



NEW SOUTH WALES
MINERALS COUNCIL LTD
MININGENUITY™

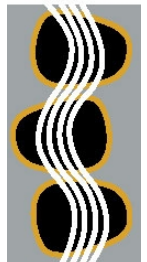
October 2008

Submission to
Infrastructure Australia

Australia's Future Infrastructure Requirements

Executive Summary

- Australia is benefiting from surging global demand for its natural resources, being driven primarily by the rapid industrialisation of emerging economies including China and India. The NSW mining industry is well positioned to capitalise on this opportunity, with ample reserves across a range of industrial commodities.
- There are several serious capacity constraints which have the potential to impact on Australia's ability to satisfy this demand. Unless addressed, these constraints will lead to erosion of market share, a diminishing reputation as a reliable provider of resources and the flight of investment in exploration, new project development and supporting infrastructure. Most of the capacity constraints identified can be overcome through effective policy and regulatory reform. In fact, this is a necessary prerequisite to ensure that investments are directed most effectively.
- The NSW minerals industry is valued at \$13.9 billion. It directly accounts for 2 per cent of Gross State Product, 75 per cent of which is earned through exports. The sector is the largest merchandise exporter in NSW. Mining and minerals processing directly employs 47,000 people, mainly in regional towns and cities, and indirectly supports over 200,000 jobs throughout the State (some 13% of total NSW employment).
- The global resources boom has created inflationary pressures on costs for equipment, human resources and production inputs, including electricity. There has been a dramatic upswing in costs since 2004, with underground mining costs increasing 34.7% and open cut mining costs by 60.7%.
- Reliable supply of competitively priced electricity is a critical production input for the NSW minerals industry, particularly for metallic minerals and minerals processing. While NSW has identified the need for new baseload capacity from 2013-14, major reform is required to facilitate the investment needed for its delivery.
- NSWMC supports the introduction of an emissions trading scheme (ETS) as one part of a comprehensive policy response to address the threat of climate change. It is imperative that this balances the need to ensure energy security, ongoing economic growth and international competitiveness and actual reduction in global emissions. In the context of the current global financial meltdown, any introduction of an ETS must be cautiously approached and judiciously implemented.
- Increasing pressures on the NSW mining industry's 'licence to operate' have led to ever tighter regulatory and approvals processes. This has several impacts, including vastly increased project costs and extended periods between exploration and production.
- Chronic labour shortages represent a significant risk which will have an impact across all sectors of the mining industry. While in absolute numbers the scale of the labour shortage in NSW is lower than in either Western Australia or Queensland, the projected increase in labour demand will be 45% of the existing workforce. Already some New South Wales Minerals Council (NSWMC) member companies are experiencing significant difficulties in attracting specific skills and the increasing competition for human resources is a capacity constraint for mining in the State.
- Certainty of access to supply chain capacity is critical to the viability and investment decision of minerals exporters. In the NSW mining industry, the most urgent and high profile supply chain constraint exists in the Hunter Valley. The opportunity cost to the State and to Australia's reputation as a reliable provider of coal exports is significant. Actual costs include lost export revenue, estimated at more than \$2 billion between 2005 and 2010 and additional costs such as demurrage, estimated at more than \$300 million per annum.
- The prolonged drought across much of NSW has highlighted the need for an effective water management framework to ensure the efficient and equitable allocation of scarce water resources.



The minerals industry is recognised by governments as a highly efficient and high value end user of water. The economic value produced from water used by the minerals industry is higher than any other, with an average value of \$80 per cubic metre of water used compared to \$40/m³ for the industrial sector and \$5/m³ for the agricultural industry. However, the NSW minerals industry, like many other industries, is being affected by water shortages and the problems are becoming even more acute, potentially leading to serious consequences not only for the businesses themselves but also the regional communities in which they operate.

- Telecommunications services to remote and regional NSW are generally well below the standard required by business and substantially inferior to those provided in capital cities. The minerals industry is normally required to provide the majority of capital expenditure for the development of infrastructure necessary to access telecommunications services. Subsequent charges do not reflect the up-front contribution made. In some cases, private capital expenditure is not enough on its own to secure services comparable to capital cities, due to the fact that critical telecommunications infrastructure such as optic fibre is not available. The provision of telecommunications and data services in regional and remote areas must be the joint responsibility of the government and telecommunications providers.

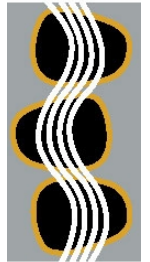
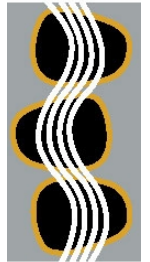


Table of Contents

Table of Contents	3
1. Introduction.....	4
2. The NSW Mining Industry.....	5
3. Opportunities	7
4. Challenges & Risks.....	9
4.1 Increased Costs.....	9
4.2 Climate Change.....	9
4.3 Project Approvals.....	10
4.4 Labour Shortages	10
5. Infrastructure Audit	11
5.1 Transport	11
5.2 Water.....	14
5.3 Energy.....	17
5.4 Telecommunications.....	19
6. References	21

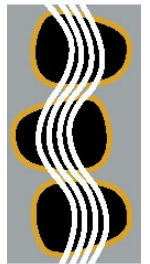


1. Introduction

The NSW Minerals Council (NSWMC) represents the state's mining industry, providing a single, united voice for more than 70 mining businesses including minerals producers, operators, explorers, extractive material producers and associated service providers operating in NSW.

In doing so, NSWMC works closely with government, other industry and key stakeholder groups and the community to promote the interests of a dynamic, efficient and sustainable mining industry in NSW.

