Powerfuels including Hydrogen Network

DECARB HUB

Our Network Partners:

UNSW SYDNEY

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

UTS

THE UNIVERSITY OF SYDNEY

UOW AUSTRALIA

NSW GOVERNMENT Department of Primary Industries

Proudly funded by

NSW GOVERNMENT

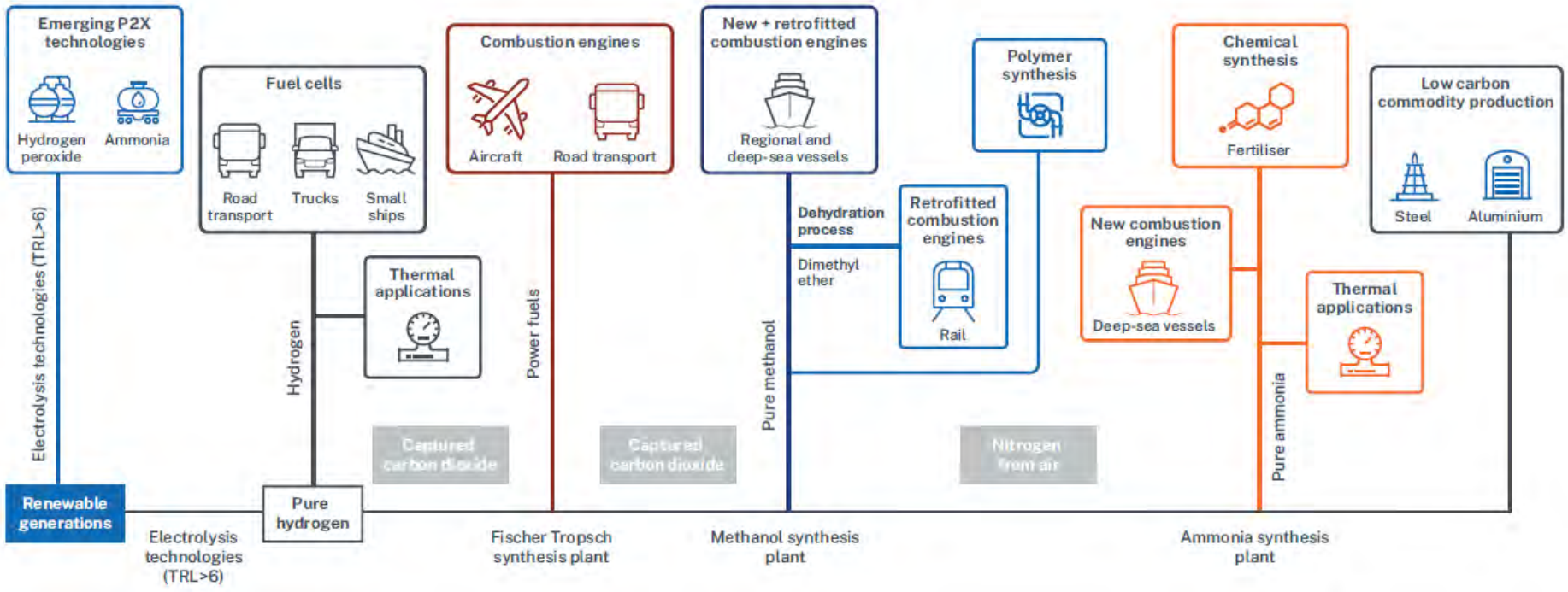
Vision & Mission

Vision

NSW is a global leader in Power-to-X (P2X)

Mission

To accelerate the industrial translation of P2X technologies through collaborative research, capability building and expertise to address challenges faced by clean fuels and chemicals across their value chains



Power-to-X: cluster of technologies and processes can convert renewable energy into green powerfuels and sustainable chemicals

Partners & Partnership

- Open partnership model, join anytime, no hub-networks bundle.
- Access to network seed grants pool of at least $300k every round
- Partner with P2X leaders from academic, industry and NSW Government
- Access to network business development pipeline for grants and projects
- Leverage capability and resources within the network to build capacity
- Play a role in shaping NSW and Australia's P2X policy and industry landscape
- Commitment $60k & in-kind annually

