



Media Backgrounder – New Partnership Projects

Project: Assist Promotion and Implementation of Chinese Renewable Energy Law

What:

- A series of workshops in Australia and China to help Chinese national and regional governments implement and further develop the detailed regulations under China's new Renewable Energy Law, which has a goal of 15% of total energy provided from renewable sources by 2020.
- The project will help promote the new law among Chinese and Australian enterprises to accelerate development of renewable energy in China.

Benefits:

- Climate Change – will help China increase its use of renewable energy to meet its increasing demand for energy with lower greenhouse gas emissions.
- Commercial – will improve Australian understanding of the new law and how it will be implemented in China, helping Australian companies to access the Chinese market more effectively.
- Commercial – will help provide opportunities for Australian and Chinese businesses to work together on renewable energy projects in China.

Who: China's Energy Research Institute of NDRC; the Chinese Renewable Energy Industries Association; the Renewable Energy Generators of Australia; and Baker and McKenzie.

Project Cost: \$240,000

Project: Exchange and Cooperation on Energy Efficiency Standards

What:

- Sharing information and experience to align and improve energy efficiency standards for industrial electric motor systems, monitors and LCD televisions.
- Conduct training workshops in China to promote these common standards among Chinese manufacturers.

Benefits:

- Climate Change – the standards have the potential to reduce greenhouse gas emissions in both countries, while helping them to constrain the growing demand for energy without impacting on consumer behaviour. As China is a major exporter of these products, it has the potential to provide broader global reductions in greenhouse gas emissions.
- Trade – will enhance trade between Australia and China on these goods and will contribute to the process of global harmonisation of energy efficiency standards for internationally traded products.

Who: China National Institute of Standardisation; and the Department of the Environment and Heritage's Australian Greenhouse Office (Equipment Energy Efficiency Team).

Project Cost: \$450,000.





Australian Government

Department of the Environment and Heritage
Australian Greenhouse Office



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Project: Ventilation Air Methane Catalytic Combustion Gas Turbine (VAM-CAT)

What:

- Developing and demonstrating new Australian technology, developed by the CSIRO, to safely extract and capture the methane from coal mine ventilation air and use it to generate electricity.
- The technology could potentially generate more than 1000MW of electricity per year from coal mine methane in China.
- The new technology will be demonstrated through the testing of a 10KW-30KW prototype unit at a mine site in China.

Benefits:

- Climate Change – this technology could be applied to gassy coal mines in both China and Australia, significantly reducing global greenhouse gas emissions.
 - Methane is the second largest contributor to global warming after CO₂ and is 23 times more potent than CO₂.
 - China currently ranks number one in global coal production and is responsible for approximately 45% of the total global ventilation air methane emissions from coal mines.
- Mine Safety – Methane is an explosive gas at concentrations of between 5-15% and contributes to the thousands of coal mine deaths that occur globally each year. Capturing the methane that escapes from coal seams will improve the safety for mine workers.

Who: Shanghai Jiaotong University; Huainan Mining Group; and the Commonwealth Scientific and Industrial Research Organisation.

Project Cost: \$1.04 million.

Project: Study on Maximisation of Coal Mine Methane Capture

What:

- Demonstrating advanced Australian techniques and strategies for capturing methane gas at a Chinese mine site. Once demonstrated, they can be applied to a large number of gassy underground coal mines in China.
- Developing site-specific strategies and techniques at five Chinese mine sites to enhance the concentration of captured coal mine methane. This will make it suitable for generating electricity with conventional technologies.

Benefits:

- Climate Change – will reduce greenhouse gas emissions from coal mines.
- Energy Supply – the advanced techniques will increase methane concentration in the captured gas to more than 30% so it can be used by current technologies to generate electricity or heat.
- Mine safety - will improve mine safety by increasing methane concentrations to encourage the capture of this explosive gas for electricity or heat generation..

Who: China Coal Information Institute; Huainan Coal Mining (Group) Co Ltd; and the Commonwealth Scientific and Industrial Research Organisation.

Project Cost: \$780,000.

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Project: Study on Coal Mine Methane Resources and Potential Project Development

What:

- Australian and Chinese experts will analyse the potential for coal mine methane recovery and utilisation in key coal mining areas in China.
- Australia will share its technical methodologies and tools for predicting coal mine methane emissions.
- Chinese and Australian industry and government representatives will make policy recommendations to the Chinese Government about how to best apply the available technology to China's situation.

Benefits:

- Climate Change – will reduce greenhouse gas emissions from coal mining in China. Coal is the primary energy resource in China and is a significant source of 'fugitive' methane emissions.
- Commercial – Australia has well-established technologies and advanced management experiences in the area of coal bed and coal mine methane recovery and utilisation. Application of these technologies to the Chinese market will expand Australian business opportunities in China.
- Mine safety - will improve mine safety by explaining the benefits of capturing explosive coal mine methane gas emissions.

Who: China Coal Information Institute; and the Commonwealth Scientific and Industrial Research Organisation.

Project Cost: \$570,000.

