H2AUS2022
HYDROGEN FORUM

Transitioning from fossil fuels

July & August 2022
Online
www.h2aus.com.au

SERIES PROGRAM

HOSTED BY:

GAIEN
Catalyst to achieving a circular economy

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INVITATION

Australia is poised to become a global leader in creating a clean hydrogen industry and is in a unique political advantage, with support from Federal and State Governments.

As the nation transitions to a low-emissions energy future, striving to achieve net zero by 2050, the focus is shifting towards electric vehicles (EVs) playing a vital role in this transition. With Australia's vastness, however, it has been recognised that employment of EV technology on its own will heavily constrain the long-haul transport, road, rail and shipping sectors. As a result, alternative technology options will need to be identified and developed.

The H2AUS: Online Forum Series aims to provide a platform to discuss the development and potential for a new industry in hydrogen, building on Australia's geographical advantages, export capabilities and strong relationships with key local and international energy markets, as well as creating a platform to view and share best practice techniques from around the world.

Through a series of online sessions, government, key industry sectors, primary producers, the research and academic sector, companies, manufacturers and individuals will be able to learn about and discuss issues facing the development of a successful transition from fossil fuels to a hydrogen and EV industry.

We invite you to register today for one or all sessions of this online event. If you can't make a session, we encourage you to register as normal and receive access to the recording after the live event.

REGISTRATION OPTIONS

Recordings of each session will be available to registered attendees after the event.

Register for all five sessions

AIEN Member $350
Non Member $520

Individual Session

- 19 July
- 2 August
- 9 August
- 16 August
- 23 August

AIEN Member $77
Non Member $110

All amounts include GST

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Every effort has been made to present all the information contained in this brochure as accurately as possible. The organisers reserve the right to change, without notice, any or all of these details.

SESSION I: DRIVING AUSTRALIA'S TRANSITION

Tuesday 19th July 2022

1100 **Welcome and housekeeping**
Mike Haywood, Chair H2Aus 2022

1105 **Welcome from the AIEN**
Colin Barker, Chair - Australian Industrial Ecology Network

1110 **Driving Australia's transition – The road thus far**
Mike Haywood, Chair H2Aus 2022

- How did we get to where we are today?
- What are the current issues?
- What do we need to progress industry development?

1140 **An EU Certified, Carbon Negative Leader in Next Generation, Waste to Hydrogen (W2H2) technologies**
Lady Jennifer Wentzki, BlueGas Technologies

Concord Blue's industry leading, thermolysis-based, patented waste to energy (W2E) technology can transform nearly any form of waste into a variety of renewable fuels, including Syngas and Hydrogen 5.0, with virtually no pollutants. The key elements for Australian projects will be designed and manufactured in Melbourne by Australian companies.

1200 **Questions and discussion**

1210 **Opportunities for low cost, distributed, green hydrogen production from wastes**
Dr Greg Perkins, Wildfire Energy

This paper will summarise opportunities for producing low cost, green hydrogen from wastes using circular economy principles. The talk will provide a summary of pilot plant and commercial plant design, operations, emissions and economics of the MIHG technology which Wildfire Energy is specifically developing for distributed waste to energy applications.

1230 **Questions and discussion**

1240 **Closing remarks**
Mike Haywood, Chair H2Aus 2022

Mike Haywood

Mike is a 30 years veteran in the waste management field, in which time he has developed a significant network of highly professional waste management peers and legislators. As a practitioner in all the waste management disciplines, he has a thorough and proven working knowledge of the current waste management sector with its nuances, legislative policies, opportunities and challenges added to this he is recognised as a visionary and sound thinker in waste management strategy, direction and implementation.

Mike was instrumental in developing the Alternative Fuels project a joint venture between ResourceCo and the Adelaide Brighton Cement Company. He worked closely with HRL and Adelaide Brighton Cement technical staff to develop the audit protocols required to determine fuel composition, designed and undertook trials to process sorted waste materials to meet the required specification of end user, in this case Adelaide Brighton Cement.

Mike is currently working with Verdant Earth Technologies to recommission the Redbank power station from coal to biomass and creating renewable energy and green hydrogen.

