

Rio Tinto Coal Australia

Climate Change Action Plan Review

2007 - 2009

Rio Tinto Coal Australia is committed to seeking solutions to the challenge of climate change. This document provides a brief review of the outcomes delivered by the 2007-2009 Rio Tinto Coal Australia Climate Change Action Plan in the following key result areas:

Supporting low emissions coal technologies

Improving energy management and reducing energy use

Designing our projects to recognise climate change risks and opportunities

Raising awareness of climate change and our actions among stakeholders

The Rio Tinto Coal Australia climate change action plan

In 2006, the Rio Tinto Executive Committee endorsed a climate change plan, which included the requirement for business units and product groups to have documented three year work programmes addressing the risks and opportunities presented by the challenge of climate change.

The Rio Tinto Coal Australia climate change action plan, launched in 2007, is designed to develop a whole of business process that enables us to deliver an effective work programme. It integrates climate change into our business processes and identifies links and collaboration opportunities within the Energy product group and other Rio Tinto business programmes.

The commitments and programmes summarised in this review are part of a dynamic process that positions our business to continue assessing our performance and adopt new information, technologies and policies as they evolve in the short and medium term.

The Rio Tinto Coal Australia climate change action plan is aligned with Rio Tinto's value creation vision covering operational performance, innovation, discipline, organisation, systems, culture, reputation and collaboration. Our work programme is driven by the following vision:

Our people and operations contribute to the solution for the challenge of climate change

Our plan, supporting the vision, has been developed from priorities identified in the initial risk assessment with a focus on the following four key result areas:

- Researching and promoting low emission coal technologies
- Improving energy use
- Designing our projects to recognise climate change risks and opportunities
- Raising awareness amongst key stakeholders groups.

This document is the third review of the progress of the work programme and outlines Rio Tinto Coal Australia's commitments, actions and achievements under each of the four areas of our plan.

Highlights

Low emissions coal technology

- Rio Tinto Coal Australia managed operations have committed \$25 million to the COAL 21 Fund which commenced operation in 2007.
- Rio Tinto Coal Australia personnel chaired the operating entity of the CO2CRC Otway Basin pilot project which successfully demonstrated the injection and storage of 65,000 tonnes of carbon dioxide. This project has developed and proven monitoring techniques for geological storage of carbon dioxide and significantly advanced the understanding of the regulation of carbon dioxide storage.

Energy management

- The Rio Tinto Coal Australia wide energy management programme reported avoided emissions of 12,000 tonnes of carbon dioxide equivalents in 2009. Since 2007, total reported savings generated by the energy management programme amount to over 137,000 tonnes of carbon dioxide equivalents.
- Fifty-five Energy Efficiency Opportunity projects have been assessed, offering potential annual energy costs savings of some \$8.3 million equating to approximately 402,000 GJ. The full suite of Energy Efficiency Opportunity projects would cost approximately \$32.5 million to implement and would provide a net financial benefit over four years of \$185.6 million. In 2009, nine projects were reported as completed with potential annual energy savings of 30,000 GJ.
- Enhanced electricity metering covers 70 per cent of Rio Tinto Coal Australia's total usage. Hail Creek Mine continues to commission a fuel management system as the pilot site for Rio Tinto Coal Australia. The design and installation of real time electricity and diesel metering & telemetry systems for all Rio Tinto Coal Australia operations and the implementation of energy management protocols has not been completed.

Designing for the future

- A coal bed methane abatement pilot programme was initiated at Mount Thorley Warkworth operations. The project commenced commissioning in 2009, representing an investment of \$6 million in mitigating fugitive methane emissions in the future.
- The Mount Pleasant pre-feasibility study included many design features based on energy and water efficiency considerations. Specific analysis tools were applied to design and option considerations of tailings system, coal processing technology and amenities.
- A cost of carbon was applied to financial assessments of the Rio Tinto Coal Australia life of mine valuation models and project evaluation guidelines.

