



IEAGHG Information Paper: 2017-IP27; Carbon Capture and Storage Decision Time; an Australian Perspective

The Australian Academy of Technological Sciences and Engineering (ATSE)¹ is one of Australia's four learned Academies, which aims to recognise and promote the achievements of Australian scientists, engineers and technologists. ATSE is made up of some of Australia's leading thinkers in technology and engineering. Its members are drawn from academia, government, industry and research, each with a single objective in mind – to apply technology in smart, strategic ways for our social, environmental and economic benefit. The ATSE operates a number of expert, independent forums for discussion and action – platforms to move debate on issues concerning Australia's future. These platforms are operated as an open, transparent approach that government, industry and community leaders can trust for technology-led solutions to national and global challenges. The Academy operates as an independent, non-government, not-for-profit organisation.

The ATSE offers policy advice to Government in a number of key areas, which include Agriculture, Education, Energy, Health Technology, Industry and Innovation, Infrastructure, International Co-operation and Natural Resources.

With regard to Energy, ATSE aims to promote the development and application of technology to improve the sustainability and reduce the carbon footprint of Australia's energy supplies.

To support Australia's sustainable development and future prosperity, ATSE believes that Australia must move to low emission energy systems that are affordable, secure and reliable. The ATSE Energy Position Statement sets out four key themes that need to be considered in an integrated approach to effective Government policy, which include:

- Theme 1: improved and new regulatory, market and information measures to double Australia's energy productivity by 2030.
- Theme 2: supply systems and market measures that deliver reliable, competitive, low emissions electricity.
- Theme 3: supply systems and market measures that deliver reliable supply of competitively priced, low emissions fuels for transport.
- Theme 4: strategic investments in innovation of low emissions energy technologies.

To inform Government ATSE has prepared a series of Action Statements on particular energy supply and use technologies. The Action Statements prepared to date include:

- Advancing energy storage for Australia
- Deep reductions in emissions using Carbon Capture and Storage (CCS)
- Doubling Australia's energy productivity
- Enhancing Australia's solar photovoltaic advantage
- Intelligent electricity networks for the future
- Low emission fuels for transport
- Nuclear energy is an option

This IP focuses on the most recent of these Action Statements, the one on CCS that is appended for member's reference. The other statements can be found on the ATSE web site:

<https://www.atse.org.au/atse/content/about/strategy-plan-policy-statements.aspx>

¹ <http://www.atse.org.au/atse/about/content/about/index.aspx?hkey=c5a92930-6a52-4c06-8ff1-bb995e5ba8d4>



The Headline of Media Release² on the CCS Action Statement CCS Decision Time. The key points highlighted in the media brief are:

- Large-scale fossil fuel use will continue for some time to come for industrial processes and energy generation,
- As long as fossil fuels are used for energy and industrial processes, carbon capture and storage is an essential technology to limit emissions and keep the global rise in temperature to well below 2°C,
- CCS will be an essential technology for making deep cuts in the associated emissions
- Coal and gas still account for 84 per cent of Australia’s total electricity generation, and electricity generation is the largest contributor to greenhouse-gas emissions in Australia.
- Critically, CCS is currently the only viable option for significant reductions in emissions from industrial processes, such as the production of iron and steel, and the use of cement.
- CCS is a proven, safe, and effective mitigation option for reducing CO₂ emissions.
- CCS is the only technology capable of making deep reductions in emissions from fossil fuel use for power generation and industrial processes.
- As one of the world’s largest fossil fuel exporters, Australia should have a significant interest in the use of carbon reduction technologies for ongoing fossil fuel use, and could contribute its technical and industrial expertise to accelerate the application of CCS by major energy-importing countries such as China,
- Australia is a signatory to the Paris Agreement and has a specific consequential target to reduce emissions to 26-28 per cent below 2005 levels by 2030.
- A range of mitigation options are need to meet the emissions reduction target – greater energy efficiency, improved energy production, a switch to low-emissions fuels, renewable energy with energy storage, and (perhaps) nuclear energy.
- Alongside energy generation from wind and solar with grid-scale energy storage, the use of coal, gas, or biomass for electricity production, and abatement of the associated emissions using CCS, is a technically viable option for secure and low-emissions back-up for renewable energy generation.
- Retrofitting of CCS to existing power stations has been successfully carried out in Canada and the US. Retrofit CCS is a potential option for some of Australia’s existing power stations.

As a backdrop, a review of the Australia’s Energy security is due to be reported soon: <https://www.reuters.com/article/us-australia-power-idUSKBN18Z0UW> .

John Gale
08/06/2017

² <https://atse.org.au/content/publications/media-releases/2017/ccs-decision-time-atse.aspx>