

# Energy group

## STRATEGIC OVERVIEW

The Energy group comprises thermal coal, coking coal and uranium operations. Coal interests located in Australia and the US supply internationally traded and US and Australian domestic markets. Rio Tinto Uranium supplies uranium oxide produced at its majority owned mines in Australia and Namibia to electric power utilities worldwide. Rio Tinto Uranium is currently the world's second largest uranium supplier.

The group strategy aims to harness and focus resources to deliver world class performance in operations, sustainable development and value creation. The strategy is focused on positioning the group as the world's value leader in mineable energy.

The group's reserve and resource position in thermal and coking coal is sufficient to underpin significant greenfield and brownfield expansions.

In 2007 the Energy group undertook a review of its asset portfolio which highlighted opportunities in the current market to divest assets. Options to divest Rio Tinto Energy America (RTEA) and the Kintyre, Australia, and Sweetwater, US, uranium projects are currently being explored.

A key part of the group's strategy is to ensure that the group is a leading advocate of, and investor in, the sustainable future uses of coal and uranium. In 2007 the group continued to dedicate resources and investment funds to the development of clean coal technology through the FutureGen project in the US, COAL21 in Australia and in numerous low emission coal research organisations in the US and Australia.

In 2007 Hydrogen Energy was launched, a 50:50 joint venture with BP which will develop low carbon energy projects around the world. Hydrogen Energy will position Rio Tinto Energy to profit from the advent of a global low carbon energy future and initiate the development of a broader risk management strategy for climate change regulation while providing a meaningful offer on climate change and product stewardship.

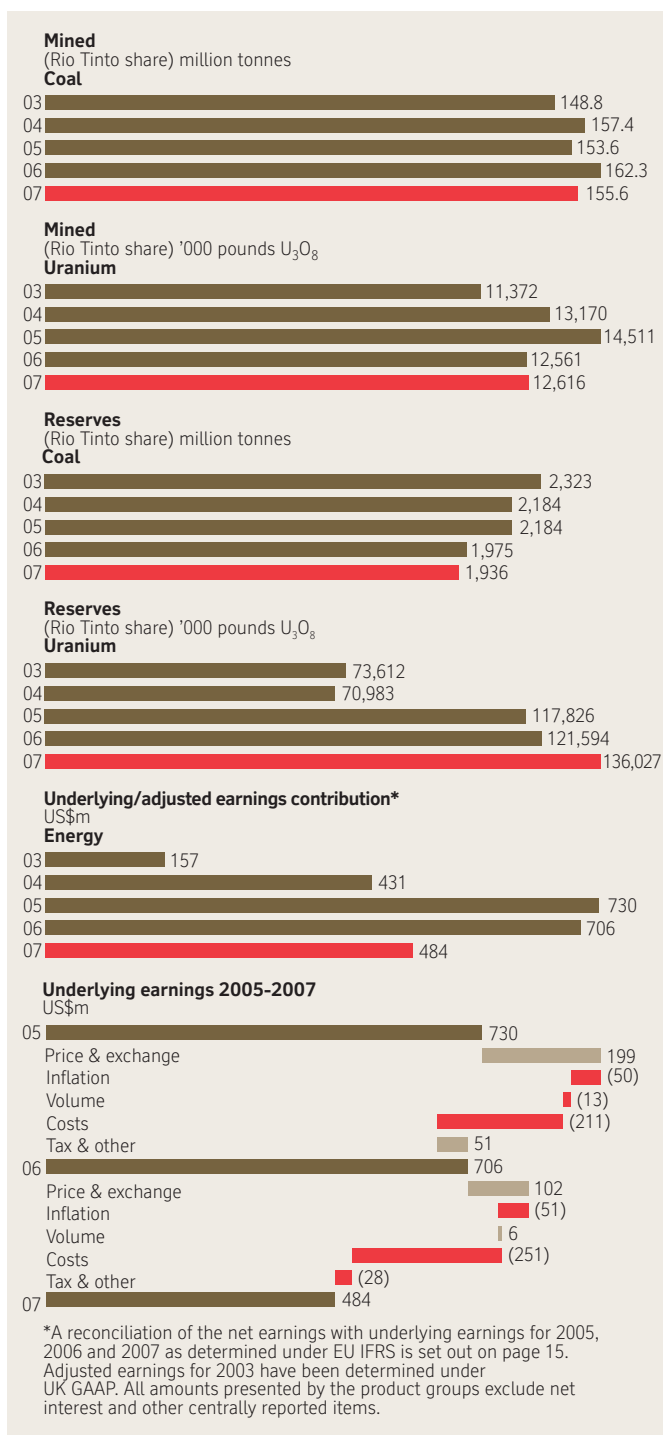
The group's strategic intent is to build through Hydrogen Energy a low carbon energy business primarily reliant on coal that will ultimately leverage Rio Tinto's capabilities in identifying, acquiring and operating large long life coal assets. Gasification opens new and larger markets for coal and the aim is to maximise returns across the emerging coal gasification value chain. Early positioning will convey an important element of competitive advantage. A key to unlocking value will be to proactively shape government policy to support and enable initial projects.