Raising awareness

- An extensive communications campaign communicating the impacts of the Carbon Pollution Reduction Scheme was rolled out across the business and in our mining communities in 2009.
- Rio Tinto Coal Australia actively participated in the development of the Australian Coal Industry's policy position and advocacy on climate change policy, particularly with respect to the proposed Carbon Pollution Reduction Scheme.
- The Rio Tinto Coal Australia climate change action plan launch was presented throughout the business at all sites, capturing approximately 80 per cent of all employees.
- Eighty per cent of employees surveyed at the end of 2007 indicated they had heard about climate change at work, 17 per cent more than the previous survey.

Low emissions coal technology

Objective

Actively researching and promoting technologies that reduce carbon dioxide emissions from the use of coal.

Programmes

Our programmes in low emissions coal technology centre around:

- Supporting research to identify new technologies
- Uptake of the technology to change the way coal is burned
- Supporting a policy environment to enable this change.

Programmes include our support of the Rio Tinto Energy Technology and Energy Services Groups, National Low Emission Coal Council, the CO2CRC and the Australian Coal Association COAL21 Fund. These programmes bring together participants from state and federal governments, the coal industry electricity generators and research organisations to support the development and deployment of low emission coal technologies.

Key Outcomes

Rio Tinto Coal Australia managed operations have committed \$25 million to the COAL21 Fund through a voluntary levy of 20 cents per tonne of production which commenced in 2007. To date, the COAL21 Fund has committed almost \$200 million to support specific low emission coal demonstration projects, \$20 million for Queensland geosequestration studies and \$75 million for the Australian National Low Emission Coal Council Research and Development Programme.

65,000 tonnes of CO2 stored in the Otway Basin Pilot Project

Rio Tinto Coal Australia personnel chaired the operating entity of the CO2CRC Otway Basin pilot project which successfully demonstrated the injection and storage of 65,000 tonnes of carbon dioxide. This project has developed and proven monitoring techniques for geological storage of carbon dioxide and significantly advanced the understanding of the regulation of carbon dioxide storage.

Rio Tinto has a 50 per cent interest in the Hydrogen Energy California project which is a 250 mega-watt Integrated Gasification Combined Cycle power plant with carbon capture and storage fuelled by petroleum coke and coal. Subject to receiving the necessary government approvals and support, construction is expected to begin in late 2011 with commissioning commencing in 2014 and 2015. When operating, the plant will provide low carbon power to over 150,000 Californian homes.

Rio Tinto Coal Australia's managing director was appointed to the Australian National Low Emission Coal Council (ANLECC) and the Queensland Clean Coal Council (QCCC). ANLECC developed the National Low Emission Coal Strategy for the Australian Government. The strategy has contributed towards the establishment of the Australian Government's \$2 billion carbon capture and storage flagship programme to support commercial scale demonstrations of carbon capture and storage in Australia. The QCCC advises the Queensland Government on low emission coal initiatives in the state of Queensland.

Rio Tinto Energy Services (supported by Rio Tinto Coal Australia) contributed towards the development of the International Energy Agency and Carbon Sequestration Leadership Forum recommendations to the Group of Eight Industrialised Nations (G8) on early opportunities for carbon capture and storage. The G8 accepted the recommendations on accelerating the early deployment of carbon capture and storage.

In 2009, the Rio Tinto Energy Services programme was incorporated into the Rio Tinto Coal Australia climate change team. Rio Tinto Coal Australia External Relations now directly supports Rio Tinto's engagement with the Global Carbon Capture and Storage Institute, Carbon Sequestration Leadership Forum, World Coal Institute, Coal Industry Advisory Board, and the Asia Pacific Partnership. These organisations all work to accelerate the deployment of carbon capture and storage.

Energy Management

Objective

Improve energy use at our operations, projects and supply chain, and embed the process into Rio Tinto Coal Australia business systems.

Programmes

Our energy management programme is designed to address, understand, prioritise and reduce our energy use. The first step involves undertaking energy audits at each Rio Tinto Coal Australia managed operation. Each operation maintains a list of identified energy projects which have been consolidated into a master list, to enable group sharing and collaboration.

