



## JOINT MEDIA RELEASE

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### LATROBE VALLEY RESEARCH HUB TO LEAD WAY IN TECHNOLOGIES TO CUT CARBON EMISSIONS

Australia's and possibly the world's first research hub to fast-track the maturity of technologies that capture greenhouse emissions from brown coal power stations is being developed in the Latrobe Valley in eastern Victoria.

CO2CRC, Loy Yang Power, International Power and CSIRO are working on a \$5.6 million research project that focuses on the reduction of emissions from brown coal power stations. The project involves seven interlinked research, plant testing and evaluation tasks [see attached background].

The Latrobe Valley Post Combustion Capture Project has the backing of the Victorian Government, which has provided \$2.5 million of the project funds under the Energy Technology Innovation Strategy (ETIS). It will be conducted over a 30-month period.

CO2CRC researchers from Melbourne and Monash Universities and CSIRO researchers will develop carbon dioxide (CO<sub>2</sub>) capture technologies which will be tested at Loy Yang Power and International Power's Hazelwood Power Station.

According to CO2CRC Capture Program Manager, Barry Hooper, the project could establish Victoria as a world leader in post combustion emissions capture research.

"This is the only project in the world to combine all of the CO<sub>2</sub> separation techniques in the one location on real plant gases," said Mr Hooper.

"These technologies have the potential to significantly reduce the amount of CO<sub>2</sub> emitted to the atmosphere and help address potential global warming.

"The project will be internationally relevant and valuable to global research efforts into the reduction of greenhouse gases from fossil fuel power stations," Mr Hooper said.

Loy Yang Power Chief Executive Ian Nethercote said the project could deliver significant reductions in CO<sub>2</sub> emissions from power stations and extend the utilisation of Victorian brown coal as an energy source.

"Capturing and storing emissions from coal-fired power stations has the potential to transform Australia to a lower-emissions economy," said Mr Nethercote.

“This research is a key step in the implementation of post combustion carbon capture for brown coal power stations and will generate important knowledge on the suitability and performance of this technology for our plant.”

Mr Nethercote said post combustion carbon capture was considered the most flexible path to near-zero emissions from power generation as it could be applied to both existing and new power stations.

“Latrobe Valley power stations are continuing to investigate a number of options to achieve incremental reductions in CO<sub>2</sub> intensity however CO<sub>2</sub> capture with sequestration has the potential to achieve the most significant reductions,” said Mr Nethercote.

The research project will assist the brown coal power industry in identifying the most cost-effective technology options that could be universally applicable to brown coal electricity generation.

“This project will provide valuable information and enhance the foundation from which Victoria will be able to achieve cost effective electricity from brown coal in a carbon-constrained world,” Mr Nethercote said.

**Relevant web sites:**

CO2CRC:	<a href="http://www.co2crc.com.au">www.co2crc.com.au</a>
Loy Yang Power:	<a href="http://www.loyyangpower.com.au">www.loyyangpower.com.au</a>
CSIRO:	<a href="http://www.csiro.au/csiro/content/standard/ps12u.html">www.csiro.au/csiro/content/standard/ps12u.html</a>
International Power:	<a href="http://www.ipplc.com.au">www.ipplc.com.au</a>

**Further information:**

Carmel Anderson	CO2CRC	Tel. (02) 6200-3362
Gerald May	Loy Yang Power	Tel. (03) 5173-2462
Jim Kouts	International Power	Tel. 0417 866 474
Linley Davis	CSIRO	Tel. (02) 4960 6116

## PROJECTS IN THE CARBON DIOXIDE CAPTURE TECHNOLOGY RESEARCH-HUB

Post carbon capture (PCC), when coupled with CO<sub>2</sub> sequestration, offers the potential for near zero emissions from coal fired power stations. In the PCC process cooled flue gas is passed through a scrubber containing a sorbent where 85-95% of the CO<sub>2</sub> is captured. The CO<sub>2</sub> rich sorbent is then transferred to a regenerator and heated using steam to release the CO<sub>2</sub>. The CO<sub>2</sub> lean sorbent is finally cooled and returned to the scrubber. The CO<sub>2</sub> released in the scrubber is compressed, cooled, dried and further compressed to liquid for pipeline transport to a sequestration site.