Network Partners

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UTS

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NSW GOVERNMENT

Potential New Partners in Negotiation/Discussion

MACQUARIE University

une University of New England

Australian National University

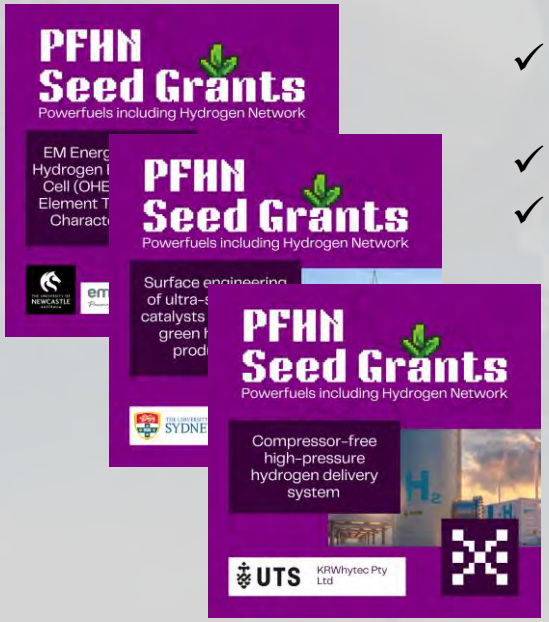
Members & Membership

- ✓ **Free membership**, open to all P2X players from research, SMEs, investment, government and NGOs
- ✓ Access to network capability to build IP, grow biz, development projects and commercialise techs
- ✓ Access to services by network and partners (BDMs, knowledge-sharing, marketing, promotion and events)
- ✓ Partner with P2X leaders from academic, industry and NSW Government
- ✓ Play a role in growing NSW and Australia's P2X innovation communities and industry

Our Network Members:

Powerfuels incl. Hydrogen - Network Workstreams

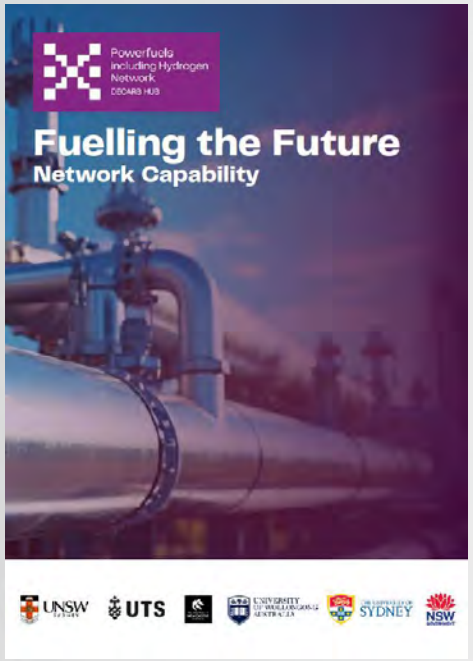
R&D



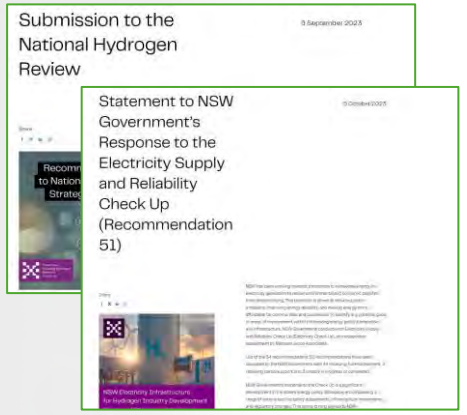
Tech Transfer

- ✓ Government Grants Programs
- ✓ Private Funding
- ✓ Accelerators and Incubators

Capability Building



Policy



Industry Development

Outreach, Event and Engagement Services

Powerfuels Network 2024/25 Priorities

P2X Focus areas and emerging opportunities:

- Synthetic aviation fuel (e-SAF) for aviation decarbonisation
- Methanol for maritime decarbonisation
- P2X Circular (Waste-to-Hydrogen)
- P2X Manufacturing (fuels and equipment)