In preparing this submission, NSWMC has focused on the four key infrastructure areas highlighted in the Terms of Reference (transport, water, energy and telecommunications) and identified the main issues which contribute to existing bottlenecks. Often these do not reflect a failure on behalf of one or more of the contributors, but occur as a result of poor coordination across jurisdictions, or between authorities with overlapping responsibilities. NSWMC considers that policy and regulatory reform is a critical first step in addressing infrastructure issues.



2. The NSW Mining Industry

The mining industry is one of the prime drivers of the NSW economy, which in turn underpins Australia's economic performance, accounting for 32% of gross domestic product (GDP).

The value of NSW mineral production has been calculated at \$13.9 billion for 2007-08, an increase of 13% on 2006-07. Coal accounts for 66% of total production value, with metallic minerals also significant at 29% and remainder comprised of construction materials (3%) and industrial minerals (2%).

Coal is the largest single NSW export by value, worth \$8.2 billion for 100.5 Mt in 2007-08. Domestic coal consumption of about 34.5 Mt, primarily by the power and steel industries, was valued at an additional \$2.1 billion.

Whilst NSW gold production has remained stable at approximately 29t, it has increased its share of Australia's annual gold production since 2004-05. NSW is currently Australia's second largest gold producing state. The development of new projects and the major expansion of existing mines, including Cadia Valley Operations in Orange and Barrick's Lake Cowal mine, north of West Wyalong, will soon drive NSW gold production well beyond 30t.

Royalties collected from NSW minerals have generally been steadily increasing since 2003-04 and were expected to be worth approximately \$572 million for 2007-08, with coal comprising approximately 90% of this figure.

Recently, the NSW Department of Primary Industries (DPI) announced that coal royalty for 2008-09 would be \$840 million. NSW treasury projections forecast that coal mine royalty is expected to continue to grow significantly. Based on port capacity projections, coal prices and foreign exchange rate estimates, the coal royalties could earn NSW more than \$1.6 billion in 2010-11, before decreasing to \$1.4 billion the following year as the anticipated removal of port and rail bottlenecks relieves supply constraints.¹

The NSW minerals industry directly accounts for 2 per cent of Gross State Product (GSP), 75 per cent of which is earned through exports — the sector is the largest merchandise exporter in the State. Mining and minerals processing directly employs 47,000 people, mainly in regional towns and cities, and indirectly supports over 200,000 jobs throughout the State.²

Table 1: Contribution of the minerals industry to the NSW economy³

Key Indicators	Units	2004-05	2005-06
Value of production	\$ million		
Mining		9,189	11,592
Minerals Processing		9,832	10,200
Total		19,021	21,792
Exports	\$ million		
Mining		5,392	6,857
Minerals Processing		2,399	3,251
Total		7,791	10,108
Employment	Persons		
Mining		21,220	21,000
Minerals Processing		25,200	26,000
Total		46,420	47,000
Employment created in NSW in other sectors	4.5 multiplier	208,890	211,000
State taxes and charges	\$ million		
Royalties		411	504
Stamp duty, payroll tax etc		90	100
Total		501	604

Note: (p) - preliminary

¹ NSW Treasury (2008), Forward Estimates of Coal Royalty, April.

² ACIL Tasman (2006), *The contribution of the minerals industry to the NSW economy*, Report prepared for the NSW Minerals Ministerial Advisory Council, December, p. vi.

³ ACIL Tasman (2006)



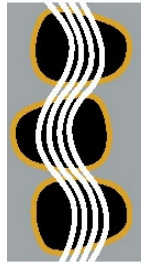
For the NSW community, this economic contribution translates into:

- High paid jobs for minerals industry employees
- Support for businesses and therefore employment, in rural and regional communities
- Electricity, road, rail and port infrastructure
- Contribution to community life through sporting clubs, emergency services, charities and other groups
- Over \$800 million per annum in mining royalties and other State taxes and charges that help fund hospitals, schools, the police and other community services throughout the State.

Mining business in NSW also underpins capital expenditure in the State. According to recent ABARE forecasts⁴, the NSW mining industry has over \$9 billion worth of major projects either under construction, committed or undergoing feasibility studies.

Table 2: Major projects in NSW mining industry (2008)

Sector	\$million
Black coal projects	2,676
Black coal infrastructure projects	3,231
Gold	2,065
Crude Iron and Steel ⁵	504
Lead/Zinc/Silver	260
Mineral Sands	230
Coal seam methane	155
Titanium	85
Total	9,206



⁴ ABARE, Minerals and Energy: Major development projects – April 2008 listing, April 2008.

⁵ Two Bluescope steel projects, Port Kembla Blast Furnace No 5 reline and Sinter plant and raw material yards upgrade. Steel making in NSW is heavily dependent on coking coal from the Southern Coalfields.

3. Opportunities

The NSW mining industry is well placed to capitalise on surging global demand for industrial commodities, being driven primarily by the rapid industrialisation of emerging economies, including China and India.

In coal particularly, NSW is well endowed with estimated recoverable reserves of 12.4Bt.⁶ Recent major exploration projects in the Gunnedah Basin are expected to make further significant additions to this figure.

