Petroleum activity in NSW

NSW is the only Australian state to have developed natural gas markets and a distribution system based on supplies from another state. Gas was first supplied to Sydney in 1976 via the 1351 km Moomba (in South Australia) to Sydney gas pipeline. Since then the pipeline network has been expanded to include connections to Victoria and encompass regional areas including Wollongong, Newcastle, Dubbo and Wagga Wagga.

AGL Gas Companies (NSW) Ltd is responsible for supplying a significant proportion of the State's natural gas requirements. Crude oil and semi-refined oil products are entirely imported from interstate or overseas.

Despite the total reliance on the importation of petroleum from outside its boundaries, there have been a few significant outcomes in recent exploration in NSW, involving the delineation and development of gas fields.

Sydney Gas Company has extensive coverage of titles over the Sydney Basin where it is exploring and evaluating coal seam methane resources. In 2002 two Petroleum Production Licences (PPLs) were granted to Sydney Gas over its Stage 1 Camden project. Development consent was granted to Sydney Gas in February 2004 for Stage 2 of its Camden project (drilling of 21 wells and gas production from 43 wells), with a third PPL being granted by the Minister for Mineral Resources in October 2004.

Eastern Star Gas was granted a PPL in December 2003 for the production of gas from its Coonarah gas field in the Gunnedah Basin. The Company has constructed a gas fired electricity generation (12MW) plant and a pipeline to Narrabri. First power was generated in July 2004 using gas from the Coonarah field.

NSW remains highly under-explored for petroleum compared to neighbouring States. Initial success in Queensland at the Moonie Field and later in South Australia at Gidgealpa and Moomba diverted explorers' attention away from NSW. However, limited exploration has demonstrated that some of the sedimentary basins in NSW have all the elements of the petroleum systems suitable for the generation of oil and gas. The disparity between levels of exploration in NSW and adjoining States is further highlighted by the fact that many of the geological formations and sedimentary basins that host economic gas and oil production in South Australia and Queensland simply extend into NSW.

The fact that NSW has been largely overlooked reflects largely the history of oil and gas exploration in Australia. During the early years of petroleum exploration in Australia, the relatively small number of wildcat wells drilled in NSW were unsuccessful. At the same time, discoveries in other States drew the focus of exploration away from NSW. This resulted in a perception that the State was not prospective, a view that still persists to some extent. As risk management became increasingly important in the industry, exploration concentrated around existing discoveries in other States and the view of NSW's low prospectivity became a self-fulfilling prophecy.

In addition, petroleum exploration was focused on oil exploration rather than gas. Gas production requires a domestic market and significant infrastructure. Easy access to vast resources of high quality black coal, which are used for electricity generation, steel making and industrial process heat generation, did not provide an imperative to explore for gas in NSW. Currently, coal-fired power stations generate over 90% of the State's electricity with hydro-electric facilities accounting for the majority of the remaining capacity.

Early perceptions were that marine rocks were required to generate oil. Coal's capacity to generate oil was not understood. As a consequence, not only is NSW sparsely explored, but the limited exploration that has been carried out is quite old and based on outdated exploration concepts. To date, there have been less than 300 conventional petroleum wells drilled within the State despite there being almost 500 000 km2 of sedimentary basins in NSW.

There have already been numerous shows of oil and gas in most NSW sedimentary basins, with significant gas flows recorded in the Gunnedah/Surat, Sydney and Clarence-Moreton Basins. Water bores scattered throughout the Eromanga and Surat Basins expel methane and higher hydrocarbons. Commercial petroleum production, either onshore or offshore, occurs in all states except NSW. In fact not a single offshore well has been drilled, despite extensive Permo-Triassic sediments off the coast, north and south of Sydney and Triassic-Jurassic sediments off the far north coast.

Opportunities in New South Wales

NSW is Australia's largest potential market for oil and natural gas. The 6 million residents in the State generate roughly a third of the country's total energy demand. Total energy consumption in the State is concentrated in the industrial and transport sectors which combined consume around 80% of the total, with the remaining consumption in the domestic and commercial areas.