Hydrogen Energy will initially focus on the production of hydrogen for power generation using fossil fuels feedstocks and carbon capture and storage technology to produce new large scale supplies of clean electricity. Hydrogen Energy has announced initiation of studies for possible projects in California, Western Australia, and Abu Dhabi.

The Rössing Uranium life of mine extension project in Namibia continues. With the substantial recovery of uranium prices in recent years, Rössing is well positioned to expand and further extend the life of its operations. This will enable the company to continue to be a leading contributor to the Namibian economy, as it has been for the past 30 years.

At Energy Resources of Australia's (ERA) Ranger mine, a number of opportunities for further low cost brownfield expansion are under consideration. ERA also owns the Jabiluka deposit, the second largest undeveloped uranium deposit in the world. In addition to the significant and sustainable operating assets at Rössing and ERA, Rio Tinto has increased its corporate uranium exploration activity around the world. With a global nuclear power renaissance now under way, driven in large part by the need for large baseload electricity generation that does not emit greenhouse gases, Rio Tinto intends to maintain and enhance its position as one of the world's leading uranium suppliers to power this growth.

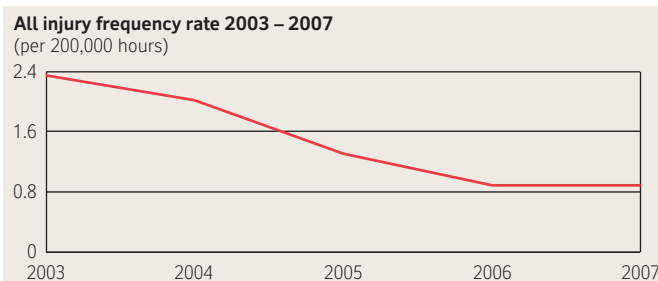
At 31 December 2007, the Energy group accounted for 4.9 per cent of Group operating assets and, in 2007, contributed 13.8 per cent of Rio Tinto's gross sales revenue and 6.5 per cent of underlying earnings.



Preston Chiaro, chief executive, Energy and Industrial Minerals, is based in London.

## SAFETY

Safety performance and awareness continued to be a major focus of all operations. Energy Resources of Australia achieved significant improvements in safety performance. The lost time injury rate fell by 74 per cent and the all injury rate by 46 per cent. The injury severity rate, a measure of the seriousness of injuries, also decreased by a factor of over three. At Rio Tinto Energy America the severity index improved to approximately half of the severity index in 2006. At Rio Tinto Coal Australia's (RTCA) Kestrel mine the lost time injury rate fell by 57 per cent and the all injury rate by 60 per cent. Two Energy group operations were winners of the Chief Executive's Safety Awards, Hunter Valley Operations and the Antelope mine in the US.