Rio Tinto Coal Australia is implementing a programme to install metering for all equipment and processes that use ten per cent or more of a site's total electricity or diesel to support the improved understanding of energy use on our sites. Business systems such as the capital expenditure and disposals applications process are subject to ongoing improvement to capture the value arising from a more comprehensive understanding of energy use.

The ongoing energy reduction programme is supported by a number of enabling programmes. These include the utilisation of the Business Improvement Process and the annual planning process at site. The Rio Tinto Coal Australia business improvement Project Centre system enables the capture and reporting of energy savings from all projects. Together these initiatives deliver improved management of energy use.

Key Outcomes

The Rio Tinto Coal Australia wide energy management programme reported avoided emissions of 12,000 tonnes of carbon dioxide equivalents in 2009. Since 2007, total reported savings generated by the energy management programme amount to over 137,000 tonnes of carbon dioxide equivalents.

During 2009 we introduced systems to ensure compliance with new Australian government legislation, completing assessments required by the *Energy Efficiency Opportunities Act 2006* (EEO). Fifty five opportunities were identified in Rio Tinto Coal Australia's EEO assessment report. The annual energy savings that would be delivered by the EEO projects if all were implemented was assessed as 402,000 GJ. These projects would cost approximately \$32.5 million to implement and would provide a net financial benefit over four years of \$185.6 million. In 2009, nine projects were reported as completed with potential annual energy savings of 30,000GJ.

Enhanced electricity metering covers 70 per cent of Rio Tinto Coal Australia's total usage. Hail Creek Mine continues to commission a fuel management system as the pilot site for Rio Tinto Coal Australia. The design and installation of real time electricity and diesel metering & monitoring systems for all Rio Tinto Coal Australia operations and the implementation of energy management protocols has not been completed.

An innovative energy and greenhouse value driver tool has been developed for all sites based on the life-of-mine plan in conjunction with the business improvement FactBooks. The site driver models enable site management to assess how changes in mining and processing activities affect energy use and greenhouse emissions and present the results as a discounted cash flow (and resultant net present cost).

Energy Management Projects

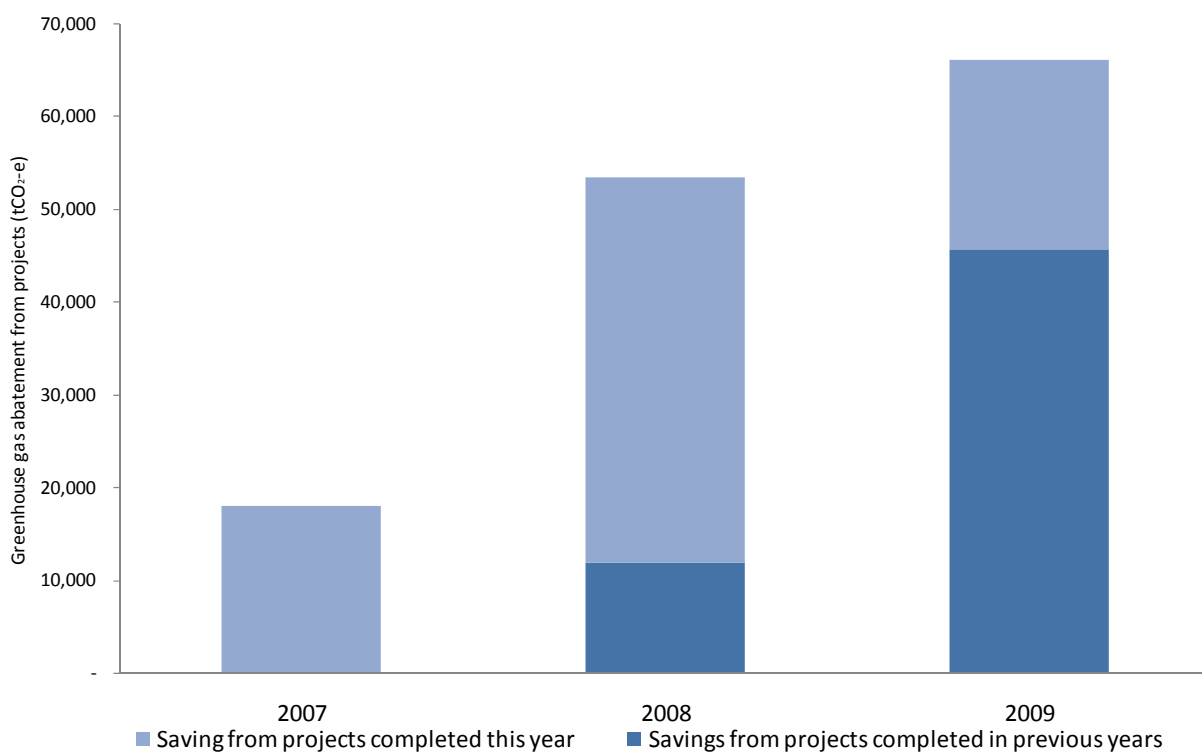
Greenhouse and energy savings delivered by site projects