The NSW gas pipeline network has undergone significant expansion, bringing gas to many new regional centres. The expansion of the gas pipeline network should act as a significant stimulus to exploration in NSW. The expanded network will provide new and larger market opportunities for gas sales. It will also provide the infrastructure needed to transport the gas found in areas of petroleum potential to the major markets, reducing the cost and risk of developing any petroleum discoveries.

Central Ranges Pipeline Pty Ltd (CRPPL) was selected as the successful tender to construct and operate the Central Ranges Pipeline from Dubbo to Tamworth. On 25 November 2005, CRPPL submitted to the Australian Competition and Consumer Commission a revised version of its proposed access arrangement for approval. The access arrangement, if approved, will become effective when the pipeline becomes operable during the first half of 2006. In addition, there is a proposal to construct a gas distribution network to supply areas in the Murray Valley region on both sides of the Murray River.

NSW is unique in having large market opportunities and expanding gas related infrastructure in close proximity to frontier acreage.

Competition between gas producers for the NSW market has become real as a result of the completion of pipelines for the supply of natural gas to and from Victoria via the link between Wodonga and Wagga Wagga and a second pipeline from Longford in Victoria to Sydney via the east coast.

To address the perception that NSW was not prospective for petroleum and the lack of exploration in the State, the NSW Government has funded two exploration initiatives, the original Discovery 2000 initiative and the current Exploration NSW initiative. The petroleum component of these initiatives has had as its strategy the provision of enhanced geophysical, geochemical, structural and stratigraphic information on the State's sedimentary basins.

As a result of these NSW Government initiatives and legislative changes that have occurred in respect of acreage and access to infrastructure, NSW is increasingly recognised as an attractive target for petroleum exploration. As a consequence there has been a dramatic increase in petroleum title applications in the State over the past few years, representing exploration work programs valued at up to $30 million per year. The number of Petroleum Exploration Licences (PELs) in NSW has risen from 11 in 1993 to 30 onshore and one offshore in December 2005. Currently, there are 7 PEL applications being considered

Key components of the acreage management system in NSW include:

- predictability and transparency of acreage management process
- a six-year title system with 25% relinquishment on renewal
- a five-year royalty holiday on production from petroleum discoveries; and
- a competitive work program bidding system when acreage becomes available (applies to offshore).

Eromanga Basin

Investigations by the DPI-MR have indicated that many of the artesian water bores within the Great Australian Basin (Surat and Eromanga Basins) are flowing gas to the surface, some in substantial quantities. The gas within the Surat Basin is generally dry. However, the gas in the Eromanga Basin tends to be 'wetter'. An area of anomalously high gas readings in the Eromanga Basin appears to correlate with the location of a gravity low, which has been named the Paka Tank Trough. Seismic surveys conducted across the Trough in 1995 and 1998 and stratigraphic drilling in 2000 indicate the trough to be a sedimentary basin, which is thought to be pre-Eromanga Basin and most likely Devonian in age (Darling Basin equivalent).

Bowen/Surat Basins

In 2002-03, the DPI-MR, as part of the Government's Exploration NSW initiative, compiled a comprehensive up-to-date package of exploration data relevant to conventional petroleum exploration within the Bowen and Surat basins. The data package documents and reviews historical exploration data. It includes a comprehensive and updated stratigraphy and prospectivity analysis of the basins. Interest was initially drawn to the coal seam methane potential of the area due to the underlying coal measures sequences of the Gunnedah Basin. However, conventional petroleum is also being targeted,

particularly within the Narrabri gas fields, which contain both conventional and coal seam methane resources. Gas discoveries have been made at Coonarah and Bohena, with Coonarah already providing gas to the Wilga Park power generation plant and Bohena under production testing. The entire eastern portion of the Surat Basin is currently under title.

Darling Basin

The Darling Basin contains a very thick sedimentary sequence (up to 12 000 m thick), much of which has never been explored. The Basin is under-explored, although available data indicate significant hydrocarbon potential. Large faulted anticlines are evident on available seismic data and these contain sandstone reservoir rocks and argillaceous cap units. The existence of adequately mature hydrocarbon source rocks is also evident. The timing of structural episodes that generated the traps appears to have preceded, or was contemporaneous with, hydrocarbon generation and as such drilling of deep wells is required.