Predicted long-term demand suggests there is a huge opportunity for Australia to profit from the China-India phenomenon and to grow its position as the world's leading coal exporter. NSW will share in this potential bonanza with Queensland. Modelling shows that global production across a range of industrial commodities will need to experience very large increases in order to satisfy predicted demand. For example, by 2020 global coal production will be required to grow by 45% above 2006 levels, iron ore 54% and aluminium 58% above 2006 production scale.⁷

While Australia has a strong reputation as a reliable supplier of natural resources for international trade, we will need a massive expansion in throughput across all commodities just to maintain existing market share. For example, modelling to 2020 suggests the need to lift annual coal volumes by 211 million tonnes over and above 2007 levels. This represents an expansion of more than three times the matching increase achieved between 2002 and 2007.⁸

In December 2006, ACIL Tasman conducted modelling of two different scenarios for the minerals industry within the NSW economy, to assess the consequences for the State's labour market and the demand for infrastructure.

Table 3: Potential of the NSW minerals industry in 2020

Key Indicators	Units	2006 (p)	BAU 2020	Vision 2020
Value of production	2006 \$ million			
Mining		11,592	15,200	21,300
Minerals Processing		10,200	12,900	15,500
Total		21,792	28,100	36,800
Exports	2006 \$ million			
Mining		6,857	9,400	13,200
Minerals Processing		3,251	5,900	7,100
Total		10,108	15,300	20,300
Employment	Persons			
Mining		21,000	24,000	30,400
Minerals Processing		26,000	32,000	34,000
Total		47,000	56,000	64,400
Employment created in NSW in other sectors	4.5 multiplier	211,000	252,000	290,000

Data source: ABS and Tasman Global (p) preliminary

While the contribution of the industry to the State and regional economies, and their communities, is impressive there is potential for more. Modelling of a plausible 'Vision Scenario' for the industry, whereby coal exports are 50% higher than business-as-usual (BAU) and other mining and minerals processing production is 25% higher than BAU, indicates that, additional to the BAU, the industry could by 2020:

1. Contribute another 1% of GSP, worth an additional \$30 billion in GSP, \$17 billion in private consumption and \$8 billion in investment over the next 15 years

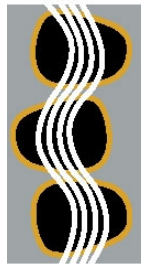
⁶ NSW Department of Primary Industry (2008), *2008 NSW Coal Industry Profile*, July, p. 3

⁷ Access Economics (2008b), *Can the Domestic Supply Chains Match Global Demand?* Report prepared for the Minerals Council of Australia, May, p. 4.

⁸ Access Economics (2008b), p. iv



2. Employ an additional 8,400 workers in high paid mining industry jobs, almost entirely in regional NSW
3. Through the wealth created, stimulate the creation and support of an additional 38,000 jobs throughout the State principally in construction, infrastructure operation (mainly electricity generation, rail and ports), and sectors that provide general business and personal services.⁹



⁹ ACIL Tasman (2006), *The contribution of the minerals industry to the NSW economy*, Report prepared for the NSW Minerals Ministerial Advisory Council, December, p. vii.

4. Challenges & Risks

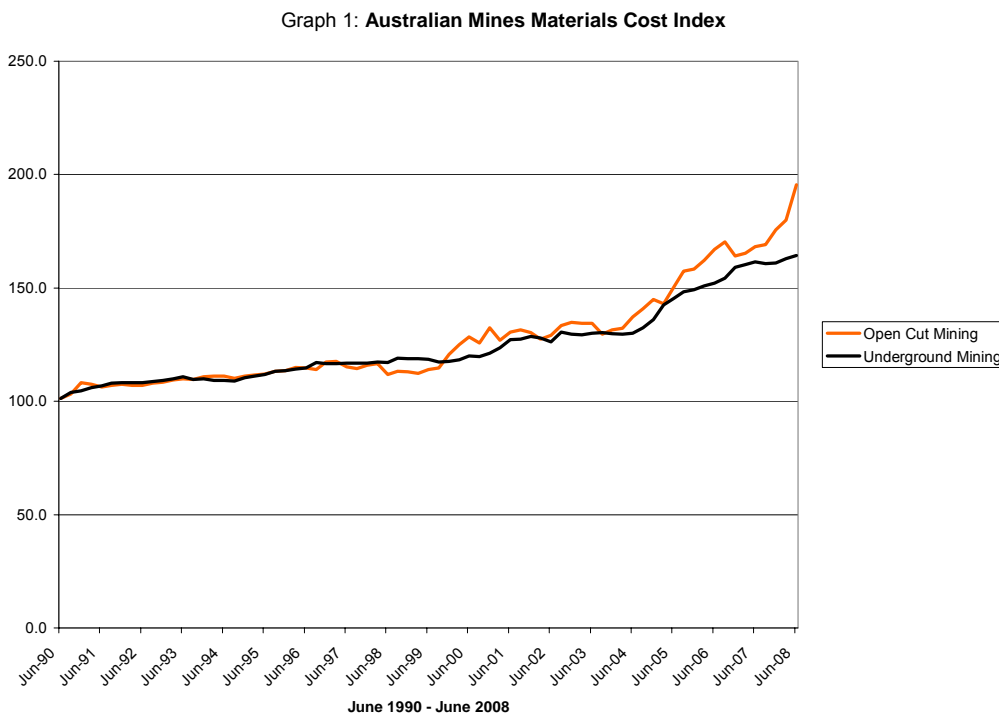
Four broad areas of infrastructure constraints are discussed in detail in this submission: transport (export supply chain), water, energy and telecommunications.