Substantial emissions reductions have been reported and tracked through Project Centre under the business wide energy management programme.

- The annualised emission reduction for 2009 resulting from the three year work programme is 65,000 tonnes of carbon dioxide
- Emission reductions in 2009 equate to 5.8 per cent of total emissions from site fuel and electricity use (over 1.1 million tonnes of carbon dioxide equivalents).
- Eight thousand tonnes of avoided carbon dioxide emissions (less than one per cent of energy related emissions) arises from the use of two per cent bio-diesel at our NSW sites for 2009.
- Across the business the cumulative greenhouse abatement resulting from improvement projects since 2007 exceeds 137,000 tonnes of carbon dioxide equivalents.

These savings are reported as conservative, verified amounts. It is possible that the actual savings from the full complement of projects exceeds the reported amounts.

Emissions abatement from RTCA improvement projects



Hunter Valley Operations commended for excellence in energy management

In 2009, Hunter Valley Operations reported savings of almost 9,000 tonnes of carbon dioxide bringing the total reported savings of 55,000 tonnes from all projects completed since the start of the site based energy management programme.

RTCA improvement project highlights

Programme	Description	Participating sites	Avoided emissions (tonnes of CO ₂ equivalents)
Payload optimisation (reduced diesel use)	The payload optimisation programmes are helping operators manage the amount of materials loaded on haul trucks more effectively by providing training, feedback and effective control mechanisms to improve operations.	Hail Creek Bengalla Hunter Valley Operations Mount Thorley Warkworth	12,000 annually
Using biodiesel from a waste-product feedstock	Our diesel supplier provides our NSW sites with a blend of two per cent biodiesel source from refined tallow, a waste product from the cattle industry.	Bengalla Hunter Valley Operations Mount Thorley Warkworth	8,400 annually
Dragline productivity improvements	The objective of these projects is to reduce the unit cost of dragline operations by increasing the productivity of the dragline. Energy savings can be attributed to moving additional material for the same amount of electricity.	Hunter Valley Operations	3,700
Installation of more efficient engines in heavy mining equipment	Engine re-powers can lower the amount of fuel consumed by equipment and reduce carbon emissions as a result. The work has had the added benefit of increasing the life and reliability of the equipment.	Hunter Valley Operations Mount Thorley Warkworth	3,150
Mine design and layout improvements	By considering haul route distance when designing areas of the mine and relocating key pieces of equipment (eg the ROM coal hopper) the amount of diesel burnt and energy used to run conveyors has been reduced	Bengalla	1,000
Recycling waste oil	An onsite filtration system reprocesses waste oil which is then blended for use with explosives. This reduces diesel use that would otherwise be used for this process.	Hunter Valley Operations	500
Improving lighting plant management	Various initiatives to reduce energy used by unnecessary lighting. Installing timers and sensors to reduce unnecessary run-time.	All operations	380
Domestic solar hot water system in Emerald	Installation of 130 domestic solar hot water systems for the company owned homes in Emerald	Kestrel	130
Total ongoing annualised savings since 2007			65,000
Total absolute savings since 2007			137,000

The largest emission reductions have been delivered through projects that improve the efficiency of material movements and through the use of sustainably sourced waste-product biodiesel in NSW.