Lady Jennifer Wentzki

Managing Director, BlueGas Technologies

A long career in international business development in both public and private sectors and focussed on clients in the Asia Pacific, included an assignment connected with Concord Blue Energy when Australia was first beginning to realise that landfill wasn't the answer to waste management.

As founder of BlueGas Technologies, Lady Wentzki now guides the entry into the Australian market of the Concord Blue Reformer, currently the only Waste to Hydrogen technology that is Carbon Negative Certified, tackling the three essential challenges of creating clean energy, managing waste, and environmental protection.

Dr Greg Perkins

CEO, Wildfire Energy

Greg Perkins is co-founder and CEO of Wildfire Energy, an Australian company developing the MIHG technology for converting residual wastes into electricity, hydrogen and fuels/chemicals. Greg has 25 years of experience in commercialising technologies in the energy industry with companies such as Shell International and Rio Tinto and is also an Adjunct Professor in Chemical Engineering at the University of Queensland. Greg has bachelor degrees in Science and Mechanical Engineering, a PhD in gasification and an MBA from UCLA.

SESSION 2: THE 'HOW TO'

Tuesday 2nd August 2022

1100 **Welcome and housekeeping**
Mike Haywood, Chair H2Aus 2022

1110 **Case studies of several of these high temperature and ambient temperature processes developed to produce a synthesis gas mix that contains hydrogen**
Dr Robert White, Technical Insight

The paper will present a few processes that originally utilised fossil fuels as feed stock, but have recently been shown to also operate with biomass as feed stock. Brief case studies of several of these high temperature and ambient temperature processes developed to produce a synthesis gas mix that contains hydrogen will be presented.

1130 **Questions and discussion**

1140 **Green Hydrogen from Waste in a Circular Economy: Producing low-cost hydrogen with a negative CO2 footprint from minimally prepared waste or biomass**
Marc Bacon, OMNI (Canada)

Marc will describe how MSW, RDF, biomass, and other solid wastes can be converted to a clean syngas, then to hydrogen, using proven industrial processes. This will reliably produce carbon with a negative CO¬2e at less than half the cost of electrolysis.

1200 **Questions and discussion**

1210 **Australian Green Hydrogen Production for Local Use and Export**
A/Professor Ahmad Zahedi, Renewable Energy Engineering Consultancy

The objective of this presentation is to present the results of an investigation conducted in relation to viability of a renewable Green Hydrogen generation plant within Australia that can supply the local market and export abroad.

1230 **Questions and discussion**

1240 **Closing remarks**
Mike Haywood, Chair H2Aus 2022

Dr Robert White
Technical Insight

Robert is a chemical engineer with a PhD focused on fluidised bed processing. He has extensive experience in the development, scale-up and optimisation of industrial processes and equipment, pneumatic conveying, slurry pumping, dust handling and computational fluid dynamics (CFD) modelling. Robert has previously worked in the areas of mineral and metal processing and power generation industries.

His skill set is relevant to hydrogen production and his interests are sustainable development, energy efficiency and industrial ecology.

Marc Bacon
President and COO, Omni Conversion Technologies

Marc has 41 years of operations, engineering, and executive experience. He led the team that advanced OMNI's technology to commercial readiness and is now deploying it worldwide in a modular commercial design through a low-cost, high-quality international supply chain.

Marc is also the Vice-Chair of Global Syngas Technology Council Executive Committee.

A/Professor Ahmad Zahedi
Renewable Energy Engineering Consultancy

Educated in Iran and Germany, Ahmad has over 30-year experience in teaching Renewable Energy and Power Engineering at University levels in Australia, Japan, and Europe, published more than 200 papers including 4 books, trained 21 successfully completed PhD candidates, examined more than 50 PhD and Master thesis, and completed 15 industry funded projects.