A number of minor hydrocarbon shows in wells have been analysed with encouraging results. The results indicate the hydrocarbons possibly represent two sub-families, one possibly being derived from the Cambrian and the other wholly or partly from the Devonian. However, the very limited drilling that has been undertaken within the Darling Basin has not intersected suitable source rock material and hence no estimate of source rock volume is possible using the present database.

The majority of the Darling Basin area is covered by five PELs held by two exploration consortia. There are 6 applications for exploration lodged by three companies. The Darling Basin is a major focus of the current Exploration NSW initiative.

Murray Basin

Following the success in Wyoming, USA where gas is extracted from low rank coals in the Powder River Basin, a number of companies have shown interest in investigating the low rank coals of the Tertiary sequences of the Murray Basin in NSW. Five titles have been granted in the area from Deniliquin to Balranald and Griffith where thick sequences of coal are known to exist from water bores in the area. The Murray Basin is known to contain low rank coals in a number of areas as well as being underlain by Palaeozoic infra-basins containing thick sequences of Devonian to Permian sedimentary sequences. The Murray Basin has also been a major focus of the Exploration NSW initiative with extensive aeromagnetic data acquired recently.

Industry activity

As a result of NSW Government initiatives, there has been an unprecedented level of petroleum exploration activity within NSW, with $21 million spent in 2003-04 and over $30 million in 2004-05. Over the next few years a steady increase in petroleum exploration expenditure in NSW is forecast, driven by coal seam methane exploration in particular (see Graph 16).

Previous exploration in the 1980s and 1990s resulted in the two gas discoveries at Coonarah near Narrabri. Significant natural gas flows were recorded from sandy units in the underlying Permian Gunnedah Basin. The discovery wells were drilled on separate structures several kilometres apart. Coonarah is estimated to contain proven reserves of natural gas of 5.8 PJ. Eastern Star Gas has been examining the coal seam methane potential of the Narrabri region and also holds extensive titles in the Darling Basin.

Sydney Gas Company holds PEL's over most of the Sydney Basin. To date it has concentrated its efforts in the Camden area near Sydney. The company has drilled more than 80 wells and has been granted three Petroleum Production Leases following the issuing of development consent for both its Stage 1 and Stage 2 projects. Sydney Gas is also undertaking a coal seam methane exploration project in the Hunter region.

In mid November 2005, AGL acquired a 50 per cent interest in the production leases and exploration licences of Sydney Gas, including the Camden gas project, which currently supplies over 3.5 PJ of gas on an annualised basis to AGL's wholesale gas portfolio.

Australian Coal Bed Methane is active in evaluating coal seam methane resources in the Gunnedah Basin and has had encouraging results from wells drilled to date near Caroona.

Metgasco is exploring for coal bed methane in the Casino area within the Clarence-Moreton Basin. The Company has completed a number of wells with encouraging results. Three wells are producing gas as part of an evaluation program. Two further wells were selected for completion and testing during the fourth quarter of 2005.

Molopo holds PELs in joint venture with Lucas Coal Seam Gas, in the Gloucester Basin for coal bed methane. Results to date

have been very encouraging, with significant gas shows. Additional drilling of evaluation wells is planned during 2005-06.

Harlow Energy is exploring for conventional petroleum northeast of Tibooburra. Harlow has completed a magneto-telluric survey which identified anomalous areas having frequency signatures 'similar to shallow oil field reservoirs'. Seismic reprocessing is scheduled this year prior to planned spudding of a well in 2006.

Bounty Oil has an offshore petroleum title between Stanwell Park (south of Sydney) and Newcastle. The company has undertaken a radarsat survey, and is currently processing the recently acquired seismic data.

The future

While the current level of exploration and the beginnings of a gas production industry in NSW is very encouraging, it is only the beginning of the story. The majority of NSW basins remain largely untested and the Exploration NSW initiative continues to provide new and exciting results on NSW petroleum potential.

Recent processing of a seismic line acquired by Exploration NSW in the Darling basin identified an Amplitude Variations with Offset (AVO) anomaly. AVO is a seismic technique that looks for direct hydrocarbon indicators. The location of the AVO anomaly at the crest of a known structure is highly promising.