## GREENHOUSE GAS EMISSIONS

A greenhouse gas (GHG) performance review was submitted by each business unit as part of a planning process. This included a discussion on targets and performance and a list of proposed and implemented projects noting project progress, savings, costs and NPV (net present value).

Energy Resources of Australia is expected to exceed its targeted GHG reductions. Rio Tinto Energy America is slightly above target and Rio Tinto Coal Australia emissions per tonne have increased. Both RTEA and RTCA have a number of NPV positive optimisations and diesel reduction projects being researched or implemented. With a life of mine extension under way, Rössing Uranium has set a revised target. A number of optimisation projects have been identified.

The Energy group is also focussing on long term emissions reductions through the Hydrogen Energy joint venture. The plan identifies significant expenditure in terms of operating and capital costs for Hydrogen Energy in 2008 and 2009.

## FINANCIAL PERFORMANCE

### 2007 compared with 2006

The Energy group's 2007 contribution to underlying earnings was US\$484 million, US\$222 million less than in 2006.

Coal chain infrastructure bottlenecks and allocation cutbacks in Australia resulted in ongoing and significant production cutbacks and much higher demurrage costs. It is anticipated that production in Australia will not return to full capacity until 2010 when infrastructure bottlenecks are expected to be cleared. Port allocation arrangement negotiations were continuing at year end.

The results also reflected the softening of coking coal prices although there were increases in thermal coal prices and the stronger uranium oxide market. The weakening of the US dollar against the Australian dollar reduced earnings at Australian operations. For all operations, rising fuel prices and the tightness of the labour supply market continued to place pressure on operating results.

Despite lower volumes of uranium sold, higher market prices and the expiration of older contracts containing price caps contributed to a 69 per cent increase in uranium revenues in 2007 compared to 2006.

At Rössing Uranium, results were affected by reduced production volumes due to grade and plant performance and increased operating costs associated with development projects to increase capacity in the future. At ERA results were affected by production losses associated with a severe rain event and flooding of the pit.

The strong upward momentum that characterised the uranium market in the past three years continued for the first half of 2007, as demand remained robust in the wake of supply disruptions that affected a number of projects worldwide. However, unlike previous years, 2007 saw a fundamental change in market behaviour as the spot price became de-linked from the long term market due to the increasing influence of speculators in the commodity. Historically, the spot market has traded at a nominal discount to the term market, but last year saw substantial volatility in spot prices.

The long term uranium price, at which Rio Tinto sells most of its material, exhibited strong growth in the early part of the year, rising to a high of US\$95 per pound in May, an increase of 27 per cent over

December 2006. Thereafter, the long term price remained at US\$95 as utility purchasing activity continued at moderately high levels.

### 2006 compared with 2005

The Energy group's contribution to underlying earnings was US\$706 million, US\$24 million lower than in 2005.

Results benefited from a sustained increase in the price received for thermal coal. Capacity problems in the coal supply chain in the Hunter Valley region of New South Wales impeded production from Coal & Allied operations. Drought in parts of Queensland and New South Wales also affected production levels. Operations focused on producing high margin products and optimising the coal supply chain. Increases in the cost of basic materials, fuel, explosives and labour were not fully offset by production growth, resulting in a rise in the cost per unit of production across all operations.

Although spot prices for uranium rose dramatically during the first part of the year, this had little effect on Rio Tinto's long term contract portfolio. Uranium oxide is typically sold under long term contracts, with pricing determined both by fixed prices negotiated several years in advance, and by market prices at time of delivery. Therefore, the rise in the spot price of uranium oxide during the period was not fully reflected in the year's earnings, but the rise in long term prices did contribute to the improved results. Moreover, for both mines, legacy contracts at low prices are being replaced with new long term contracts that provide floor price protection at levels far above market prices at the beginning of this decade.