As discussed in 'Opportunities', NSW and Australia more generally face a huge task in expanding production and throughput across a range of commodities, just to maintain market share to 2020. During the period since the emergence of demand spikes from emerging economies led by China, between 2002 and 2007, Australia's market share has declined in eight major commodities including gold, iron ore, coal, copper, aluminium, nickel, zinc and lead, most of which are part of the NSW resource portfolio.¹⁰

Had we maintained our global market share during this period, then – at today's prices – Australia's miners would have earned another \$17 billion.¹¹

4.1 Increased Costs

The ongoing global resources boom has created inflationary pressures on costs for equipment, human resources and production inputs, including electricity. The graph below illustrates the increase in coal mining input materials costs between June 1990 and June 2008. There has been a dramatic upswing in costs since 2004, with underground mining costs increasing 34.7% and open cut mining costs by 60.7%.



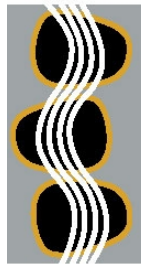
Data Source: ABS 6427.0

4.2 Climate Change

The NSW mining industry is committed to playing its role in the national and global effort to address the challenge of climate change. Australia requires a suite of policy measures that balance the need to

¹⁰ Access Economics (2008b), p. 1.

¹¹ Access Economics (2008b), p. ii.



ensure energy security, ongoing economic growth and international competitiveness and actual reduction in global emissions.

NSWMC supports the introduction of an emissions trading scheme (ETS) as one part of a comprehensive policy response of moving to a carbon constrained economy. The introduction of an ETS is the most significant economic revolution in the Australian economy for a generation. Such large scale reform could impact on the mining industry's capacity to remain internationally competitive, and in turn put at risk the economic and employment benefits which the industry provides.

The mining industry has a strong case for Energy Intensive Trade Exposed treatment. The mining industry is a price taker on international markets. For example, gold is bought and sold at the global gold spot price and there is no market differentiation of product. None of the minerals industry's competitors have an ETS in place, and most are developing countries which are not even considering emissions reductions. In the thermal coal export sector, for example, key competitors include Indonesia, Colombia, Russia, China and South Africa. In the copper sector, major producers include Chile, Russia, the USA, Canada and Peru. In the gold sector, developing nations account for 68 per cent of global production. The unilateral addition of a carbon cost on the Australian minerals sector will have an impact on its sustainability and future growth.

In the context of the current global financial conditions, any introduction of an ETS must be cautiously approached and judiciously implemented. The final shape of the ETS has the potential for significant impact on the minerals industry, including for its future investment in critical infrastructure.

4.3 Project Approvals

Increasing pressures on the NSW mining industry's 'licence to operate' have led to ever tighter regulatory and approvals processes. While the NSWMC supports changes to environmental and project approval processes where there is a tangible environmental or social benefit, such changes must take into account several potential impacts, including vastly increased project costs and extended periods between exploration and production. The risk to NSW from lengthy or uncertain approvals processes is reduced competitiveness, potentially resulting in the loss of investment to other jurisdictions, including outside of Australia.

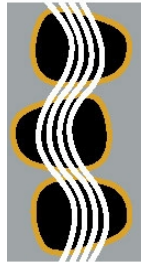
4.4 Labour Shortages

Chronic labour shortages represent a significant risk which will have an impact across all sectors of the mining industry. A recent study by the National Institute of Labour Studies of Flinders University on the *Labour Force Outlook for the Australian Minerals Sector to 2020*, commissioned by the Minerals Council of Australia (MCA), illustrated the scale of the problem in Australia.

- The mining sector will need to employ 86,000 more operational workers, from 128,000 in 2008 to 215,000 in 2020. This is an increase of 68%;
- By mineral commodity, the largest increases are projected to be in iron ore (21,000 persons or 106%) and coal (19,000 or 53%);
- The current chronic shortage of minerals industry professionals remains pressing with an additional 9,000 people required by 2020.

While in absolute numbers the scale of the labour shortage in NSW is lower than in either Western Australia or Queensland, the projected increase in labour demand will be 45% of the existing workforce.¹² Already some NSWMC member companies are experiencing significant difficulties in attracting specific skills and the increasing competition for human resources is a capacity constraint for mining in the State.

¹² National Institute of Labour Studies, Flinders University, Adelaide (2008), *The Labour Force Outlook in the Australian Minerals Sector: 2008 to 2020*, Report prepared for the Minerals Council of Australia, June, p. 11.



5. Infrastructure Audit

5.1 Transport

Certainty of access to supply chain capacity is critical to the viability and investment decisions of minerals exporters.

In the NSW mining industry, the most urgent and high profile supply chain constraint exists in the Hunter Valley.

The opportunity cost to the State and to Australia's reputation as a reliable provider of coal is significant. Based on port capacity projections, coal prices and foreign exchange rate estimates provided by (NSW) Treasury, the forward estimates for coal royalties, which account for 90% of royalties from the NSW mining industry, are expected to be:

Table 4: Forward Estimates of Coal Royalty

	Low \$'000	Medium \$'000	High \$'000
2008-09	840	840	840
2009-10	783	986	1,308
2010-11	937	1,256	1,655
2011-12	857	1,135	1,443

The three options reflect:

- Low – incorporating a stronger \$A and low \$US coal price
- Medium – using average exchange rates and coal prices
- High – incorporating lower range expectations for the \$A, and higher coal prices.¹³

Coal is exported through two ports: Port Kembla and the Port of Newcastle. Of the 100.5 Mt exported in 2007-08, 88.88 Mt went through the Port of Newcastle.

The Port of Newcastle is the end point of the Hunter Coal Chain, which is currently comprised of the following:

- 14 coal producers
- Two above rail operators (rolling stock)
- One below rail provider (rail tracks and associated infrastructure such as signalling)
- One coordinating body.

