



# A Hydrogen Generator for Refueling Fuel Cell Vehicles (H<sub>2</sub> Generation)

SCIENCE AND  
INDUSTRY  
ENDOWMENT  
FUND

## One step closer to an Australian renewable hydrogen industry

**the challenge** The growing global demand for clean hydrogen fuel represents a significant opportunity to establish an Australian renewable hydrogen export industry. By using liquid ammonia produced in Australia from renewable energy as a carrier, renewable hydrogen can be distributed to emerging markets in Japan, Korea and Europe using existing infrastructure. The gap in the technology chain is a device which can efficiently and inexpensively convert ammonia into high-purity hydrogen at or near the point of use.

**the response** The SIEF Experimental Development Program (EDP) supported CSIRO's construction and operation of a demonstration plant using its metal membrane technology capable of extracting pure hydrogen from liquid ammonia, for refueling Australia's first hydrogen-powered fuel cell vehicles. The project culminated in a demonstration day that used purified hydrogen from the pilot plant to refuel two fuel cell vehicles.

**projected impact** The outcomes of this project will advance the technology for producing high purity hydrogen from ammonia to be commercialisation ready and primed to enter domestic and international markets as an alternative energy source, with projected impacts including:

- Creating Australia's first hydrogen generator for fuel cell vehicles, thereby increasing our reputation and scientific knowledge in hydrogen-selective membranes and their manufacture and application in industry.
- Contributing to the development of an Australian renewable hydrogen export industry, providing economic value in terms of job growth, entrepreneurial business opportunities and increased domestic market and export value.
- Enhancing Australia's economic competitiveness through energy security delivered by sustainable, low-emission technology, reducing environmentally harmful reliance on oil and fossil fuels.



Contact us

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### What is SIEF?

Spanning a history of over 85 years, the Science and Industry Endowment Fund (SIEF) provides grants to science and scientists for the purposes of assisting Australian industry, furthering the interests of the Australian community and contributing to the achievement of Australian national objectives. In 2009 this unique and esteemed funding arrangement was rejuvenated by a gift from CSIRO, made possible due to the commercial success of CSIRO's fast WLAN, or Wi-Fi technology. Thus past accomplishments are reinvested into new science and innovation for the nation.