SESSION 3: INFRASTRUCTURE

Tuesday 9th August 2022

1100	**Welcome and housekeeping** **Mike Haywood,** Chair H2Aus 2022	
1110	**Using Simulation for Generation, Transport, Delivery & Storage of Hydrogen** **Joel Thakker,** LEAP Australia	Numerical simulation in the form of CFD, FEA and systems modelling have long been used successfully in the process industries. In the rapidly developing world of hydrogen applications, simulation is now helping engineers meet design specifications from concept through to delivery stages of a project
1130	**Questions and discussion**	
1140	**Towards the Australian PEM GIgastack for Industrial Decarbonisation** **Dr Neil Thompson,** ITM Power	The challenge for heavy industry decarbonisation in Australia cannot be addressed via electrification and use of renewable electricity alone. PEM electrolysers are required to provide green hydrogen and stabilise the electricity grid in response to increasing penetration of variable renewable energy. This presentation provides an overview of progress in Australia on development of the first PEM type electrolyser at the GW scale as needed for industrial decarbonisation.
1200	**Questions and discussion**	
1210	**ENGV - 'H2 Integration' Lessons from real Australian project deployment - with Nel, PDC, Hexagon Purus and Powercell support!** **Sean Blythe,** ENGV	Being first is not always easy! Learn from ENGV's experiences and lessons learnt in project development, deployment and operations of H2 electrolysis, compressor, refuelling & fuel cells in the Australian economic, commercial and technical market.
1230	**Questions and discussion**	
1240	**Closing remarks** **Mike Haywood,** Chair H2Aus 2022	

Joel Thakker
Senior Fluids Business Manager, LEAP Australia

Having started out in the space industry in the US in 2005, Joel moved over to using engineering simulation and modelling tools for a myriad of industries and applications over the years. From structural stresses, vibration and fatigue, to flow assurance, balancing and transport, these days, Joel provides digital solutions via CFD and FEA to the hydrogen production, storage and transport industries.

Dr Neil Thompson
Managing Director, ITM-Power

Dr Neil Thompson has undertaken award-winning research at QUT Australia and KIT Germany as Adjunct Associate Professor in the field of integrated, closed-loop system design which resulted in development of the Integrated Sustainable Design (ISD) protocol to aid construction of low-risk and future-proofed infrastructure and built-form whilst providing for improved social and environmental outcomes from these facilities.

Since receiving his PhD in 2016, Neil has worked as an independent consulting engineer and economist for the AEC sector in order to deploy the ISD protocol in local and international projects with particular emphasis on the use of waste streams and renewable resources to create hydrogen fuel and clean energy. In 2018 he became the Australian representative of the UK electrolyser manufacturer, ITM-Power.

Sean Blyth
Director and Chief Executive Officer, ENVG

Sean has over 20 years' experience in the gaseous fuels and renewables infrastructure industry with a focus on technology deployment & implementation.

Sean sits on Australian Standards Committees for Hydrogen and Natural Gas and has delivered numerous CNG/RNG & Hydrogen projects in Australia and internationally. ENGV is proud to have designed, developed and is operating Australia First Public H2 refuelling station in the nations capital in March 2021.

SESSION 4: HYDROGEN IN A CIRCULAR ECONOMY

Tuesday 16th August 2022

1100 **Welcome and housekeeping**
Mike Haywood, Chair H2Aus 2022

1110 **Insights for circular economy opportunities in hydrogen production in Australia**
Dr Anthony Halog, University of Queensland

With relevance to Australian interests, we aim to conduct a state-of-the-art review of technology developments where hydrogen production can contribute to enhance wastewater treatment, increase economic value of biomass (in the form value adding bioproducts) and reduce the cost of carbon capture, thus, contributing to a circular economy and bioeconomy.

1130 **Questions and discussion**

1140 **The Social Licence for Mega Projects: A new era**
Clare Pope, PwC

Western Australia is the home of a number of proposed world scale green hydrogen export projects - land hungry; and needing to meet new expectations of the social licence to operate.

1200 **Questions and discussion**

1210 **A social licence is not a 'given'**
Joan McGovern, 123V

To succeed in our aim to decarbonise Australia, we must communicate par excellence. Listening, being open and honest about concerns that will be raised about water use, land use, jobs and implications at a local level will build trust. These are the essential prerequisites to gaining a social licence.

1230 **Questions and discussion**

1240 **Closing remarks**
Mike Haywood, Chair H2Aus 2022

Dr Anthony Halog
University of Queensland

Dr. Anthony Halog is one of the leading scholars in Circular Economy and Bioeconomy in Australia and beyond. He is currently a lecturer at the University of Queensland and leading a Research Group in Industrial Ecology and Circular Economy. He has more than 80 peer-refereed publications and given keynote/plenary/invited talks internationally.