## OPERATIONS

### Rio Tinto Energy America (Rio Tinto: 100 per cent)

Rio Tinto Energy America wholly owns and operates four open cut coal mines in the Powder River Basin of Montana and Wyoming, US, and has a 50 per cent interest in, but does not operate, the Decker mine in Montana. RTEA also manages the group's interest in Colowyo Coal in Colorado, US. In total it employs approximately 2,300 people.

The second largest US coal producer, RTEA sells its ultra low sulphur coal to electricity generators predominantly in mid western and southern states.

In April, RTEA bid and won access to approximately 107 million tonnes of additional coal reserves for its Spring Creek Mine in Montana. In June, RTEA bid and won access to approximately 83 million tonnes for the Colowyo Mine in Colorado. The acquisitions will extend the operating lives of the respective mines.

Rio Tinto has announced that it is exploring options to sell RTEA.

### 2007 operating performance

RTEA's 2007 contribution to underlying earnings was US\$132 million, US\$45 million lower than in 2006. Results reflected steadily increasing US coal prices throughout 2007, more than offset by a higher effective tax rate in 2007.

RTEA's 2007 sales were 128.3 million tonnes (excludes brokered sales), a decrease of 222,000 tonnes from 2006. Further increases were limited as customers had built higher levels of coal stockpiles in 2006. Earnings were reduced by a higher effective tax rate than in 2006. In 2007 the effective rate was 35 per cent as all prior year loss carry forwards had been applied. Adjusting to comparable tax rates, the 2007 result was better than 2006, largely driven by improved contract prices.

Antelope mine production of 31.3 million tonnes set a new record for annual production and sales, above the 2006 record of 30.7 million tonnes. Colowyo mine production of 5.1 million tonnes decreased by 700,000 tonnes. Cordero Rojo mine production of 36.7 million tonnes increased by 600,000 tonnes. Jacobs Ranch mine production of 34.6 million tonnes decreased by 1.7 million tonnes. Spring Creek mine production of 14.3 million tonnes set a new record for annual production and sales above the 2006 record of 13.2 million tonnes.

Consistent with the worldwide mining industry, RTEA experienced an increase in the input prices of materials and supplies

in 2007 resulting in higher variable costs of mining. Diesel prices in 2007 increased by more than 15 per cent relative to 2006. Labour costs increased significantly reflecting the competitive regional labour shortage and steadily increasing healthcare costs. Tyre costs increased with the worldwide shortage of large mining equipment tyres. At the same time, strip ratios increase as reserves get deeper, resulting in the requirement to move increasing volumes of overburden.

RTEA is a member of the FutureGen Alliance, which seeks to construct the world's first coal fuelled "zero emissions" power plant. The project achieved a major milestone with a site in Illinois selected for development. Construction was planned to commence upon completion of the permitting process, however this is now in doubt with the US Department of Energy announcing a restructure of the FutureGen project in January 2008.

#### **Rio Tinto Coal Australia** (Rio Tinto: 100 per cent)

Rio Tinto Coal Australia manages the group's Australian coal interests. These include, in Queensland: the Blair Athol (Rio Tinto: 71 per cent), Kestrel (Rio Tinto: 80 per cent), Tarong (Rio Tinto: 100 per cent) and Hail Creek (Rio Tinto: 82 per cent) coal mines and the Clermont deposit (Rio Tinto: 50 per cent).

RTCA also provides management services to Coal & Allied Industries (Coal & Allied) for operation of its four mines located within the Hunter Valley in New South Wales. Coal & Allied (Rio Tinto: 75.7 per cent) is publicly listed on the Australian Securities Exchange and had a market capitalisation of A\$6.5 billion (US\$5.7 billion) at 31 December 2007. Coal & Allied wholly owns Hunter Valley Operations, has an 80 per cent interest in Mount Thorley Operations, a 55.6 per cent interest in the contiguous Warkworth mine, and a 40 per cent interest in the Bengalla mine which abuts its wholly owned Mount Pleasant development project. Coal & Allied also has a 37 per cent interest in Port Waratah Coal Services coal loading terminal.

