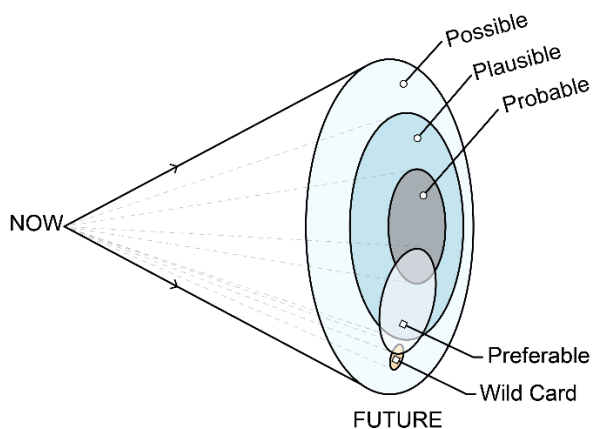




PhD Research: Australia beyond decarbonization

A foresight study on the impact of nuclear technology on energy systems in Australia with scholarship support up to \$50k p.a. plus research costs.



The future cone defines: 1) *Possible Futures*, which include 'Wild card' events such as a pandemic or sea change in social outlook, 2) *Plausible Futures* as logical extensions of current trends and understandings, and 3) *Probable Futures* are a subset of plausible futures considered likely outcomes based on an appraisal of the current trends.

Decarbonisation commitments are transforming energy systems. Australia is leading the world's uptake of solar and wind, with several other emerging technologies. The range of technologies creates many potential futures, particularly when considering their many political, social and economic dependencies.

Some promising technologies will fail to deliver, others will become newly viable, while unforeseen events may cause widespread disruption or sea change in social outlook. Foresight provides tools for studying these dynamic changes by considering probable, plausible and possible futures [1]. A resilient system should be flexible enough to adapt to these events. These futures allow consideration of current issues from new perspectives and may lead to new plans, or aspirations.

Nuclear power is among the most disruptive technologies now gaining renewed interest in Australia. Its potential for decarbonising national electricity systems is significant [2]. Its adoption is dependent on risk perceptions, political and social relationships and on people's varying conception of contrasting futures.

The research team will apply foresight research techniques to investigate energy futures that include nuclear power. Analysis at the national scale will investigate energy security, emissions and resources. Local fieldwork will investigate social dimensions such as public acceptance or risk/benefit perception. This latter part will be public-facing, involving deep engagement with real stakeholders in the energy futures.

The PhD research is part of a collaboration between [UNSW Nuclear Engineering](#) and [UNSW Design Next](#), supervised primarily by [Dr Edward Obbard](#), [Professor Ilpo Koskinen](#) and [Dr Nicholas Gilmore](#). Through UNSW Sydney, the research contributes to Australia's representation on the OECD [Global Forum for Nuclear Engineering Education, Science, Technology and Policy](#), with associated opportunities for travel and engagement in international fora.

[1] Hancock, T. and Bezold, C. (1994) *Possible futures, preferable futures*, in: The Healthcare Forum Journal Mar. 1994.
 [2] [Gilmore et al. \(2021\) Clean Energy Futures: An Australian Based Foresight Study](#)

Requirements

UNSW recruits talented researchers of any nationality, gender, culture, religion, sexual orientation or age. This PhD will suit people with:

- Bachelors or Masters degree in a related field, or to be completed in 2021;
- Technical knowledge of energy systems and/or specific energy technologies.
- Meet requirements for PhD admission and scholarship eligibility (typically 1st class honours or equivalent);
- An interest in human-technology interaction, energy systems and design research;
- The ability to run workshops, co-design activities and collaborate with various stakeholders are 'nice to have';
- Proficiency in English, as well as good communication skills, both oral and written;
- Great teamwork skills are valued given the collaborative nature of the project;
- Australian applicants (Australian citizen or PR visa) must apply for and receive a RTP scholarship; international applicants must apply for and receive TFS or UIPA scholarships.
- Candidates must be able to commence Term 1 or Term 2, 2022.

Research environment

[UNSW](#) is one of Australia's leading and highest-ranking universities. It is dedicated to both excellent teaching and world-class research. At UNSW, we pride ourselves on being a workplace where the best people come to do their best work. We have a vibrant campus life with a strong sense of community & inclusion.

Dr Edward Obbard leads UNSW's nuclear engineering group in the [School of Mechanical and Manufacturing Engineering](#). Our school is ranked top in Australia for both mechanical and aerospace engineering and the nuclear engineering team is the only one of its kind in Australia.

[Design Next](#) is a multi-disciplinary unit dedicated to bringing together design across several faculties at UNSW. The university, and Design Next within that, is at the heart of Australia's energy transition with leading experts on many of its facets just a short walk away.

The [UNSW Graduate Research School](#) provides PhD candidates with training to develop research and other skills. As part of enrolment, you'll complete a small number of courses alongside the research work.

Contact

Please contact Dr Edward Obbard (e.obbard@unsw.edu.au), enclosing your most recent degree transcript.

For fees, costs, scholarship options, and other eligibility criteria, please see the [HDR Programs website](#).

UNSW Graduate Research Application information: <https://research.unsw.edu.au/how-apply>

Also refer to: <https://selfassessment.research.unsw.edu.au/>

Key application dates: <https://research.unsw.edu.au/key-dates>

Note that all applications ultimately take place via GRS.