NSW is unique in containing several virtually unexplored basins in close proximity to markets and with existing infrastructure to allow supply to the largest potential market for gas in Australia. Frontier basins with these opportunities are rare. In addition, NSW contains sedimentary basins with extensive coalfields and the attendant potential for vast coal seam methane resources.

It is considered that NSW has excellent potential for the discovery of significant gas resources, which would have a dramatic effect on competition in the energy markets in eastern Australia.

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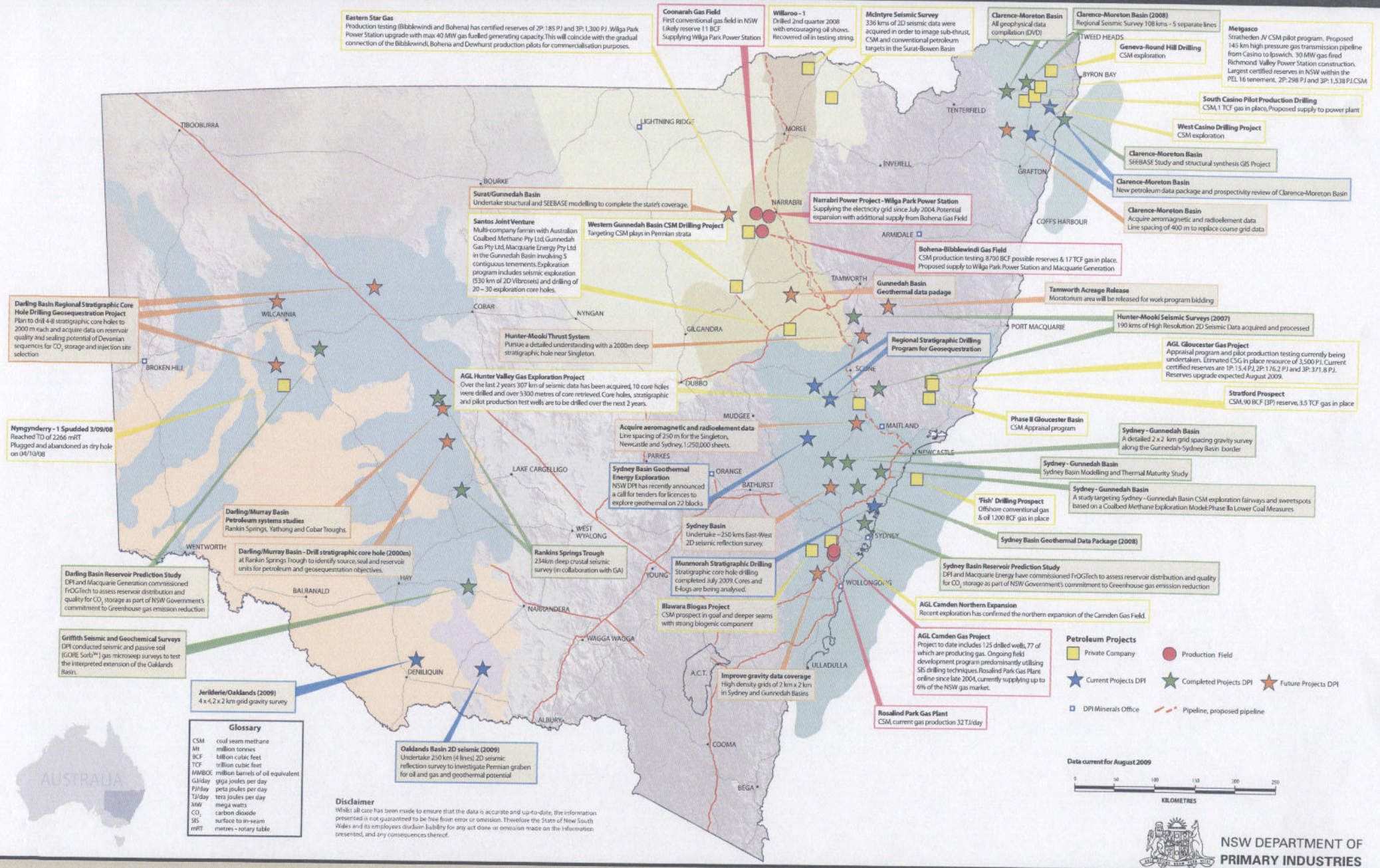

