



The Sustainable Engineering Society

...engineering in harmony with ecology

SENG-WA Newsletter – June 2022

In this edition of the SENG WA newsletter, we present events covering pollution, renewable hydrogen and ecosystem restoration, as well as news of WA's new electric vehicle rebate.

WA businesses are also invited to let us know how they are being Sustainability Champions in their industry. Please get in touch if sustainability is at the heart of your business, or a business you know.

We hope you enjoy!

OPINION: VALUING EXTERNALITIES

Following last month's opinion piece on valuing externalities, SENG received the following response from a reader:

I liked your piece on shadow carbon pricing in the SENG newsletter. Well done.

While I agree that pricing carbon is appropriate to allow a more complete benefit-cost analysis, I'm not convinced that monetising externalities is appropriate for other aspects (eg. cultural impacts like indigenous values is a particularly difficult area to monetise). In this regard, I am noticing in international literature, and it came across a lot at OzWater this year, a growing trend towards only including conventionally available financial data in a benefit-cost or NPV analysis (I include a carbon price in this) and then relying on other methods like multicriteria analysis to balance financial outcomes with other "externalities" to make a final decision. While this general area of MCA thinking has been around for some time, I've often see our decisions ultimately revert to the simple NPV outcome. In the move to achieve circular economy outcomes there are a growing number of examples of projects that are progressing on an MCA outcome, even when the NPV is much less favourable than other alternatives.

If you have any further comments on the article or any suggestions on important considerations for designing a shadow carbon price or for principles to consider when valuing any other externalities (e.g. native vegetation clearing; and social impacts such as noise pollution) then please respond using this [Reply Link - Valuing Externalities](#). Responses may be included in summary form in future newsletters unless you request otherwise.

QUESTIONS AND ANSWERS

A 'Climate Change Challenges' series of webinars and forums was run in 2021 by the WA Division of Engineers Australia, in conjunction with the University of WA and Murdoch University.

During the series, over 100 questions or comments were submitted from around 1000 attendees. A 'Q&A' of the most pertinent, together with suggested answers, was put together by a group of senior EA members. The answers are NOT official EA answers; they are possible answers provided by the group as thought provokers.

In our Newsletter we will be publishing one Question and one possible Answer in each edition. We invite comments from our readers, a summary of which will be published in the following edition. Simple comments, such as agree/disagree are welcome, as are more detailed comments. These may be emailed to the [Q&A reply email](#).

This month, our question and possible answer is:

Q

What are the key engineering needs for adaptation to a hotter climate?

A

Answer: For infrastructure that is likely to be in-place beyond 2050 (most of the built infrastructure) we must recognise the problem quite specifically. For example, openly recognise the need to provide for 3°C global warming (which equates to 4.2°C for Australia) by end of century. This includes recognising that ‘end of century’ conditions may occur as early as 2080 according to the IPCC. The second need is to develop engineering standards that look forward to these new Australian conditions. Standards are needed for rainfall, wind, waves, currents, temperature, solar radiation, bushfires/smoke, sea level rise and others.

SENG WA would love to hear from you about these questions and answers.

Contact us here: [Q&A reply email](#)

EVENTS



ENVIRONMENTAL POLLUTION: THE PRESENT AND THE FUTURE IN WESTERN AUSTRALIA

Symposium by The Royal Society of Western Australia

Date: Sat, 11 Jun 2022

Time: 9:00 AM – 5:00 PM AWST

Location: Hill Lecture Theatre, South Street, Murdoch, WA 6150

Earth's natural systems have been negatively impacted by human activities for the last 250 years. The increasingly detrimental effect is inextricably linked to population growth and reckless exploitation of natural resources. With the contribution of most world regions, data on the global environmental pollution and its consequences are constantly recorded and analysed. The 2022 one-day Symposium of the Royal Society of Western Australia (RSWA), a multi-disciplinary scientific society established in 1914, aims to draw a baseline of the current level of pollution in Western Australia. This will be achieved by gathering experts from diverse institutions, such as Academia and the Government, who will present research and advances in a variety of fields, promote debate and inspire future collaborations towards the shared goal of sustainability in development. The planned presentations will cover air, soil and water pollution, with a brief reference on their influence on human health.

Hear experts from both academia and government presenting research into the effect of human activities on the unique and fragile natural systems of WA

More information: <https://www.eventbrite.com.au/e/environmental-pollution-the-present-and-the-future-in-western-australia-tickets-344495032917>

THOUGHT LEADERS SERIES: RENEWABLE HYDROGEN FROM WASTEWATER, WATER CORPORATION & HAZER PROJECT

Webinar by Engineers Australia

Date: Wed, 15 Jun 2022

Time: 11:00 AM - 12:30 PM AWST

An Australian first project to produce low-emission hydrogen and graphite from sewage at a wastewater treatment plant.

