

Trailblazer for Recycling and Clean Energy



Image: Solar technology used for the production of hydrogen from wastewater.

Inaugural Showcase

4-7pm, Tuesday 5 March 2024

The Calyx, Royal Botanic Garden Sydney



Trailblazer
Recycling &
Clean Energy

www.trace.org.au

The Trailblazer for Recycling and Clean Energy (TRaCE) program is a collaboration between UNSW Sydney, the University of Newcastle and partners that aims to accelerate and transform research pathways to commercially viable products for the clean energy and recycling sectors.

TRaCE will accelerate the net zero economy through an integrated, research-to-market ecosystem, creating skilled jobs and sovereign manufacturing through de-risking commercialisation across priority research areas.

Agenda

- 4:00 pm Networking and a chance to connect with research/industry/ startup teams
- 4:30 pm Welcome to Country - Uncle Brendan Kerin, Metropolitan Local Aboriginal Land Council
- Welcome to the Showcase
- Official opening by
Professor Attila Brungs, UNSW Vice-Chancellor and
President & Professor Zee Upton, University of Newcastle
Deputy Vice-Chancellor (Research and Innovation)
 - Ministerial Address by Senator the Hon Anthony Chisholm,
Assistant Minister for Education and Regional Development,
introduced by Meg McDonald, Chair of the TRaCE
Governance Board
 - How the TRaCE model will scale the impact of clean energy
and circular solutions - Professor Emmanuel Mastio, TRaCE
Executive Director
 - Discussion: From Research to Scalable Impact
 - Vote of thanks
- 5:45 pm Networking and a chance to connect with research/industry/ startup teams while canapes and beverages are served.

Showcase

Meet the research teams, industry partners and startups devising the impressive range of industry-led solutions that will deliver scalable decarbonisation.



R&D Projects

Rio Tinto is providing industry insights and knowledge across three projects: Retrofitting diesel engines to run on 90% hydrogen by using a direct injection dual-fuel system, reducing emissions in heavy industries by more than 70%. *Research lead: Prof Shawn Kook*

Identifying the most efficient and cost-effective way of storing renewable energy and to reduce its carbon footprint. *Research leads: Prof Jie Bao, Prof Maria Skyllas-Kazacos & A/Prof Chris Menictas*

Building a novel process that uses sunlight and waste organic-containing feedstocks in remote communities to sustainably produce hydrogen and clean water. *Research lead: A/Prof Jason Scott*

RioTinto

Canadian Solar is making solar energy more reliable and cost-efficient by improving testing methods to identify various cell level degradation modes in solar panels faster. *Research lead: Prof Bram Hoex*



Kardinia Energy is set to offer affordable solar solutions with printed solar made from recyclable, ultra-lightweight materials. *Research lead: Prof Paul Dastoor*



Vecor Technologies is collaborating on three major projects: novel sodium-batteries as an alternative to lithium; engineered catalysts for seawater splitting and air purification; and advanced ceramic products from fly ash. *Research leads: A/Prof Pramod Koshy, Dr Sajjad S. Mofarah & Prof Charles C. Sorrell*



LAVO is producing a cost-effective, safe and long-lasting storage system for excess renewable energy in the form of green hydrogen, without the risks of combustibility or leaks. *Research lead: L/Prof Behdad Moghtaderi*



Element One is making green ammonia more accessible by building a simpler, more cost effective and environmentally friendly production process than conventional methods. *Research lead: L/Prof Behdad Moghtaderi*



Elmntre is using KIMIYA, a set of thermochemically assisted processes, to transform organic waste into hydrogen and sustainable aviation fuels without carbon emissions. *Research lead: L/Prof Behdad Moghtaderi*



ASCON Energy is uplifting the commercial readiness of VAMCO abatement technology to achieve negative emissions for the steel industry while producing green chemicals such as hydrogen and ammonia. *Research lead: L/Prof Behdad Moghtaderi*



Kandui is advancing MICROfactorie™ technologies to convert waste textiles and mattresses into Green Ceramics, composites serving as safe and sustainable alternatives to engineered stone for kitchen benches and construction. *Research lead: S/Prof Veena Sahajwalla*



Jamestrong plans to use UNSW metal recycling technology at its Taree plant to integrate recycled aluminum into its aerosol can manufacturing process. This technology will make Jamestrong one of the first global aluminum aerosol can producers to use recycled materials in its manufacturing process. *Research lead: S/Prof Veena Sahajwalla*



Quickstep is developing a lightweight, SMART hydrogen tank from carbon fibre that can be integrated into the airframe of a drone, enabling increased delivery capability. *Research leads: Prof Gangadhara Prusty & A/Prof Garth Pearce*

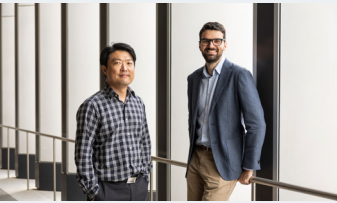


North Harbour Clean Energy is optimising the vanadium flow battery to increase storage capacity, deliver grid-scale energy solutions and develop local manufacturing capability. *Research leads: Prof Jie Bao, Prof Maria Skyllas-Kazacos & A/Prof Chris Menictas*



Dovetail Electric Aviation is reducing aviation emissions with hydrogen, integrating complex and innovative technologies to deliver a combined battery and hydrogen energy-storage based powertrain for use in electric aircraft. *Research leads: Prof John Fletcher & A/Prof Branislav Hredzak*

Showcase: Startups



DeCarice is decarbonising industrial engine fleets by substituting hydrogen for diesel. *Team: Goran Bozic & Prof Shawn Kook*

GreenDynamics is leading the way with a comprehensive AI strategy for materials innovation, incorporating data mining, self-driving simulation, and synthesis to transform sustainable material development. *Team: Tong Xie & Shaozou Wang*



Powour offers a digital app and reporting platform that incentivises and promotes the transition to sustainable modes of transportation to reduce emissions. *Team: Jeremy Leibman & Katie Hilliard*

SoNiA GreenTech's highly concentrated polymer-modified bitumen comes in a pelletised form, saving significant emissions and reducing energy use in manufacture, storage and transportation. *Team: A/Prof Ailar Hajimohammadi, Nioushasadat Haji Seyed Javadi & Soheil Heydari*



WorkbenchX is a supply chain platform for the circular economy that makes it easy to retain maximum value and minimise the wastage of embodied energy of industrial components. *Team: Brian Winship & Joseph Ayrookaran*

EM Energy is dedicated to propelling a low-carbon emission global economy by harnessing the power of abundant and non-toxic organic materials. Their mission is to unlock the potential of decarbonising industries and cities through the on-demand production of green hydrogen. *Team: Isabel Toasa and Chris Wilson*



Partner with us

TRaCE is looking to partner with trailblazing businesses, industry, research, investment and education partners committed to accelerating the commercialisation of clean energy solutions to support the energy transition.

TRaCE is part of the Trailblazer Universities Program, established by the Australian Department of Education to build new research capabilities and drive research translation and commercialisation in priority areas identified in the Modern Manufacturing Strategy.

Trailblazer for Recycling and Clean Energy (TRaCE)

A collaborative partnership between



Supported by



Australian Government
Department of Education

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Image: Solar research from the School of Photovoltaic and Renewable Energy Engineering (SPREE), UNSW Sydney.