Access to rail capacity is provided by the Australian Rail Track Corporation (ARTC) through the Hunter Valley Access Undertaking (HVAU). ARTC has identified approximately 40 projects worth \$1 billion aimed at expanding rail capacity in line with port expansion.

A new HVAU is currently being negotiated. Two significant changes in the new HVAU include:

1. Ten-year take-or-pay contracts
2. Direct contractual arrangements between ARTC and coal producers through Access Holder Agreements.

Access to port capacity is currently provided through open access (common user) arrangements by Port Waratah Coal Services. PWCS operates the Carrington Coal Loader (capacity 25 Mtpa) and the Kooragang Coal Loader (88 Mtpa). The Kooragang facility has planning approved capacity of 120Mt. PWCS is working on plans that could increase its combined terminal capacity to the planning approval limit of 145Mt.

In addition, the Newcastle Coal Infrastructure Group (NCIG) has commenced construction on the first stage of a third coal terminal, which will have an initial capacity of 30 Mtpa. The first coal is expected

¹³ NSW Treasury (2008), Forward Estimates of Coal Royalty, April.



to be exported in 2010. NCIG also has approval for a second stage which will take its total capacity to 66 Mtpa.

Despite these large planned investments in rail and port capacity, the system remains constrained, with an estimated 5-10Mt shortfall in 2007 representing more than \$400 million in lost exports. There remains significant uncertainty about entitlement to coal chain capacity, both in the short term to 2010 and in the longer term.

The costs include:

- Lost export revenue, estimated at more than \$2 billion between 2005 and 2010
- Additional costs, with demurrage estimated at more than \$300 million per annum
- Decreased customer confidence and loss of export markets / market share
- Lost employment opportunities
- Future investments in new mining export infrastructure and growth at risk.

In the light of predictions of strong, long-term demand for NSW coal resources, and the opportunity available to Australia through the required growth in global coal production to meet forecast demand, the costs to NSW and Australia are immense.

An allocation system, known as the Capacity Balancing System (or CBS) was introduced in 2004 to address the problem of increasing vessel queues. This is regarded as a short term intervention to address systemic capacity constraints. It does not provide long term solutions to the underlying problems.

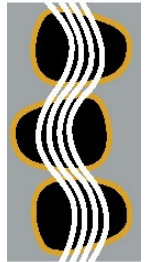
In January 2008 the NSW Government engaged former Premier the Hon Nick Greiner to facilitate an agreement on a new system for access to terminal capacity. Mr Greiner submitted a framework in July, with the NSW Government welcoming several elements:

- Establishment of a new incorporated logistics coordinator - the Hunter Valley Coal Chain Coordinator (HVCCC), to supersede the current Hunter Valley Coal Chain Logistics Team (a co-operative of the Hunter Valley coal service providers).
- Membership of the HVCCC to be open to producers as well as service providers so producers are directly involved in the co-ordination of the coal chain and are accountable for its performance.
- Coal industry agreement to improve information sharing with HVCCC to ensure it has all the information it requires to perform its functions.
- A framework for developing long term track access that involves:
 - Commitment by Australian Rail Track Corporation to expansion of track capacity
 - Contractual framework between track providers and producers that will underpin expansion of track capacity.
- Commitment to expand capacity at both Port Waratah Coal Services (PWCS) and the Newcastle Coal Infrastructure Group (NCIG) terminals.
- A mechanism for allocating terminal capacity in the short term (while additional capacity is being built) based on current and historical use of terminal access rather than the demand nomination process used in previous capacity allocation systems.¹⁴

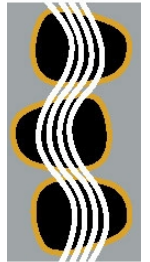
At the time of writing the framework had not been approved by the NSW Government, on the grounds that it does not specifically contemplate access for new entrants. The current CBS expires on 31 December 2008. Discussions between the industry and Government are ongoing, considering a range of alternative options.

The National Transport Commission (NTC) has announced that the Hunter Valley Coal Chain has been identified as a nationally significant supply chain to be examined as part of a broader program under its National Transport Plan. The Coal Chain will be subject to detailed mapping and review, including a consultation process commencing at the end of October 2008. NSWMC understands that it

¹⁴ NSW Government Press Release, 'Greiner submits industry framework', 28 July 2008



will culminate in the development of a clear set of recommendations to optimise supply chain efficiency, including clarifying the role of Government in this regard. These recommendations will be submitted to the Australian Transport Council (ATC) for consideration. NSWMC welcomes this initiative and looks forward to contributing to the process.