Water Corporation and Hazer Group have collaborated to locate the Hazer technology at the Woodman Point Water Resource Recovery Facility in Munster.

The project has been developed to capitalise on the waste product of biogas, which is released during the wastewater treatment process. While most of this renewable fuel is currently used to produce heat and electricity for the treatment plant, any excess is flared - now it will be converted into valuable materials using an iron ore catalyst.

Join Luc Kox, Hazer Group Limited and Russell Lamb, Water Corporation as they discuss the collaboration between the public sector and private sector to develop technology that produces green hydrogen on this Australian first project.

Key Take-Aways:

- Circular economy opportunity at Water Resource Recovery Facilities
- Novel technology for low emissions production of hydrogen and graphite
- Opportunity for collaboration between public sector and private sectors to develop new technologies

More information: <https://www.engineersaustralia.org.au/event/2022/04/thought-leaders-series-renewable-hydrogen-wastewater-water-corporation-hazer-project>

CELEBRATING ECOSYSTEMS RESTORATION ON WORLD ENVIRONMENT DAY

Discussion by the United Nations Association of Australia Western Australia

Date: Thursday, 30 Jun 2022

Time: 5.30 – 8:00 PM AWST

Location: The Base @ FLUX, 191 Saint Georges Terrace, Perth, WA 6000

This World Environment Day, the United Nations Association of Australia Western Australia (UNAAWA) and the Environment Institute of Australia and New Zealand (EIANZ) present “Celebrating Ecosystems Restoration on World Environment Day”.

Join them as they delve into the UN Decade of Ecosystem Restoration, with speakers showcasing the important environmental restoration and conservation work underway in WA, followed by a panel discussion on the role of industry, regulators, academics, and our indigenous and local communities in addressing the principles that underpin ecosystem restoration.

More information: <https://www.eventbrite.com.au/e/celebrating-ecosystems-restoration-on-world-environment-day-tickets-333406236027>

MEDIA

IMPLEMENTING SUSTAINABILITY

An overview of Engineers Australia's national guidelines, "Implementing Sustainability: Principles and Practice" given in 2019 by one of the authors, David Rice, FIEAust.

https://www.youtube.com/watch?v=YDi4Tlv_IQ4

WA NOW HAS A ZERO EMISSION VEHICLE (ZEV) REBATE

The Zero Emission Vehicle (ZEV) Rebate Scheme is a financial incentive to encourage the purchase of zero emission vehicles as part of the WA Government's Clean Energy Car Fund.

The \$3,500 rebate is available for 10,000 eligible vehicles licensed in WA, or for three years following the announcement (i.e., till Saturday 10 May 2025), whichever comes first. Zero emission vehicles are vehicles powered solely by batteries or hydrogen fuel cells that do not emit greenhouse gases.

To be eligible for the rebate, the vehicle must:

- be a zero emission vehicle and be fully powered by batteries or hydrogen fuel cells;
- be a [light vehicle](#) (vehicle with a gross vehicle mass of 4.5 tonne or less), including:
 - light passenger vehicles, such as sedans, hatchbacks and sports utility vehicles (SUVs);
 - light commercial vehicles; and
 - light trucks.
- be granted a vehicle licence in WA on or after Tuesday 10 May 2022;
- have a [maximum dutiable value](#) (external link) of \$70,000 or less; and
- be brand new and never previously been registered or licensed in Australia or overseas.

Full article: <https://www.transport.wa.gov.au/projects/zero-emission-vehicle-zev-rebate.asp>

RED SEAWEED FEED SUPPLEMENT FOR REDUCTION IN RUMINANT METHANE EMISSIONS

Tasmanian seaweed producer Sea Forest has won a \$3.8m Federal government grant to help cut methane emissions from livestock by scaling the production of its red seaweed feed supplement.

The grant is part of the Tasmanian government's Securing Raw Materials program, which aims to support businesses to expand in regional areas for research and innovation using locally sourced raw materials.

According to the company, the funding will enable it to scale its production of the red seaweed, *Asparagopsis*.

Because of its high bromoform content, red seaweed has proven to be very effective in inhibiting methane production in livestock. Experiments show that adding about 20 per cent of seaweed biomass to animal feeds effectively reduces emissions by 98 to 99 per cent.

The expansion will help supplement over 400,000 cattle annually, eliminating an estimated 1 million tonnes of CO2 emissions from livestock each year.

The new funding is additional to the previous \$1.67 million grant given last year to the company, following a major property acquisition in Swansea, Tasmania.

Full article: <https://viable.earth/plant-based-food/tasmanian-seaweed-company-wins-3-8m-grant-to-help-cut-methane-emissions/>

SUSTAINABILITY CHAMPIONS



WA SENG is giving companies a free opportunity to showcase their sustainable, innovative practices in our newsletter.

For a chance to be featured, please complete [this form](#).



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