Glossary

CSM	coal seam methane
Mt	million tonnes
BCF	billion cubic feet
TCF	trillion cubic feet
MMBOE	million barrels of oil equivalent
GJ/day	giga joules per day
PJ/day	peta joules per day
TJ/day	tera joules per day
MW	mega watts
CO_2	carbon dioxide
SIS	surface to in-seam
mRT	metres - rotary table

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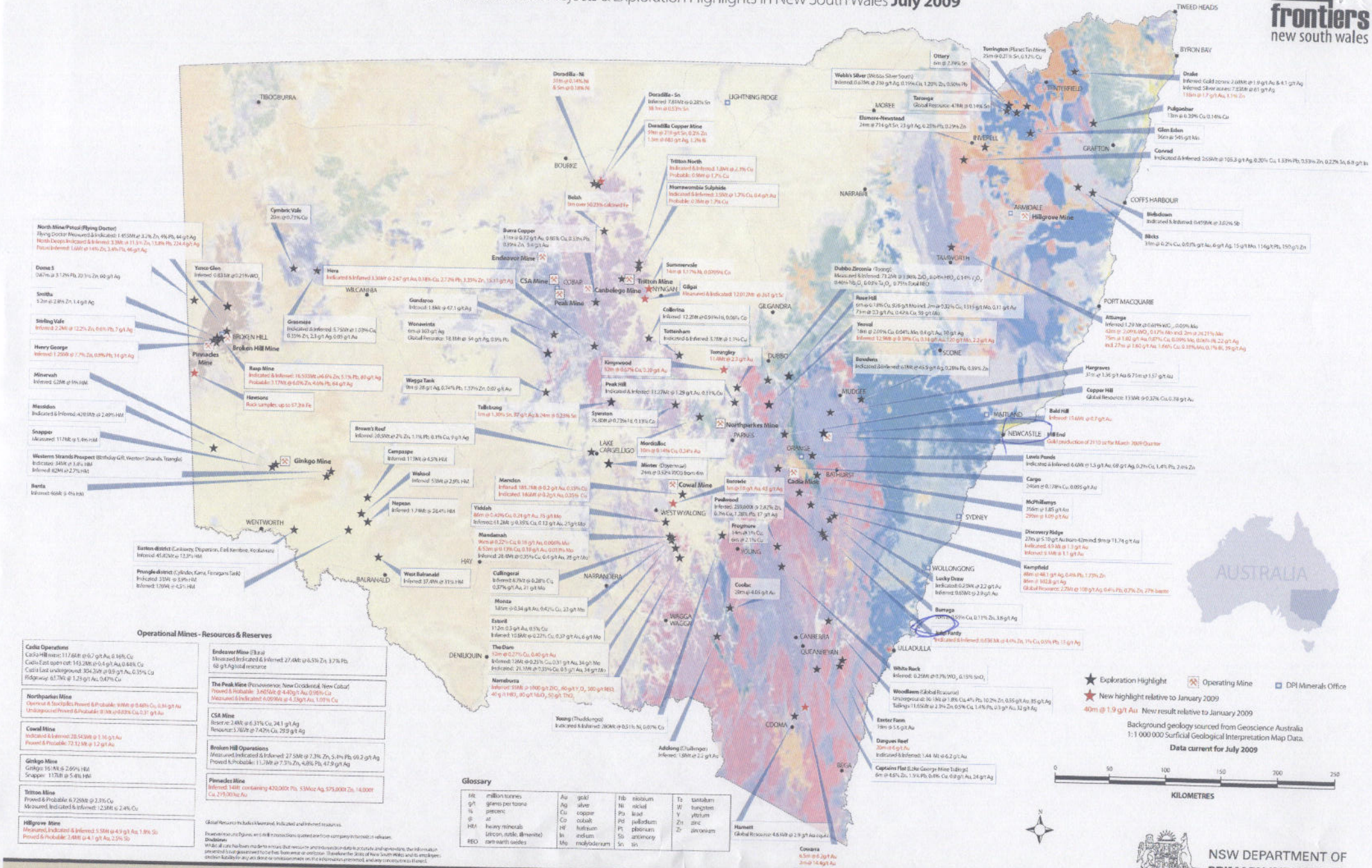

