

South Australia needs to look beyond wind for its clean energy

June 11 2015, by Robyn Mills

South Australia cannot complete its move to clean energy through a continued focus on wind energy. This is the conclusion of the most comprehensive review to date of renewable energy in the state, conducted by researchers in the University of Adelaide's Environment Institute.

The success of [wind power](#) (27% of the state's [energy](#) and 3-4% nationally) is a credit to SA's proactive approach and should continue, the review says. However, that success has relied on the reliability of the national grid. There remains no answer to the inherent limitations of wind because of the mismatch between supply variability and demand.

"There will always be an upper limit to the amount of wind that can be economically incorporated into the supply system," says lead author Ben Heard, PhD candidate in the School of Biological Sciences and energy consultant.

"We need [clean energy](#) generators that are always available, can respond to changes in demand, and provide essential network services. We need to think beyond wind and we need to do that now."

The review is published in the *Transactions of the Royal Society of South Australia*.

Mr Heard and fellow researchers Professor Corey Bradshaw, Sir Hubert Wilkins Chair of Climate Change at the University of Adelaide, and

Professor Barry Brook, Professor of Environmental Sustainability at the University of Tasmania, say that solar energy offers a partial solution, but many uncertainties remain about its capacity to compete at large scales.

"Solar panels can now be found in about 25% of the state's households, but the overall quantity of electricity supplied is small in the context of state demand and installation rates have more than halved with the substantial withdrawal of subsidies," Mr Heard says.

Geothermal energy remains "intractably difficult" to exploit commercially and carbon capture technology is not far enough advanced for commercialisation.

The researchers say that nuclear power, however, meets the requirements for a low-carbon economy.

"Nuclear power offers a mature technology with a solid track record of delivering very low-emission and reliable electricity in concert with other technologies," says Mr Heard.

"Costs are competitive in some markets but likely not in Australia at this time. However, by providing much needed service in the storage of used nuclear fuel for other nations, Australia could fund development of advanced fast reactors that extract energy from greater than 95% of the used fuel rods.

"Support for the nuclear option is broadening in South Australia. Now is the time to consider future-proofing development of low-emission electricity generation."

More information: "Beyond wind: furthering development of clean energy in South Australia." [DOI: 10.1080/03721426.2015.1035217](https://doi.org/10.1080/03721426.2015.1035217)

Provided by University of Adelaide

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