Production from the Tarong mine is sold exclusively to Tarong Energy Corporation (TEC), an adjacent state owned power utility. In October 2007 the sale of the Tarong mine to TEC was announced with the sale to take effect from 31 January 2008.

Blair Athol produces thermal coal and sells principally to the Japanese market generally on annual agreements. Kestrel and Hail Creek sell mainly metallurgical coal to customers in Japan, south east Asia, Europe and Central America, generally on annual agreements.

Coal & Allied produces thermal and semi soft coal. Most of its thermal coal is sold under contracts to electrical or industrial customers in Japan, Korea and elsewhere in Asia. The balance is sold in Europe and Australia. Coal & Allied's semi soft coal is exported to steel producing customers in Asia and Europe under a combination of long term contracts and spot business.

RTCA and Coal & Allied collectively employ approximately 2,500 people.

#### **2007 operating performance**

RTCA's 2007 contribution to underlying earnings was US\$246 million, US\$244 million lower than in 2006. There was an increase in thermal coal prices but this was offset by production cutbacks necessitated by shipping bottlenecks and the continued weakening of the US dollar against the Australian dollar. Rising fuel prices and the tightness of the labour supply market continued to place pressure on operating results.

A tax benefit of US\$29 million was received on the release of a tax provision that was no longer required.

As the majority of costs are fixed with only consumables such as fuel, tyres and explosives being variable, reduced port capacities had a direct and negative impact on underlying earnings.

Inadequate capacity of coal chain infrastructure in both the Hunter Valley and Queensland operations was a significant contributor to less than satisfactory results for RTCA. Significant production cutbacks of 14 per cent from 2006 levels were necessary, resulting in equipment and contract employees being idled. It is

anticipated that production will not return to full capacity until 2010 when infrastructure bottlenecks are expected to be cleared.

RTCA operations declared *force majeure* under its sales contracts on two occasions during 2007; in June as a result of severe weather conditions in the Hunter Valley and in November as a result of announced first quarter 2008 allocation cutbacks at the Dalrymple Bay port facilities in Queensland.

Total production at Blair Athol decreased from 10.2 million tonnes to 7.9 million tonnes primarily as a result of limited port capacity. Kestrel's production increased by 0.8 per cent to 3.6 million tonnes. Hail Creek production was five million tonnes, an increase of ten per cent. At Tarong, production decreased by 35 per cent in line with lower demand from Tarong Energy Corporation.

#### **Energy Resources of Australia** (Rio Tinto: 68.4 per cent)

Energy Resources of Australia Ltd (ERA) is a publicly listed company and had a market capitalisation of A\$3.7 billion (US\$3.3 billion) at 31 December 2007. ERA employs 420 people, an increase from 385 at the end of 2006.

Since 1980 ERA has mined ore and produced uranium oxide at its Ranger open pit mine, 250 kilometres east of Darwin in Australia's Northern Territory. ERA also has title to the adjacent Jabiluka mineral lease, which in 2003 was put on long term care and maintenance. Ranger and Jabiluka are surrounded by, but remain separate from, the World Heritage listed Kakadu National Park, and especially stringent environmental requirements and governmental oversight apply.

ERA is a large uranium producer, with considerable operational experience and a well established market position. The Ranger mine is the second largest uranium mine in the world and ERA is the fourth largest producer. ERA's strategy is focused on creating the most value from resources available on existing lease areas.

In line with the Energy group's strategy of seeking additional production volumes and long term expansions to supply the current favourable market environment, ERA put significant effort into achieving growth through capitalising on opportunities for expansion and extension of production including, an extension of the existing Ranger mine, and installation of additional processing equipment to treat low grade and lateritic ore.

#### **2007 operating performance**

ERA's 2007 full year earnings rose by 124 per cent to US\$38 million in comparison with 2006 earnings of US\$17 million. This was driven by a rise in the average realised price of uranium oxide from US\$18.36 per pound to US\$25.06 per pound despite sales being lower at 11.7 million pounds compared to the 2006 volume of 12.7 million pounds. The 2007 sales figures include no borrowed material.