Designing for the Future

Objective

Design our projects recognising risks from a changing climate and opportunities with evolving policy.

Programmes

Projects: Capturing energy ideas from projects to share across the business including collaborating with Rio Tinto Procurement and the Projects group, linking ideas and leading practice across Rio Tinto.

- Updating our weather risk profile to include latest credible information for projects
- Investigating new options to capture coal bed methane from underground and open cut mines
- Include a price on carbon for economic assessments
- Enhance our product delivery approach to include energy and water consumption.

Policy: Continue participation in Rio Tinto climate change policy initiatives and apply to our business.

- Review the capital approval procedures to explicitly include consideration of climate change impacts and energy efficiency
- Drive purchasing behaviour consistent with long term reduction of greenhouse gas emissions
- Adopt leading energy efficiency practices in building and process design as well as in overall mining operations.

Markets: Continue research into low emission coal technology and carbon capture and storage.

Key Outcomes

- Updated carbon price assumptions in the Rio Tinto Project Evaluation Guidelines have been incorporated into Rio Tinto Coal Australia's investment and evaluation processes. The capital expenditure and disposals applications process, has been amended to capture energy and greenhouse savings as well as other sustainable development value elements in two ways; through the capital expenditure and disposals applications form, and a supporting guidance note required by applications for expenditure above \$100,000
- The Mount Pleasant pre-feasibility study included many design features in based on energy and water efficiency considerations. Specific analysis tools were applied to design and option considerations of tailings system, coal processing technology and amenities. A sustainable development idea generation process was conducted and documented and referred to in decision making processes. Recommendations including rain water tanks, solar hot water and sustainable buildings idea have been included in the early stage design phases.

Coal seam methane pilot project

In 2007 a research programme to investigate options for reducing fugitive greenhouse gas emissions from coal mining was initiated at Mount Thorley Warkworth operations. Data from 13 bores was utilised to construct an in-situ gas reservoir model. Four production wells were drilled in 2009 and two gas flares were installed to burn the gas they produce. Flaring trials are scheduled to commence in the second quarter of 2010. This programme is being extended to all Rio Tinto Coal Australia sites in New South Wales including the Mount Pleasant project in 2010. The initial stage of this work involves drilling 27 fully cored bore holes to provide samples to test the gas content and composition of strata that will be exposed during mining operations.

Raising Awareness

Objective

Raising awareness with our employees, the communities where we operate, our customers, governments, suppliers and the industry that this is an issue that requires us to change how we all currently operate.

Programmes

We have designed a communications programme that provides consistent messages for all our employees, supports the energy use reduction programmes and provides context for the broader societal issue. We have also actively participated in the public debate on climate change policy, particularly with respect to the design of an effective emissions trading scheme that maintains the competitiveness of the Australian coal mining industry. Demonstrating our commitment and actions to external audiences and seeking opportunities to work with them is an important part of awareness raising.

Examples of specific programmes include:

- *Internal awareness-raising presentations by the climate change team and Energy Champions*
- *Regular features in internal and external newsletters including Mine Matters*
- *Support of the Newcastle City Council's Together Today and ClimateCam programmes*
- *Participation in Rio Tinto communications task force and consistent messaging at senior levels*
- *Delivering 'what you can do/how to' information to employees and communities to reduce 'footprint'*
- *Engaging with governments to develop an effective response to climate change*
- *Seeking opportunities to raise awareness with industry associations and customers*
- *Supporting COAL21 communications*
- *Ad hoc discussions with analysts, journalists, etc on 'what is clean coal/low emissions coal technology'*
- *Energy and water efficiency included in the concept plan development for Lower Hunter Lands Projects*
- *Annual reports prepared to update progress of the climate change action plan*
- *Internal and external auditing and data review increases focus to help track our performance.*
- *Active participation in the development coal mining industry policy regarding emissions trading*
- *Regional communication programmes on the impacts of the proposed Carbon Pollution Reduction Scheme on the Australian Coal Mining Industry*