Project: Exploration of Options for the Generation of Electricity from Coal Methane in China

What:

- Developing a framework for assessing the financial and technical feasibility of using Australian technology (such as the ComEnergy rotary kiln) to generate electricity from low-concentration coal mine methane emissions.
- The ComEnergy rotary kiln uses lower grade and unreliable supplies of coal mine methane with other coal waste or biomass to generate electricity.

Benefits:

- Climate Change – will help reduce global coal mine methane emissions.
- Mine Safety – will improve mine safety by demonstrating the financial and environmental value of capturing explosive coal mine methane gas emissions
- Commercial – the project will outline the benefits of using ComEnergy's rotary kiln technology to generate electricity from coal mine methane, promoting the technology to Chinese mine operators.

Who: China Coal Information Institute; and ComEnergy Pty Ltd.

Project Cost: \$131,500.

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Project: Study on the Responses of Wheat and Soybean to Elevated CO₂ Concentrations in China

What:

- Construction of six mini Free Air CO₂ Enrichment (FACE) rings and related monitoring and control equipment in China. A mini Free Air CO₂ Enrichment system is a ring that is placed over a selection of crop to control the atmospheric concentration of CO₂.
- The systems will be used to identify and compare the productivity of different wheat and soybean crop types under conditions of higher atmospheric CO₂ concentrations, along with the impact of using fertilisers in such conditions.
- The project will also include research and exchange between Australian and Chinese academics on Free Air CO₂ Enrichment systems.

Benefits:

- Climate Change – experiments using the mini FACE system will help Australian and Chinese food producers adapt current practices to future climate scenarios.
- Modelling – the experiments will improve the accuracy of the CO₂ crop models that predict responses from wheat and soybean crops to increased atmospheric CO₂.
- Technical – will improve Free Air CO₂ experimentation systems in Australia and China.

Who: Institute of Environment and Sustainable Development for Agriculture, Chinese Academy of Agricultural Sciences; the University of Melbourne; and the Australian Centre for International Agricultural Research.

Project Cost: \$420,000

Project: Local Capacity Building in China to Respond to Climate Change

What:

- Workshops will be conducted in selected Chinese provinces to exchange information between Australia and China and help establish climate change strategies and activities at the provincial level in China.

Benefits:

- Climate Change – by drawing on Australian experience and expertise, the project will help improve the climate change awareness of provincial Chinese Governments and will help facilitate practical actions at the local level.
- Knowledge – the project will provide a unique opportunity for Australian experts to learn from the experience and approaches being adopted in China.

Who: China's Energy Research Institute of NDRC; and the Australian Greenhouse Office.

Project Cost: \$220,000.

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Project: Modelling Study on Energy and Emission Scenario for Asia Pacific Region

What:

- Improving the representation of the Chinese energy sector, energy use and greenhouse gas emissions in key economic models, including the Australian Global Trade and Economic Model and Chinese IPAC model.
- The GTEM Model is a globally recognised multi-sector, multi-regional model of the world economy developed in Australia. It is used for policy analysis of global issues including climate change and trade.
- China will be better represented in the model by updating and refining key economic, environmental and energy data sets.
- This project will help to reduce the gap between China and other developed countries in the use of realistic modelling analysis for policy decision-making, particularly on climate change and energy.

Benefits:

- Climate Change – the improved accuracy of data in the models will better inform regional and global approaches to reducing emissions and adapting to climate change.
- Modelling – the project will improve the accuracy and comprehensiveness of Chinese economic models and models that use Chinese data.

Who: China's Energy Research Institute of NDRC; and the Australian Bureau of Agriculture and Resource Economics.

Project Cost: \$265,000.

Project: Research on Rainfall and Climate Change in both China and Australia

What:

- Joint research into the interaction between the two main monsoon systems in Australia and China, particularly in relation to rainfall variability and drying trends.
 - Recent research has indicated that there is a strong interaction between the East Asian summer monsoon and the Australian winter monsoon which affects summer rainfall in northern China and Australian winter rainfall, particularly in south west Western Australia.

Benefits:

- Climate Change – the data collected and models developed in the research will help agricultural industries to adapt to the impacts of climate change.
- Policy – the research will help Australian and Chinese governments develop policies and measures to better address the impacts of climate change in the areas of agriculture and water resource management.

Who: Institute of Atmospheric Physics, Chinese Academy of Sciences; and the Commonwealth Scientific and Industrial Research Organisation.

Project Cost: \$590,000.





Australian Government

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Australian Greenhouse Office



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Project: Whole-of-System Assessment of Methane Emission Abatement from Beef/Dairy Production System and Simulation Modelling

What:

- Research and analysis (including field testing in Inner Mongolia) to identify the most effective options for sustainable livestock management in Western China.
- This project will use Australian computer models, technology and research expertise.
- The results will inform industry practice and government policy in both China and Australia.

Benefits:

- Climate Change – will help both countries reduce their methane emissions. Methane is a potent greenhouse gas and beef and dairy cattle production is one of the largest sources of methane emissions in China and Australia.
- Industry Productivity – will improve animal productivity and feed efficiency in both countries.
- Policy – will provide governments with more accurate data to better inform policy decision making.

Who: Institute of Environment and Sustainable Development for Agriculture, Chinese Academy of Agricultural Sciences; and the Australian Centre for International Agricultural Research.

Project Cost: \$280,400.

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