Operational Mines - Resources & Reserves

Cadia Operations
Cadia Hill mine: 117.6Mt @ 0.7 g/t Au, 0.16% Cu
Cadia East open cut: 143.2Mt @ 0.4 g/t Au, 0.44% Cu
Cadia East underground: 304.2Mt @ 0.9 g/t Au, 0.35% Cu
Ridgeway: 8.7Mt @ 1.29 g/t Au, 0.47% Cu

Northparkes Mine
Operated & Stockpiles Proved & Probable: 91Mt @ 0.44% Cu, 0.34 g/t Au
Underground Proved & Probable: 81Mt @ 0.83% Cu, 0.31 g/t Au

Cowal Mine
Indicated & Inferred: 28.543Mt @ 1.16 g/t Au
Proved & Probable: 72.1t Mt @ 1.2 g/t Au

Ginkgo Mine
Ginkgo: 161Mt @ 2.69% HM
Snapper: 117Mt @ 5.4% HM

Tritton Mine
Proved & Probable: 6.729Mt @ 2.3% Cu
Measured, Indicated & Inferred: 12.3Mt @ 2.4% Cu

Hillgrove Mine
Measured, Indicated & Inferred: 5.5Mt @ 4.9 g/t Au, 1.8% Sb
Proved & Probable: 2.4Mt @ 4.1 g/t Au, 2.5% Sb

Endeavor Mine (Elura)
Measured, Indicated & Inferred: 27.4Mt @ 6.5% Zn, 3.7% Pb, 68 g/t Ag gold resource

The Peak Mine (Perseverance, New Occidental, New Cobar)
Proved & Probable: 3.605Mt @ 4.40g/t Au, 0.96% Cu
Measured & Indicated: 6.069Mt @ 4.33g/t Au, 1.01% Cu

CSA Mine
Reserve: 2.4Mt @ 6.31% Cu, 74.1 g/t Ag
Resource: 3.760t @ 7.42% Cu, 29.9 g/t Ag

Broken Hill Operations
Measured, Indicated & Inferred: 27.5Mt @ 7.3% Zn, 5.4% Pb, 69.2 g/t Ag
Proved & Probable: 11.7Mt @ 7.5% Zn, 4.8% Pb, 47.9 g/t Ag

Pinnacles Mine
Inferred: 144t containing 420,000t Pb, 53Moz Ag, 575,000t Zn, 14,000t Cu, 219,000 Moz Au

Global Resource includes Measured, Indicated and Inferred resources.
Reserve/resource figures, and drill intersections quoted are from company information releases.

Disclaimer
Whilst all care has been made to ensure that relevant and information data is accurate and up-to-date, the information presented is not guaranteed to be free from error or omission. Therefore the State of New South Wales and its employees disclaim liability for any act done or omission made on the information presented, and any consequences thereof.

Glossary

Mt	million tonnes	Au	gold	Nb	niobium
g/t	grams per tonne	Ag	silver	Ni	nickel
%	percent	Cu	copper	Pb	lead
@	at	Co	cobalt	Pd	palladium
HM	heavy minerals (zircon, rutile, ilmenite)	Hf	hafnium	Pt	platinum
		In	indium	Sb	antimony
REO	rare earth oxides	Mo	molybdenum	Sn	tin
		Ta	tantalum		
		W	tungsten		
		Y	yttrium		
		Zn	zinc		
		Zr	zirconium		

★ Exploration Highlight ★ New highlight relative to January 2009 ▭ Operating Mine ▭ DPI Minerals Office

40m @ 1.9 g/t Au New result relative to January 2009

Background geology sourced from Geoscience Australia 1:1 000 000 Surficial Geological Interpretation Map Data.

Data current for July 2009

0 50 100 150 200 250
KILOMETRES

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