Production of uranium oxide in 2007 was 11.7 million pounds, approximately 13 per cent higher than in 2006.

The favourable production result was significant given a severe rain event associated with a tropical low pressure system, resulting in nearly 850 millimetres of rain falling over the Ranger operation in seven days in February 2007. This resulted in flooding of the Ranger open pit, restricting access to high grade ore, forcing a processing plant shutdown and a declaration of *force majeure* on sales contracts in March 2007. In the third quarter of 2007 access to high grade ore was again possible through the implementation of various water disposal measures.

Recovery work was successful in allowing production to return to normal levels in 2008 with no adverse environmental consequences. All sales commitments were met in 2007 and *force majeure* was lifted in January 2008. Further work is under way to reduce the impact of future weather events on the mine's performance.

In September ERA announced an extension of the Ranger mine at a capital cost A\$57 million, which added 10.7 million pounds of additional reserves, and extended the mine life from 2008 to 2012. Expenditure of A\$10 million was also approved to examine options to further extend the mine and increase production from the processing plant.

Exploration and evaluation activity increased in 2007 with ERA spending US\$11.8 million compared to US\$6 million in 2006.

Exploration and evaluation focused on near mine extensions to the Ranger orebody.

ERA continued to work with the Mirarr, traditional owners of the mining lease. The Mirarr commenced delivery of a cultural awareness programme to all new ERA employees and advised ERA on the establishment of traditional fire management practices on the Ranger lease. Increasing indigenous employment is a significant focus including the provision of training and employment opportunities. The year saw the number of indigenous employees increase to 65, or 16 per cent of the workforce. Improving on this will continue to be a focus for 2008.

#### **Rössing Uranium** (Rio Tinto: 68.6 per cent)

Rössing Uranium Limited produces and exports uranium oxide from Namibia to power utilities globally. Rössing continues to play a major role in the Namibian economy, both in terms of GDP contribution as well as education, employment and training.

Rössing currently employs approximately 1,175 people. Following the life of mine extension project approved in 2005, capital equipment acquisitions for the new mining area are in place and planning work for further extension continues. In 2007 production volumes of 6.7 million pounds were constrained as a result of having limited access to ore sources. The phase one pit is in its last two years of life. Mining and processing volumes, however, have been good and the mine is positioned for higher volumes in 2008 and beyond.

The year was one of consolidation and preparation for future growth and sustainable production. Truck and loading fleets doubled and over 300 people were recruited and trained. The current approved life of mine extensions will take the mine life to 2016 and further potential opportunities exist to extend both the mine life and production volumes depending on the long term price outlook and costs of production. Activities will continue to focus on continuous net present value (NPV) growth, improving margins and creation of options from potential resources and reserves.

#### **2007 operating performance**

Earnings increased to US\$95 million from US\$27 million in 2006 due to higher market prices for uranium oxide.

Operating costs increased to US\$38 per pound of uranium oxide production from US\$22 per pound in 2006 as a result of lower production volumes, outsourcing of waste stripping as well as exploration activities that are not yet adding to production volumes. Costs were also affected by ore grades and higher than planned diesel and other operating costs.

All new primary production equipment is now fully commissioned to bring the fleet complement to 24 haul trucks from 16 at the beginning of the year, and six loading units compared to four previously. Initiatives are under way to improve the performance of the milling process.

Lower than planned leach extraction in 2007 was due to the average ore type which impacted on process controls. In 2008 there will be a focus on maintaining stability in the process and improving the head grade by applying a better blending strategy.

Rössing continues to put significant effort and management focus on safety. The goal is to eliminate all injuries from the workplace and to have an embedded safety culture and systems that identify and rectify potential safety hazards.

#### **ENERGY GROUP PROJECTS**

##### **Energy Resources of Australia** (Rio Tinto: 68.4 per cent)

In September 2007 ERA announced an extension to the Ranger open pit at a capital cost of A\$57 million to extend mining until 2012. The pushback, when combined with optimisation of the existing pit, added an additional 10.7 million pounds of contained uranium oxide to reserves. The majority of the additional production from the extension will occur in 2011.

