



## AHRN Newsletter April 2022

**Mission** The Australian Hydrogen Research Network (AHRN) is the community of researchers and interested stakeholders supporting the emerging hydrogen industry. We foster excellence in hydrogen-related research through an ongoing program of seminars and knowledge-sharing activities. By providing thought leadership, advocacy, and research tools, the AHRN offers its members domestic networking opportunities as well as access to international collaborations.

A flyer with more information on the AHRN can be downloaded [here](#). *Please share this with your colleagues to encourage them to join our network.*

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## Member survey

**Thank you** to all who responded to our membership survey. All 49 responses we received were positive and supported the continued need for the AHRN.

There is strong support for the ARHN to work towards becoming an independent entity that is able to provide unbiased independent knowledge and advice to the wider community. It was felt that there should be a strong connection with the emerging hydrogen industry to build collaborations. There was positive feedback on events held so far such as “Every seminar provided valuable information and the opportunity for networking”. And people felt there is a continuing need for both technical events and more general hydrogen information sessions. Suggestions for the future included events focused on challenges faced by the emerging hydrogen industry and the role that R&D can play in those challenges.

Many other suggestions for future activities and roles for the ARHN included an annual summary of the status of hydrogen R&D, research symposiums, workshops and an annual R&D conference. Many of these suggestions were already being considered and we will take all suggestions on board as we develop our program for the year, culminating with the first Australian Hydrogen Research Conference, to be held in Canberra in February 2023. Many of you offered to become more involved and we will certainly take these offers on board as we gear up a notch for the next 12 months.

## **Online AHRN Seminar on International Hydrogen Collaboration, Friday 6th May at 11.00 am AEST**

As the AHRN prepares to engage with the international research community, it was felt appropriate to have a general discussion on how successful international R&D projects are instigated and managed. Participants in the seminar will include:

- Prerana Mehta, Enterprise Manager, Global, CSIRO
- Iain MacGill, Professor and Joint Director for the Centre for Energy and Environmental Markets (CEEM), University of New South Wales
- Ian Mackinnon, Faculty of Science, School of Earth and Atmospheric Sciences, QUT
- Daniel Roberts, Research Program Director, Energy Technologies, CSIRO
- Alana Barlow, National Hydrogen Commercialisation Manager, Sumitomo Australia Pty Ltd

In this seminar we will explore how hydrogen research can help supply clean energy across borders, and how to establish impactful international energy research collaborations.

All those who have registered with the AHRN will soon receive an invitation to attend this seminar. If you are not yet on our database and wish to attend, please send your details to the AHRN admin via [Hydrogen\\_Mission@csiro.au](mailto:Hydrogen_Mission@csiro.au)

To manage our ongoing online events for the year, we have established a small events committee of

- Andrew Dicks ([adicks@ah2rn.org.au](mailto:adicks@ah2rn.org.au))
- Bahman Shabani ([bahman.shabani@rmit.edu.au](mailto:bahman.shabani@rmit.edu.au))
- Sue Brown ([sue.brown@csiro.au](mailto:sue.brown@csiro.au))
- Mashhid Firouzi ([mahshid.firouzi@newcastle.edu.au](mailto:mahshid.firouzi@newcastle.edu.au))

Please feel free to contact any of the committee with your ideas for seminars, workshops and other events that you feel would be useful to the AHRN.

## Australian Hydrogen R&D Portal – HyResearch

We are still following up on some projects that have yet to be entered in the HyResearch portal. If your institution is not yet represented please contact:

**Peter Grubnic:** [peter.grubnic@futurefuelsrcr.com](mailto:peter.grubnic@futurefuelsrcr.com) 0414 731 587

**Furat Dawood:** [furat.dawood@murdoch.edu.au](mailto:furat.dawood@murdoch.edu.au)

**Or myself:** [A.Dicks@griffith.edu.au](mailto:A.Dicks@griffith.edu.au)

A consensus is developing to guide further development of HyResearch and other collaboration tools. It is expected this will materialise in Phase 2 development aimed at providing more information on research capability with a target of completion by June 2022. Unlike Phase 1 which sought input at the grass-roots researcher level, Phase 2 requires more high level support from institutions and stakeholders.

## Australian Hydrogen Research Conference 2023

Dr Siva Karaturi from ANU has agreed to lead the development of the program for the conference next year and will be chairing a program committee to look after issues such as paper submissions and reviews. An international advisory panel is also being set up for the conference.

The Conference working group has approached several professional conference organisers (PCOs) to help in the detailed organisation of the 2023 conference. We are currently awaiting tender responses. The CSIRO has agreed to be the first major sponsor of the conference and we will now be approaching other organisations and stakeholders for their support. If you know of any companies or individuals that would like to offer support for the conference, please contact either Andrew Dicks [adicks@ah2rn.org.au](mailto:adicks@ah2rn.org.au) or Kenneth Baldwin [Kenneth.baldwin@anu.edu.au](mailto:Kenneth.baldwin@anu.edu.au)

## International collaboration program

### Call for expressions of interest for overseas delegations

The [DISER International Hydrogen Research Collaboration Program](#) officially kicked off the next component and centrepiece of the initiative on 8 April with a call for expressions of interest (EOI) for international delegations. The aim of a delegation is to pave the way for the Research Fellowship component of the Program where up to 40 Australian researchers will be funded to visit with selected research groups identified by the delegates to undertake 3-12 month overseas placement activities. By the end of the delegations and the fellowship program, Australia will have stronger research connections, collaboration pathways, knowledge sharing and international relations between Australia's research institutions and the world's leading international hydrogen research organisations.