The seven tasks on which researchers from Loy Yang Power, International Power, CO<sub>2</sub>CRC and CSIRO will work on are:

### *1. New Solvent Development Research*

Laboratory research will be conducted on the next generation of CO<sub>2</sub> capture solvents, such as amines, aminos acids and ionic liquids at CSIRO and University of Melbourne using existing and new test rigs to focus on brown coal flue gas specific issues.

### *2. Membrane Research*

Laboratory research on gas separation and gas absorption membrane technologies will be conducted at the University of Melbourne. Membranes are thin plastic layered materials that act like sieves to separate out carbon dioxide, either by the membrane itself or using solvents.

### *3. Adsorbent Research*

Laboratory research will be conducted on solid adsorbents and adsorption technologies at Monash University using existing and new test rigs.

### *4. Solvent Test Facility*

A mobile research facility (2.5 tpd CO<sub>2</sub> removal) will test a range of commercially available and new solvents at the Loy Yang Power site to obtain operating data and operating experience with brown coal flue gas.

### *5. Solvent Testing Demonstration\* Plant*

The demonstration plant to be situated at International Power's Hazelwood Power Station will test selected commercially available and new solvents on a commercial progressively larger scale (25 tpd CO<sub>2</sub> capture plant, modified for testing). The tests are aimed at obtaining operating data and experience with brown-coal flue gas.

\* This plant is separately funded under the Federal Government's LETDF and Victorian Government's ETIS LSDP programmes and is demonstrating the capture of CO<sub>2</sub> and use for pH adjustment and carbonate production

### *6. Process and Energy Integration Studies*

CSIRO and Loy Yang Power will undertake an assessment of a post combustion capture process and energy integration options for Loy Yang power station. CO<sub>2</sub>CRC and International Power will conduct the same assessment at Hazelwood Power Station.

### *7. Technical and Economic Assessment Studies*

Review of the technical and economic viability of the commercial use of post combustion capture for existing and new Victorian brown coal power stations will be conducted by CO2CRC and CSIRO with input from Loy Yang Power and International Power Hazelwood. The review will be based on outputs from the project R&D activities and other international developments in post combustion capture over the two-and-a-half year project.

## **PROJECT PARTICIPANTS**

### CO2CRC

CO2CRC (the Cooperative Research Centre for Greenhouse Gas Technologies) collaborates with leading international and national carbon capture and storage experts to conduct world-class research into CO<sub>2</sub> geosequestration. Research organisations supporting and participating in CO2CRC geosequestration research project include CSIRO, Geoscience Australia and the Universities of Adelaide, Curtin, Melbourne, Monash and NSW; the Alberta Research Council in Canada and the US Lawrence Berkeley National Laboratory. CO2CRC industry and state core partners are ACARP, Anglo American, BHP Billiton, BP, Chevron, ConocoPhillips, NSW Department of Primary Industries, NZ Resource Consortium, Rio Tinto, Schlumberger, Shell, Foundation for Research Science and Technology (NZ), Solid Energy, Stanwell, the Victorian Department of Primary Industries, Woodside and Xstrata.

### Loy Yang Power

Loy Yang Power owns and operates the 2100 megawatt Loy Yang power station and the adjacent Loy Yang coal mine. The company is owned by the Great Energy Alliance Corporation which is comprised of AGL (32.5%), Tokyo Electric Power Company (32.5%), MTAA Super (11.9%), Transfield Services (9.32%), Westscheme (5.7%), Mitsui (5.6%) and Statewide Superannuation Trust (2.5%).

### International Power

International Power is Australia's largest private generator of electricity. The company owns and operates more than 3700MW of renewable, gas-fired and brown coal-fired generating plants in Victoria, South Australia and Western Australia. The company also operates a retail operation in Victoria and South Australia through EnergyAustralia.

### CSIRO

The Commonwealth Scientific and Industrial Research Organisation is Australia's national science agency and one of the largest and most diverse research agencies in the world. CSIRO Energy Technology and the Energy Transformed Flagship are undertaking research to achieve significant cuts to greenhouse gas emissions and achieve near zero emissions from the utilisation of energy world wide.