ERA has also approved expenditure of A\$10 million for a pre-feasibility study to examine options to further expand the mine and increase production from the processing plant. The study

commenced in the third quarter of 2007 and will continue into 2008.

ERA's other capital expansion projects to process laterite ore and radiometrically sort low grade ores are well advanced with both projects scheduled for commissioning in the second quarter of 2008. The laterite processing plant will contribute approximately 0.88 million pounds per annum of uranium oxide to production from 2008 through to 2014. The radiometric sorter will upgrade lower grade ore and allow an additional 2.4 million pounds of uranium oxide to be produced over a five year period from 2008 to the end of 2013.

Exploration continued throughout the year including for the first time drilling through the wet season. Activity focused on further defining the down dip extension of the Ranger orebody, as well as understanding and defining the uranium resource to support the pre-feasibility study on further expansion of the mine.

##### **Rössing Uranium** (Rio Tinto: 68.6 per cent)

After years of working below capacity during a period of low uranium prices, in December 2005 approval was granted to restore annual production capacity to 8.8 million pounds per annum and extend the life of the operation until at least 2016. Total incremental and sustaining capital cost of the expansion is US\$112 million.

In 2007, delays were experienced with the start of construction projects due to slow contractor tender submissions. Recruitment of staff has been slow due to skills shortages in southern Africa. Work is now progressing well.

##### **Rio Tinto Coal Australia Clermont** (Rio Tinto: 50.1 per cent)

Rio Tinto and its joint venture partners approved investment of US\$750 million for the development of the Clermont thermal coal mine in central Queensland, situated 15 kilometres south east of the Blair Athol mine. Clermont will become Australia's largest thermal coal producer when it reaches full capacity, which is scheduled for 2013. The mine will be brought into production to replace Blair Athol, due to close in 2015, and will use Blair Athol's existing infrastructure and market position. To date construction has progressed to plan with boxcut production to commence in mid 2008 and first coal production expected in 2010.

##### **Rio Tinto Coal Australia Kestrel** (Rio Tinto: 80 per cent)

Rio Tinto and its joint venture partners approved investment of US\$991 million for the extension of the Kestrel mine. This represents a 20 year investment in the Bowen Basin of Queensland to help meet Asian demand for metallurgical coal. First coal production from the extension is forecast for 2012 when the existing mine ceases production.

##### **Coal & Allied Mount Pleasant** (Rio Tinto: 75.7 per cent)

In 2006, Coal & Allied started a feasibility study on the Mount Pleasant coal mine project located adjacent to the Bengalla coal mine near Muswellbrook in the Hunter Valley, New South Wales. With continued uncertainty surrounding coal chain infrastructure in the Hunter Valley, further study is required before the feasibility study can be finalised.

##### **Coal & Allied Lower Hunter Land** (Rio Tinto: 75.7 per cent)

In 2006 Coal and Allied signed a memorandum of understanding with the New South Wales Government to facilitate the provision of extensive land conservation corridors in the Lower Hunter via the transfer of 80 per cent of the Company's post mining land holdings. The remaining 20 per cent is being considered for land development. Extensive community consultation continued through 2007 with various options considered. Feasibility studies will be conducted in 2008 to finalise these options.

##### **Rio Tinto Energy America** (Rio Tinto: 100 per cent)

During 2007 RTEA commenced construction of the Jacobs Ranch overland conveyor and in pit crusher project. This will reduce

A stacker reclaimer at Rio Tinto Coal  
Australia's Blair Athol coal mine in Queensland.



emissions and operating costs in addition to providing latent capacity for expansion (from around 38 million tonnes to around 45 million tonnes per annum). Commissioning is on schedule for

completion in 2008. At Antelope and Spring Creek recent expansion projects were completed in 2007 and production is ramping up to meet market demand.