New network initiatives to be rolled out:

NSW P2X Tech Voucher Program

Accelerate commercialisation processes
Access to network partner resources

Technology Feasibility Program

Techno-economic assessment on technologies
Derisk investment in pre-commercial projects

NSW P2X Ambassador Program

Early-career-researcher community building
Industry-based skills and training development

Powerfuels Network – what's happening

PFHN Seed Grants Round 1: In contracting phase – draft agreements sent out to partners

PFHN Seed Grant Round 1 Recipients FY24/25

Lead Partner & Lead Applicant	Industry Partner	Project Title	Project Summary/Value
University of Newcastle, Peter Richardson	EM Energy	*EM Energy Organic Hydrogen Electrolyser Cell (OHEC) Critical Element Testing and Characterisation*	Assessing a range of organic feedstock to provide a sustainable source of green hydrogen contributing to the circular economy
University of Technology Sydney, Rui Han	KRWhytec Pty Ltd	*Compressor-free high-pressure hydrogen delivery system*	Improved hydrogen delivery system focusing on providing more economical, efficient a safe source of high-pressure H2
University of Sydney, Jun Huang	Aquaticus Green Hydrogen Pty Ltd	*Surface engineering of ultra-stable alloy catalysts for scalable green hydrogen production*	Technical innovation in green hydrogen production

Powerfuels Network – what's happening

R&D

NSW P2X Tech Voucher Program (Q3-Q4):

- Accelerating commercialisation processes
- Industry-led projects
- Access to network partner resources
- Matching fund – up to $40,000
- TRL 5+

ARENA Grants for Hydrogen and Green Steel

- Successful bids for the network
  - Hysata, UoW: High temperature, ultra efficiency capillary-fed electrolysis project, S2.97M
  - UNSW: Renewable ammonia, $1.87M
  - USyd, Hysata: Advanced manufacturing alkaline electrolyser cell-stacks for green hydrogen, $2.24M
  - UNSW, UoN, UTS: Blast furnace innovations: sustainable, low-carbon ironmaking project, $4.4M
  - UoW, Bluescope Steel : Port Kembla Steelworks Renewables, $2.03M
  - UoN: Electric smelting of hematite-goethite hydrogen DRI, $2.94M

Powerfuels Network – what's happening

Tech Transfer

Net Zero Institute (USYD)

- Level 4 centre under Prof Deanna D'Allessandro
- Kicking off international collaboration into green energy and hydrogen.

Education

- National stocktake of courses on hydrogen and green fuels offered by universities and TAFE to be published by govt.

Policy/Capability Building

National Workforce Analysis Project

- Workforce needs focussing on H_2 production for 2030 – 2050
- Identifying gaps in current and projected resources using publicly available labour data
- Potential to leverage network university partners as knowledge transfer hubs

NSW Hydrogen Strategy

- Infrastructure Masterplan – out early July
- Green Ammonia Market Study

Powerfuels Network – what's happening

Industry Development

Beyond Fossil Diesel Project (DPI)

- Decarbonisation of transport in NSW – renewable diesel in trucks
- Project to be expanded with EESN targeting commercial fisheries
- Low carbon liquid fuels and increased demand for synthetic aviation fuels (SAFs)

P2X Ambassador Program (Early stages)

- ECR and MCR engagement within the network

Network Engagement

Attendance at recent events:

- Climate Action Week Sydney 2024
- UNSW Future Climate and Clean Energy Expo
- World Hydrogen Summit
- Australia-EU Green Hydrogen Dialogue

Continued support for grant applications including ARC CoE bids by network partners

Upcoming engagement opportunities:

- JACKS Hydrogen Forum (S. Korea) – September 2024
- AHRC – WA, September 2024
- APAC Hydrogen Summit – September 2024

Key Contacts

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Scientia Professor Rose Amal

Network Lead
Co-Director ARC Training Centre for the Global Hydrogen Economy (GlobH2E)

Dr Rahman Daiyan

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Chief Investigator for GlobH2E, Scientia Senior Lecturer at UNSW Sydney

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