The research delegations will be conducted during the rest of the year to Canada, China, France, Germany, India, Japan, UK, USA, South Korea, and Singapore, taking between 5-7 delegates to each country. Participants will receive up to \$10,000 AUD for air fares, accommodation, meals, health and accident insurance and incidentals. The EOIs must be submitted through an

identified contact in your institution and are due by 28 April. For more information on the delegations and EOI process please download [DISER International Hydrogen Research Collaboration Program Research Delegations](#) (PDF, 136KB).

### **Country reports**

It was hoped that the country reports prepared by CSIRO as part of the Program would be published by the end of February. Releasing the reports has been put on hold for now until the Australian Government clears international relations components of the assessment. More information will be provided once it is available.

If you have any questions about the program, please contact the Program Manager [Dan O'Sullivan](#).

## **Other Australian News**

**Hysata, a company spun out of the University of Wollongong hopes to commercialise new electrolyzer (hysata.com)** The Hysata electrolyser is based on the work of a team from the UOW headquartered [ARC Centre of Excellence for Electromaterials Science](#) (ACES), led by chemical catalysis and characterisation expert Professor [Gerry Swiegers](#). The technology is described in a recent Nature publication: <https://www.nature.com/articles/s41467-022-28953-x>

**Queensland, New South Wales and Victoria have announced a renewable hydrogen refuelling network for heavy transport and logistics along Australia's eastern seaboard.** Bullish Queensland Energy Minister Mick de Brenni predicted that “ low-emissions electricity and hydrogen will sit at the heart of the renewable energy eco-system”. He admitted that “government support is needed to help develop refuelling stations”. His remarks followed the recent announcement of a regional refuelling project by publicly-owned CS Energy and IHI of Japan.

**Russian Energy to be substituted with hydrogen from Australia** Plans to deliver up to 5 million tonnes of green hydrogen from Australia to Europe were

announced in March by Fortescue Future Industries (FFI). An MoU signed between Australia's FFI and German utility E.ON for the supply of green hydrogen amounting to one third of the energy currently supplied by Russia to Germany (as natural gas). The announcement comes in the wake of Russia's demand to accept only payments for gas in roubles, following western sanctions against its invasion of Ukraine.

**Green hydrogen to be introduced into Singapore gas** Australia's Woodside Energy has joined a consortium of partners studying the commercial feasibility of producing or importing green hydrogen for substituting into Singapore's domestic gas network. Currently the network is fed with town gas produced by the steam reforming of imported natural gas. By substituting grey hydrogen with imported green hydrogen, the company will be able to reduce carbon emissions from town gas production while continuing to provide a stable and safe piped gas supply for the Lion City's household, commercial and industrial customers.

## International News

**Toyota develops new compressed hydrogen storage module** Toyota demonstrated its first hydrogen storage tank for vehicles in 2001. It has produced vehicle mounted class 4 tanks for the Mirai fuel cell car since 2008 and more than 20,000 were manufactured for the first generation of vehicles. The latest development scales up the storage package from a hydrogen capacity of below 5 kg to almost 20kg. Applications range from heavy-duty road vehicles, railways, shipping and port cargo handling, as well as fuel cell generators.

**China rolls out plans for fuel cell vehicles for 2025** Many hydrogen industry companies such as Horizon Fuel Cells and Ballard Power systems already have significant investments in China. Hyundai is expected to start production of hydrogen vehicle fuel cell systems in China from late 2022, with its annual capacity expected to reach 6,500 units. China has embraced fuel cell and hydrogen technology and a blueprint recently announced by the country's top economic planner should stimulate the market both within China and the rest of the world. Last year for example 17,000 FCVs were sold worldwide by 1,586 delivered to China. By 2025 it is estimated that there will be 50,000 hydrogen fuel cell vehicles on the road in China. The China Hydrogen Alliance estimates

China's hydrogen energy market will reach 43 million tons by 2030. Green hydrogen will increase from 1 percent of that energy in 2019 to 10 percent, and the market scale will increase by nearly 30 times.

## **Australian Hydrogen Events 2022**

- 4-5 May Annual Smart Energy Conference, International Convention Centre, Sydney
- 31 May - 1 June, The Australian Hydrogen Conference, Adelaide Convention Centre
- 25-26 July, Connecting Green Hydrogen, APAC 2022, Conference and Exhibition Centre, Melbourne
- 8-9 September, H2Q Hydrogen Connect Summit, Brisbane Convention and Exhibition Centre
- 26-27 October, All Energy Australia 2022, Melbourne Conference and Exhibition Centre
- 30 Oct-4 November, 17th International Symposium on Metal-Hydrogen Systems, Pan Pacific Hotel, Perth WA

If you have news items that you would like to share with the Australian Hydrogen Research Network, please send them to [adicks@ah2rn.org.au](mailto:adicks@ah2rn.org.au)