

Resources (Coal)

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.Innovation in the Resources sector

The resources sector in NSW is dominated by coal. Newcastle is the world's largest coal-dominated port and NSW provides 13 per cent of global coal exports. The industry has experienced significant growth over recent years, as a result of increased demand and associated increases in prices. Japan, Taiwan and the Republic of Korea depend on NSW coal.

In the mining sector in NSW, 27 per cent of businesses are innovation-active¹ and this rate has been increasing over time. Much of the observed increase in innovative activity since 1990 appears to be related to changes in R&D intensity, which has increased dramatically. In fact, R&D intensity was almost three times greater in 2005 than it was in 1990.²

Professor West identifies two important innovation-related issues for coal in NSW:

- how to defend these exports in an era of rising concern about global warming, to which coal is a significant contributor; and
- how to add additional value-creating activity, in particular with related and supporting services.

There is great need for innovation in the coal industry due to concerns about greenhouse gases. Across the NSW Government, much activity is being undertaken in clean coal technology.

The NSW Clean Coal Council was established in April 2008 to support the development and acceleration of low emission technologies in NSW. The Council is chaired by the Hon Ian Macdonald MLC and includes industry and government representation. The Council administers the NSW Clean Coal Fund, to which the State Government has committed \$100 million in new funding. The Fund will be supplemented by \$50 million from the Federal Government for clean coal projects in NSW and \$400 million over the next decade from the Australian Coal Association's COAL21 Fund, which is a voluntary levy raised by coal producers.

A number of additional projects are underway:

- A project that will capture greenhouse gas emissions from power stations and pump them into deep underground rock formations for permanent disposal (geosequestration). The initial stage of this project will be to identify potential CO₂ storage sites in NSW. This will be followed by a pilot project to capture and permanently store CO₂ into the deep geological formations.
- Ultra Clean Coal Projects which will produce a high purity, cleaned coal that can be burnt directly in gas turbines to generate electricity. The NSW Government has granted freehold land title and a long term lease to UCC Energy Pty Ltd for the construction of a demonstration plant at Cessnock. This project is based upon wholly owned Australian technology.
- A pilot carbon capture plant will be developed on the NSW Central Coast through a joint initiative by Delta Electricity and the CSIRO. The Post Combustion Capture pilot facility will capture greenhouse gas emissions from the Munmorah Power Station using absorption technology. This is expected to be operational by mid 2008.

.The Innovation Unit's current projects and publications

- The Innovation Unit is preparing a proposal in relation to the federally funded Enterprise Connect Centre for Clean Energy which will be established in 2008.

.Why was Resources chosen as an innovation sector?

This sector has been chosen as an area of focus for NSW due to the following factors:

Value and importance

- In relation to coal production in NSW, in 2005/06 there were 58 mines, 160,747,000 tonnes of raw coal produced (up from 138,779,000 tonnes in 2000/01) and 12,750 employees (up from 9,821 in 2000/01).
- In NSW, coal accounts for around 80 per cent of the total value of mineral production. Coal generates almost 92 per cent of the State's electricity and contributes over half of its commodity exports.
- Mining makes up 17 per cent of NSW's exports and coal accounts for 19 per cent of NSW merchandise exports.

Employment

- The broader mining industry employs more than 21,000 people in NSW (as of February 2008). The majority of employment is in the fields of smelting and refining and extraction.
- Research has projected that 5000 new jobs will be created in mining in regional NSW over then next 10 years. For every direct job in the mining industry, there are three to four jobs created locally in supporting industries – including ports, shipping companies, rail, mining

services and equipment.

Growth

- In 2005/06 mining contributed \$7.2 billion to the NSW economy. This represented a 30 per cent increase on the contribution from the previous year.³
- average productivity growth in the mining industry from 1990 to 2005 was 2.7 per cent per annum, above overall industry productivity growth in Australia of 1.7 per cent per annum.⁴
- Recoverable coal reserves are estimated to be more than 10,000 million tonnes.

See the [profile of Mining and Mineral Processing in NSW](#).

¹ ABS Cat. 8158.

² IBM Innovation Index 2007.

³ ABS Cat. 1338.1 and 5220.0.

⁴ IBM Innovation Index 2007.

For more information

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