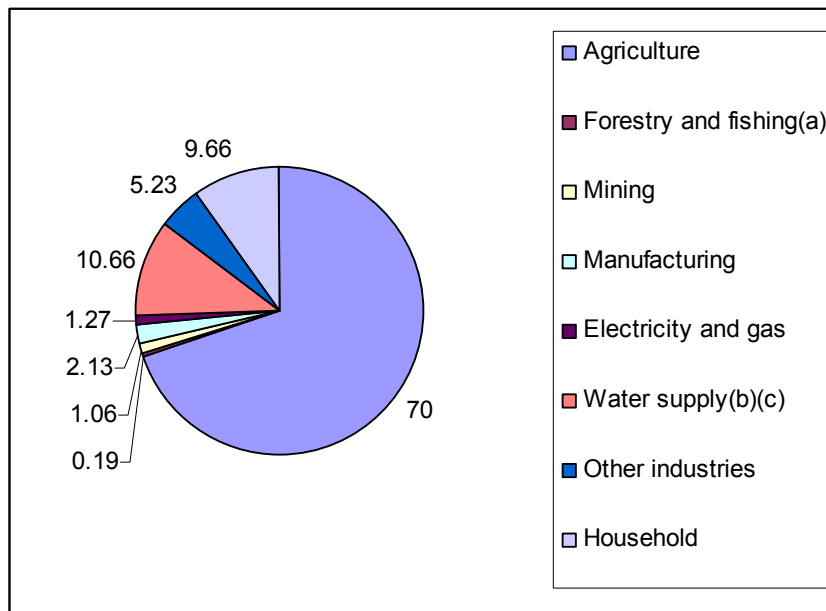


5.2 Water

The prolonged drought across much of NSW has highlighted the need for an effective water management framework to ensure the efficient and equitable allocation of scarce water resources. The NSW minerals industry, like many other industries, is being affected by water shortages. The problems are becoming more acute, potentially leading to serious consequences not only for the businesses themselves but also the regional communities in which they operate.

Mining operations are relatively small consumers of water compared to other sectors in NSW. Out of the 5,922 GL of total water consumed in NSW during 2004-05, mining operations consumed approximately 63 GL, or just over 1% of the total. This is compared to agriculture (70%), the water supply industry – including distribution losses – (11%) and households (10%). However, in some areas mines and minerals processing operations are among the largest individual water users in the region.¹⁵

Graph 2: NSW water use breakdown (%) by industry, 2004-05



Data source: ABS 4610.0

(a) Includes Services to agriculture; hunting and trapping.

(b) Includes Sewerage and drainage services.

(c) Includes water losses.

The minerals industry is recognised by governments as an efficient and high-value user of water resources. The economic value produced from water used by the minerals industry is higher than any other industry. The minerals industry has an average value of \$80 per cubic metre of water used, compared to \$40/m³ for the industrial sector and \$5/m³ for the agricultural industry.¹⁶ The minerals industry creates significant economic return from water use and the high value added often translates into strong dependence on the minerals industry in regional areas for direct and indirect employment.

Water is a critical input throughout all stages of mining and minerals processing, with minerals processing being the major water use within most operations. Secure, consistent water supply is vital for mining and minerals processing operations to continue production, and reductions or disruptions in water supply can have a significant impact on business continuity.

In the last few years, water users in NSW have been faced with drought conditions which have resulted in reductions in water access. As such, there has been considerable competition among

¹⁵ ABS (2006), 4610.0 - *Water Account, Australia, 2004-05*, Australian Bureau of Statistics, November.

¹⁶ CSIRO (2007), 'Water Shows It's Worth', *Process*, February.

water users for this increasingly scarce resource. Many enterprises relying on water as a key input to production have faced financial difficulty as a result of having limited access to water.

Case study: Future water supply in Hunter catchment (NSW) ¹⁷

The Hunter catchment (which includes the Hunter Regulated River Water Source) covers an area of 23,096 kilometres, two per cent of the total area of NSW. Water use in the catchment is dominated by irrigated agriculture – over 80 per cent of the total regulated water entitlement is used for irrigation purposes. The second largest regulated entitlement is for the power generation and minerals sectors.

The Hunter catchment is over-allocated and the total quantity of entitlements is to be reduced by around 49,000 ML/annum. *The following figures and analysis is based on the assumption that the Hunter catchment is operating in an ideal state where all water entitlements are fully available.*

In the Hunter catchment all water extraction, other than that associated with basic landholder rights, is authorised under a water access entitlement (access license). The licenses are ranked in order of priority from high security to general security and supplementary water access licenses (transitional arrangements to address historical over allocation). An embargo on applications for new commercial water licences has been in place for the Hunter Regulated River since 1982, so any new projects have to source water through purchase from existing entitlement holders. Typically minerals industry projects hold high security water entitlements. High security entitlements represent only 22,000 ML of the 247,892 ML of total entitlements.

There are 20 new minerals industry projects anticipated in the Hunter catchment by 2015, which could increase annual water demand from the industry by a total 27,973 ML. Total water consumption is projected to reach the current extraction limit by 2013, and by 2015 annual consumption is projected exceed the extraction limit by 18,000 ML. If the supplementary allowance is deducted from the total entitlement, the water available for trade is less and consumption exceeds the tradeable entitlement in 2010. In this scenario it is possible that up to 2010, and in non-drought years, water for new projects could be drawn from purchases of unused, appropriate security water entitlements from existing entitlement holders without the expense of lost production elsewhere in the catchment. However, after 2010, annual consumption will have exceeded the amount of tradeable entitlement and any transfer of water access entitlements will have to come at the expense of existing production. By 2013, the annual consumption will pass the extraction limit.

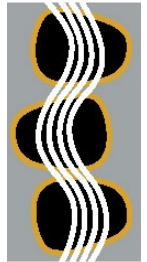
In practice, there is no sharp transition from under-allocation to over-allocation of water. The timing will depend on a number of factors including the implementation of new projects and their water requirements; improvements in water efficiency; rainfall levels; closure/reductions of existing operations and the outcome of specific groundwater plans currently being developed for the Hunter.

As demand rises, reliability of supply falls, increasing the likelihood of actual extractions being limited to below nominal levels. Business planning must be based around the statistical reliability of access and implied costs of limitations. Importantly, as new projects come on line, even before the extraction limit is reached, the reliability of supply to existing users as well as the new users falls. Failure to develop a water market that facilitates the trade of water from low to high value users could cost the economy up to \$140 million and \$1 billion in foregone value added in 2010 and 2015 respectively.

