INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update Nov 2024 – Apr 2025: SINGAPORE

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1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

No update.

2. Hydrogen and Fuel Cell R&D Update

The **Low-Carbon Technology Translational Testbed (LCT^3)** is a test-bedding facility which will translate and scale-up different emerging low-carbon technologies in areas like carbon utilisation and hydrogen, to bring them closer to full-scale, real-world deployment. It will reduce the time and resource required for technology optimisation, validation and deployment, thus accelerating commercialisation and adoption of these technologies by industry.

LCT^3 will feature a modular plug-and-play system that allows companies to configure the modules of equipment based on their specific needs. Companies will be able to test their technologies and processes much faster and at a lower cost than if they had to construct a test-bed just for themselves. This modular approach will enable LCT^3 to host a variety of different low-carbon technologies while avoiding duplicative infrastructure investments.

It will leverage digital twin technology to employ a data-centric approach in test-bed configuration, automation and process modelling with analytics, to enhance operation and optimisation. This will help companies to fine-tune their processes before full-scale implementation of low-carbon technologies, making it easier to scale up by lowering risks and enhancing efficiency.

Singapore is developing its next five-year **Research, Innovation and Enterprise (RIE) plan** (RIE 2030). Since the previous plan, Singapore now has a goal to reach net zero by 2050 and would therefore need more research and cutting-edge technology to reach its goals. Carbon capture, utilisation and storage (CCUS) and

hydrogen are expected to play a large part in the power and industrial sector decarbonisation. While the type of funding is to be established, private sector co-investment would be a key requirement for projects moving forward.

3. Demonstration, Deployments, and Workforce Developments Update

The pre-FEED studies from the **direct ammonia combustion pathfinder project** have been submitted and are currently under reviewed. The lead developer will be identified by the end of 2025.

4. Events and Solicitations

The **Singapore International Energy Week (SIEW)** is an annual platform for energy professionals, policy makers and commentators to share best practices and solutions within the global energy space. It will be held from 27 – 31 Oct 2025.

5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

In March 2025, Singapore announced the topping up of the **Future Energy Fund (FEF)** by $5 billion, bringing the total injection to $10 billion. The FEF can be used to fund major infrastructure investments for Singapore's energy transition towards a net-zero future. These projects may involve nascent technologies or require high upfront capital expenditures, and furthermore exposed to significant commercial and geopolitical risks. The establishment of the Future Energy Fund ensures that the government is ready to provide financial support to catalyse energy transition projects to secure low-carbon energy supplies to meet Singapore's decarbonisation ambitions. This will better prepare our businesses and economy for a low-carbon future and allow Singapore to remain an attractive investment destination.

Examples of energy transition infrastructure which could be supported by the Future Energy Fund include undersea cables to import low-carbon electricity as well as new hydrogen terminals and pipelines.

[1] Can include *Requests for Information* and *Calls for Proposals* and other requests that may or may not involve funding support but looks to address issues that may be of interest to IPHE members

6. Regulations, Codes & Standards, and Safety Update

The Pro-Tem Committee (PTC) for Hydrogen and Hydrogen Carriers released its final report on February 2025. The PTC was first formed in September 2023 under Singapore's Chemical Standards Committee (CSC) of the Singapore Standards Council (SSC) to explore the development of hydrogen-related standards in response to Singapore's National Hydrogen Strategy.

The committee identified near-, medium, and long-term areas for standard development:

- **Near-term**: Standards for hydrogen transmission, fuel cell-powered vehicles, and carbon intensity methodologies.
- **Medium-term**: Standards for low-carbon hydrogen in power generation and hydrogen handling processes.
- **Long-term**: Standards for the use of hydrogen carriers like ammonia and methanol.

With the formation of the Hydrogen National Mirror Committee, the PTC had been dissolved.