Key Outcomes

- Regional communities in which Rio Tinto Coal Australia operates are aware of the our position on climate change, the role of low emission coal in reducing global emissions and the potential impact of poorly designed climate change policy on regional economies without achieving any environmental benefit.
- Eighty per cent of respondents to an internal on-line survey in 2008 said they thought Rio Tinto Coal Australia was doing something about climate change this represents a 20 per cent increase in awareness from the earlier survey baseline results.
- The role of low emission coal in global emission abatement is accepted by Australian Governments.
- Industry association messaging related to climate change, low emission coal and climate change policy is well aligned with Rio Tinto Coal Australia.
- The Rio Tinto Coal Australia Climate Change portal (intranet page) is the key source of central information on our programme, our successes and general climate change related information.
- Rio Tinto Coal Australia's action to reduce emissions and improve energy efficiency is described to the market and shareholders through the publication of case studies in print and in our on-line sustainable development reports and the Rio Tinto and Coal & Allied, annual reports adding to our reputational capital.

Conclusion

The Rio Tinto Climate Change Action Plan has been successfully implemented, delivering energy and emissions savings, increased awareness and capacity to manage greenhouse gas emissions, energy use and improve business systems. At the same time we have made meaningful contributions to the demonstration of low emission coal technology. Rio Tinto Coal Australia is positioned to further develop its management of greenhouse gas emissions and energy in response to the demands of society and the mandatory requirements of legislation.

In 2009, greenhouse gas emissions and energy management moved from the realm of voluntary sustainable development reporting to mandatory reporting subject to independent audit. The compliance burden and risks associated with greenhouse gas emissions and energy use increased significantly over the last twelve months through the Energy Efficiency Opportunities Programme and the National Greenhouse and Energy Reporting Scheme. These programmes significantly increase the visibility of our energy and greenhouse gas emissions management. Experience in 2009 identified a need to improve Rio Tinto Coal Australia and Rio Tinto business systems and processes to ensure effective and efficient compliance with these Commonwealth Government programmes.

The 20 per cent Renewable Energy Target was implemented in 2009 and will add to upward pressure on electricity prices, increasing the cost of energy. The proposed Carbon Pollution Reduction Scheme (CPRS) failed to be passed by the Australian Parliament in 2009 and the Government has announced that it will not recommence with this scheme before 2013. The Federal Opposition does not support the CPRS and is developing a policy of "Direct Action" to reduce emissions. Direct action means regulation. It is not possible to determine now which policy construct will ultimately prevail, however it is a certainty that additional laws placing a direct and/or an indirect cost on greenhouse gas emissions will be implemented in Australia within the next three years which may materially increase our production costs.

We will continue to actively and productively engage with governments on the development of climate change and energy policy that appropriately balances the imperative for global emissions reductions and the need to maintain a robust domestic economy. In addition, we must continue to improve the management of our greenhouse gas emissions to reduce our potential liability under future greenhouse gas legislation and remain competitive. Fugitive emissions currently account for almost two-thirds of Rio Tinto Coal Australia's total greenhouse gas emissions and represent the greatest opportunity for emissions reduction. The Coal Seam Methane Pilot Project at Mount Thorley Warkworth, and its extension to other NSW sites, is critically important to delivering on this opportunity.

International demand for coal is expected to remain strong throughout 2010 and beyond. This fact, together with the failure of the international climate negotiations in Copenhagen in December 2009, does not reduce the imperative to address the high emissions intensity of the use of coal for power generation or steel production. Over time, international policies will trend towards emission reduction and thus will trend towards the substitution of coal with other lower emission energy sources deleteriously affecting our markets. Consistent with Rio Tinto's Climate Change Position, Rio Tinto Coal Australia will continue to support international efforts to deploy low emission coal technologies, not only to mitigate a risk to our markets but to implement Rio Tinto sustainable development and product stewardship policies.