Clare Pope
Partner, PwC

Clare leads PwC's ESG practice for the global legal network. Clare is an experienced corporate energy & resources lawyer, and is admitted to practice in England & Wales and Australia.

Clare is advising on the development of a number of export scale hydrogen projects based in WA's mid-west region, and has significant experience in advising in relation to projects in the energy and resources industry, including the acquisition and development of renewable power projects, LNG, oil & gas and mining projects, as well as joint ventures, offtake agreements, infrastructure access and sharing arrangements and other resources and infrastructure related documentation.

Joan McGovern
Director / Founder, 123V

Joan McGovern was a journalist then ran her own PR consultancy in Tasmania before embarking on a 20-year corporate affairs career in Victoria, specialising in community and stakeholder engagement, crisis, and issues management.

She worked in the agriculture sector for AWB Limited; in manufacturing for aluminium smelter, Alcoa; and latterly for 'big oil' at Shell Geelong Refinery.

Joan is a director and co-founder of 123V, a green hydrogen project development company, and she provides the 'soft skills' to the 123V team.

SESSION 5: CASE STUDIES

Tuesday 23rd August 2022

1030	**Welcome and housekeeping** **Mike Haywood,** Chair H2Aus 2022	
1040	**The reality of hydrogen competing with existing energy costs** **Jeremy Harris,** 123V Pty Ltd	To be adopted by the general public, hydrogen needs to compete economically with existing sources of energy. The current elevated costs of energy (Natgas, Petrol and Diesel) is a double edged sword for hydrogen.This presentation will outline the indicative H2 netbacks for various end uses of hydrogen in current economic conditions and present a view on how far away hydrogen is from matching these.
1100	**Questions and discussion**	
1110	**Port Anthony Renewables Hydrogen Hub** **Ben Anthony,** Port Anthony Renewables	Ben discusses not only the attributes of their unique Hydrogen Production and export hub, but also on the broader context of what Hydrogen as an energy carrier provides that other energy resources, both old and new cannot, and provides the context in which the Hydrogen industry is a pure necessity.
1130	**Questions and discussion**	
1140	**Aqua Aerem and Desert Bloom Hydrogen – Producing water and truly green hydrogen** **Dr Jarrod Ward,** Aqua Aerem	
1200	**Questions and discussion**	
1210	**Closing remarks** **Mike Haywood,** Chair H2Aus 2022	

Jeremy Harris
Director, 123V Pty Ltd

Jeremy Harris has over 25 years of experience in oil, gas, electricity, renewables and hydrogen development.

Jeremy worked for over 21 years with Shell/Viva in a range of roles in Australia and Overseas building a deep knowledge of the fuel energy requirements of Australia and the end-to-end energy value chain.

After leaving Viva, Jeremy established his new consulting company, LocoParentis, to assist companies plan and manage their transition into the zero carbon future.

In 2020 Jeremy also co-founded, 123V, a hydrogen project development company, focusing on FCEV heavy transport that has several projects under development in Australia.

Ben Anthony
Managing Director and CEO, Port Anthony Renewables

Ben has 20 years' experience in the energy industry. He has predominantly worked as the owner and manager of the Anthony family's Civil Demolition, Construction, large scale Drilling, Oil-Gas and Geological Exploration Companies.

Ben currently provides overarching management of the Family Port Facility located in Southeastern Victoria. He has an extensive background in the energy sector, having experience on horizontal, directional and vertical drilling along with exploration projects. Over time, Ben has also developed high-level construction project management skills.

Dr Jarrod Ward
Co-Founder, Aqua Aerem

Jarrod is the Chief Technology Officer and Co-Founder of Aqua Aerem. Jarrod has a PhD in chemistry and is a registered patent attorney (AU and NZ). Jarrod has worked with different companies, large and small, all over the world to help them achieve their goals. Over his career, Jarrod has worked on numerous start up and pilot projects in the industrial chemical field. Jarrod has significant experience in business development; intellectual property strategy, deployment, and protection; commercialisation; negotiation; research; invention; product development; and licensing.

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