The projections for the Hunter catchment demonstrate the importance of:

- Efficient water markets for the future of the industry, since future water supply for such projects will most likely have to be sourced from the market. The removal of constraints on trading is therefore a critical imperative for these industries. This includes constraints during drought, such as trading of temporary allocations. New investment in coal mines and power projects are not likely to proceed unless water can be purchased in the market.

¹⁷ ACIL Tasman (2007a), *Water Reform and Industry – Implications of recent water initiatives for the minerals, petroleum, energy, pulp and paper industries*, Report prepared for the Department of Industry, Tourism and Resources, April,

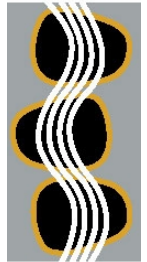


- The need for strategic water infrastructure to provide greater reliability for critical regional industries. The minerals industry requires high reliability of supply of water. Investment in infrastructure would help better manage supply risks associated with the sustainable yield limitations of the catchment, both in drought conditions and taking into account future projections for industry growth. Policies that facilitate efficient use of all sources of water, including waste-water or effluent are necessary to ensure the full value of the investment is realised. The current reliance on the Hunter catchment alone will not support the projected growth of the minerals industry in this region.

Solutions and Recommendations:

The following recommendations incorporate the priority issues identified in the ACIL Tasman water report to DITR (2007) and consultation with NSWMC members. They are consistent with the NWI principles, reinforcing implementation in some cases and suggesting some areas for higher priority. The matters for further consideration are:

1. Investigate strategic water infrastructure projects across NSW to enable greater investment to support critical regional industries.
2. Establishing a specialist unit to coordinate the delivery of strategic water infrastructure projects, to ensure timely delivery and create an environment to attract investment.
3. Investigate and where possible implement solutions regarding water transmission losses, particularly in areas of high evaporative / channel losses.
4. Given the importance of trade in entitlements and allocations to industry, development of water markets should be given high priority. Key objectives include:
 - Clear specification of entitlements and trading rules with minimal impediments to trading
 - Secure and enforceable entitlements that are transferable and divisible
 - Separation of water access entitlements from water allocation and distribution
 - Trading rules that maximise participation
 - Provision of mechanisms to facilitate easier trading
 - Rationalisation or removal of impediments to the efficient operation of trading markets, such as exit fees and restrictions on market participants.
 - Markets for water trading should be made consistent between surface water, groundwater, mine dewatering water, waste water and treated effluent
 - Impediments to the sale of treated and untreated effluent from mines and water produced from mine dewatering should be removed.
5. To the greatest extent possible, governments should aim to allow well defined water markets to resolve the distribution of available water resources between users. While market mechanisms are being developed and strategic infrastructure investigated, governments should ensure that interventions in the market are based on a full and rigorous cost benefit analysis of available options.
6. High priority catchments should be identified for early attention in relation to the above recommendations. Additional work should be undertaken on a national basis to identify catchments where a major increase in water demand is expected.



5.3 Energy

Reliable supply of competitively priced electricity is a critical production input for the NSW minerals industry, particularly for metallic minerals and minerals processing.

In 2007, the NSW Government appointed Professor of Energy Economics Anthony Owen to head and Inquiry into electricity supply in NSW. One of the four terms of reference was to review the need and timing for new baseload generation that maintains both security of supply and competitively priced electricity.

Professor Owen found that there is a need for NSW to prepare for additional baseload supply by 2013-14.

“Forecast growth in electricity use implies a need to provide around 91,000 GWh of electrical energy in New South Wales in 2013-14. This is around 10,500 GWh above current annual consumption – equivalent to the yearly output of the Mt Piper power station.”

“New South Wales currently imports around ten per cent of its energy needs but growing energy consumption in other States may reduce the amount of energy available over interconnectors.”

Recent experience in the development of power stations in Australia shows that it can take up to six years to reach the stage of awarding a construction contract.¹⁸ This means, that with a deadline of 2013-14, NSW must start preparing for additional baseload capacity immediately.

The failure of the NSW Government to gain approval from Parliament for the privatisation of electricity assets has the potential for significant impact on its capacity to attract the investment to deliver the baseload capacity required. In addition, without the proceeds from the sale of retail and generation assets, NSW is financially constrained in its capacity to commit much needed investment in major economic infrastructure elsewhere.

Incoming Premier Nathan Rees has announced that the Government will release a mini-budget on 10 November, which will revise spending planned for the 2008-09 and beyond. Investment in infrastructure is likely to be curtailed, in part as a result of the failed attempt at electricity privatisation.

The provision of baseload power is only one part of the energy infrastructure equation. The other aspect relates to the infrastructure required for distribution, particularly in remote areas. The development of resource projects is often the first step in the establishment of regional communities.

The recent experiences of NSWMC member companies, operating in remote areas of the State, have identified the following gaps and issues in the provision of electricity transmission infrastructure:

1. There is currently no mechanism to determine whether the best source of power (in a national context) to a new project is from within the state or cross border supply.

NSWMC understands that the Council of Australian Governments (COAG) and the Ministerial Council on Energy (MCE) are addressing this aspect of national energy market arrangements through the establishment of a National Transmission Planner. It is further understood that the National Transmission Planner's core function will be to prepare and publish a National Transmission Network Development Plan each year and that the Australian Energy Market Operator will be responsible for delivery of the National Transmission Planner's functions.

With respect to distribution, MCE is currently considering the recommendations of the NERA Economic Consulting (NERA) and Allen Consulting Group (ACG) Report on *Network Planning and Connection Arrangements – National Framework for Distribution Networks – August 2007* and the comments provided by interested parties. This includes nationally consistent arrangements for distribution network planning. NSWMC is advised that the MCE is expected to respond on these recommendations in the near future.

