 2020
    - Paris COP21 commitment to reduce GHG emissions to 30 per cent below 2005 levels by 2030 equivalent to 11 per cent below 1990 levels.
    - 90% renewable energy by 2025 and 100% by 2035 in a normal hydrological year.
Recent In-Country Developments / Update on Policy

◊ Government policy incentives

- A target of doubling the number of electric vehicles in New Zealand every year to 2021 or about 2% of the fleet.
- Tax exemptions on electric vehicles until they make up 2% percent of the fleet.
- US$700k annually for a nationwide electric vehicle information and promotion campaign over five years
- Establishment of an electric vehicles leadership group across business, local and central government.
- Memorandum of Cooperation on hydrogen with Japan signed 2018.
Highlights (R&D, Demo)

◊ UniQuad - fuel cell farm bike completed. It has a 12kWh Li-FeYPO4 battery; 3 kW PEM fuel cell; 1.6 kg 350 bar fuel H₂ tank. Funding still required for field trials.
Other News (market/commercial)

◇ Hiringa – awarded $950k (US$641k) in July 2018 to scope the engineering and design of two hydrogen generation facilities, up to four mobile compressed hydrogen storage and distribution containers, and up to three hydrogen refuelling stations.

◇ Ports of Auckland will complete NZ’s first hydrogen refuelling station in 2019 and with project partners Auckland Transport, Auckland Council and KiwiRail, have been awarded a 14% subsidy for the purchase of a hydrogen fuel cell (HFC) bus and three HFC cars.

◇ Arup Consultants awarded $150k (US$101k) to assist government to develop a national hydrogen roadmap by April 2019.

◇ Tuaropaki Trust and Japan’s Obayashi Corporation are commissioning a pilot hydrogen production electrolysis plant that utilises heat from the Mokai geothermal field.
Other News (Market/Commercial)

- Taranaki-based Pouakai NZ, a subsidiary of US company 8 Rivers Capital, is proposing a clean hydrogen power plant that would also produce fertiliser for domestic use and export. The hydrogen would be produced from natural gas but the emissions would be sequestered.

- Concept Consulting report in Jan 2019 ‘Hydrogen in New Zealand’ that found valuable applications for hydrogen in niche freight and heavy transport, and energy intensive on-site transport operations such as forklifts and cranes. The report was funded by Contact Energy, the Energy Efficiency Conservation Authority, First Gas, Meridian, Energy, the Ministry of Business Innovation and Employment, and Powerco.
Other News (market/commercial)

• Callaghan Innovation HyLink™ is market ready.
• Attributes are low cost, 2.5 kg/day hydrogen production and storage consisting of an alkaline electrolyzer operating with 76% efficiency at 4 barg and HDPE storage www.hylink.nz

IEA Hydrogen Task – NZ Engagement

• Task 29 Distributed and Community Hydrogen - Alistair Gardiner, Callaghan Innovation
• New Task Analysis and Modelling – Jonathan Leaver, Unitec
FCVs

1 off-road vehicle

Infrastructure

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<tr>
<th>HRS</th>
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