

Why is carbon capture important?

Carbon dioxide (CO₂) is the most significant man-made greenhouse gas emitted worldwide. As in the rest of the world, Australian emissions of CO₂ are growing steeply.

While the energy sector is the largest source of Australian CO₂ emissions, it is also initiating, supporting and funding research into ways to reduce the amount of CO₂ emitted to the atmosphere. Carbon capture and storage (CCS) is one of those ways and will be an important part of reducing global greenhouse gas emissions, along with energy efficiency and renewable energy technologies.

Why post-combustion capture?

Brown coal, or lignite, is the cheapest source of fossil fuel for power generation in Australia. Australia has enough coal for hundreds of years. Significant improvements in how we burn brown coal for power, as well as the ability to capture carbon dioxide from coal-fired power plants, will mean we can continue to use this abundant resource in a carbon-constrained world.

Post-combustion capture involves the removal of CO₂ after the coal is burned. Given the large number of coal-fired power plants in Australia and in the world, post-combustion capture offers an opportunity to make significant cuts in greenhouse gas emissions.

Post-combustion capture has the advantage that it can be retrofitted to existing plants, integrated into new plants, has high operational flexibility – as it can be added in stages and operated independently of the power station – and, importantly for this project, has significant development potential through process improvements, new sorbents and new technologies.

By demonstrating the technology at scale, this project will reduce the technical risk and cost of post-combustion capture for coal-fired power stations around the world.

What is the International Power Capture Plant?

International Power Australia has built a solvent capture plant at Hazelwood power station to capture up to 50 tonnes of CO₂ per day, with 25 tonnes per day captured during the initial phase.

It is the largest post-combustion capture plant in Australia and significant on a world scale. The technology partners in the project are CO₂CRC and Process Group.

The system uses the BASF solvent PuraTreat™, a recyclable water-based solvent. Additionally, much of the CO₂ captured will be used in the neutralisation of ash water, producing calcium carbonate and effectively sequestering the CO₂.

The plant has been funded by International Power with support from the Federal Government's Low Emission Technology Development Fund (LETDF) and the Victorian Government's Energy Technology Innovation Strategy Large Scale Demonstration Plant fund (ETIS LSDP).

International Power Capture Plant aims to:

- Demonstrate the application of carbon dioxide capture to a power plant
- Demonstrate post-combustion capture, in Australia's largest capture facility, at Hazelwood power station
- Gain operating experience in post-combustion capture for power plant personnel
- Reduce CO₂ emissions
- Provide CO₂ for neutralising plant ash water and in doing so, replace mineral acids used in this process
- Effectively sequester CO₂ in a mineral form as part of the neutralisation process
- Provide the basis for subsequent R&D into post-combustion capture in association with CO₂CRC.

International Power Australia is a wholly owned subsidiary of International Power plc, a UK-based independent power generation and operation company.

Since becoming established in Australia in 1996, International Power Australia has invested in excess of A\$5 billion and focused on becoming a leading player in the energy industry.

The company owns and operates more than 3700 MW of renewable, gas-fired and brown coal-fired generating plants in Victoria, South Australia and Western Australia. It also has an energy retailing operation in Victoria and South Australia called Simply Energy.

International Power Australia is participating in a number of research projects aimed at reducing carbon dioxide emissions from brown coal-fired power stations.

The Cooperative Research Centre for Greenhouse Gas Technologies (CO₂CRC) is one of the world's leading collaborative research organisations focused on CCS.

CO₂CRC is a joint venture between Australian and international industry, universities and other research bodies from Australia and New Zealand, and Australian Commonwealth, State and international government agencies.



International Power Capture Plant