¹⁸ Professor Anthony D. Owen (2007), Report of the Owen Inquiry Into Electricity Supply in NSW, Key Findings and Recommendations, September.



Whilst this news is warmly welcomed by NSWMC, there remain concerns that the process will provide for the agility required by project proponents. With the increasing costs of project inputs, planning and regulatory processes must be streamlined in order to maintain Australia's competitiveness against other mining jurisdictions.

2. There is a lack of consistency and flexibility in the approach to resolving the standards to apply to transmission lines. The approach from providers appears to be quite arbitrary and follow custom and practice or preset standards rather than an examination on a case by case basis that takes into consideration: realistic community or wider industrial growth in a region; and whether components specified are available within a realistic timetable and delivery cost

NSWMC understands that COAG and the MCE are addressing the issue of consistency in national transmission system design criteria, with a detailed proposal to establish a consistent national regime in this area having been completed by the Australian Energy Market Commission and submitted to the MCE on 30 September 2008.

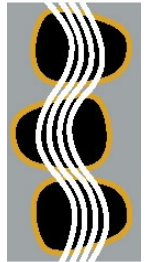
3. Whilst arrangements for negotiated transmission services and the rules applying to the cost allocation methodologies used by transmission companies are set out in the National Electricity Rules, in practice there appears to be a lack of transparency in the methodology used to derive the component to be funded by industry.

NSWMC understands that the MCE is considering the recommendations of the NERA / ACG Report (and stakeholder comments), which examined how connections, extensions and augmentations of networks should be funded. Responses to the recommendations are expected in the near future.

Solutions and Recommendations:

NSWMC recognises current Government initiatives in progress through COAG and MCE and supports their intention to facilitate more effective and efficient investment, particularly in the transmission and distribution of power to remote and regional areas. However, NSWMC has a number of concerns and recommends:

1. That planning and regulatory processes are as streamlined as possible in order to maintain Australia's competitiveness against other mining jurisdictions, taking into account the narrow windows of opportunity for proponents to gain necessary approvals and develop projects.
2. There is a clear process for dispute resolution with respect to standards and funding issues, in order that project proponents can achieve greater certainty and avoid lengthy delays.
3. In its development of the National Transmission Network Development Plan, the National Transmission Planner undertakes consultation with major industries in remote and regional areas to identify potential future projects and their likely electricity requirements.



5.4 Telecommunications

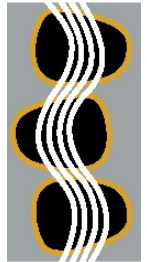
Telecommunications challenges faced by the NSW minerals industry are largely a product of the geographical locale in which the mines are situated. The NSW minerals industry is broadly divided into two demographics: coastal mining companies (primarily coal) and remote mining companies (generally metalliferous). It is this split in location that tends to define the telecommunications experienced by each operation. NSWMC is well aware that Australia is unique in the challenges it faces, due to its geographical size and population spread. However, this does not render the challenges faced by those in remote locations any less real.

In February 2007, NSWMC undertook a survey of 27 mine sites across the State in order to establish the levels of telecommunications and data access available to minerals operations. The survey made six key findings and five key recommendations to better inform the industry position and advise both State and Federal Government of the telecommunications and data experiences of mineral operations in NSW.

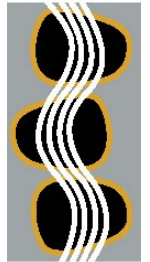
1. In areas where there is terrestrial mobile coverage, telecommunications black spots still occur. This is especially so in areas requiring a car kit under the CDMA network
2. Communications and essential business activities requiring data transfer are often hampered by the level of transfer capacity
3. The minerals industry is generally required to provide the majority of capital expenditure for the development of infrastructure necessary to access telecommunications services. Subsequent charges do not reflect the up-front contribution made. The provision of telecommunications and data services in regional and remote areas should be joint responsibility of the government and telecommunications providers.
4. Smaller companies in remote locations have a higher relative and absolute total cost in areas where, by virtue of their remoteness, also have a greater need for telecommunications to conduct their business
5. Whilst capital contributions may be considered affordable by larger operations, this approach can also price start-up and exploration operations out of the market, rendering the only available options either substandard, unreliable access or no access at all.
6. Adequate telecommunications and data infrastructure investment is well below what is required in order to provide the North and Western minerals operations of NSW with adequate access.

Solutions and Recommendations:

1. Governments at Federal and State levels genuinely acknowledge the plight of rural and remote business with regard to telecommunications which allow for:
 - Comprehensive and reliable mobile telecommunications access
 - Fast and effective data transfer capabilities.
2. The North, Far-West and Riverina regions of NSW greatly suffer from a lack of existing telecommunications and data infrastructure. Falling levels of infrastructure investment in these regions will only serve to further inhibit the competitiveness of the NSW minerals industry. Infrastructure investment in these regions must receive immediate prioritisation.
3. That government and telecommunications providers commit to an increase in infrastructure investment with the purpose of extending the mobile telecommunications coverage footprint across NSW and to bring data services up to the standards experienced by metropolitan users in the foreseeable future.
4. Public policy must be formulated to address these issues and to resolve them. Without a sustainable and reliable network, regional and remote areas of NSW will lag behind their metropolitan counterparts.



5. That government recognises these issues in full and proactively support any attempt to improve the standards that currently apply by an appropriate and comprehensive policy platform that addresses all aspects of telecommunication, including data transmission shortfalls.



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