

McCloskey Asia Pacific Coal Outlook Conference 2010

Development of Australia's Export Coal Industry - Opportunities & Challenges-

AustCoal Consulting

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1 Lessons from the Global Financial Crisis

The GFC split the world into two economies:

1 USA & Europe = stagnant growth

2 Asia = strong growth driven by
China and India

China and India have emerged as net coal importers and major investors in coal mines

2 China is emerging as a Strong Buyer of Australian Metallurgical Coal

Australia exported 274Mt of coal in 2009 comprising 135Mt metallurgical and 139Mt thermal coal

In 2009 China imported a record 19Mt (15%) of Australian metallurgical coal

3 China is a Strong Investor in Australian Coal Mines and Exploration

- Chinese Coal Miner Yanzhou Coal acquired Felix Resources for A\$3.5billion
- China Shenhua Energy Company is committed to pay up to \$675million to explore and obtain a mining lease for the Watermark Coal area in NSW

4 India is also a Strong Investor in Australian Coal Mines and Exploration

- In August 2010 Adani Enterprises acquired Linc Energy's Galilee Basin Carmichael tenement which contains about 8 billion tonnes of low rank thermal coal for US\$3 billion.
- Adani's strategic intent is to secure thermal coal supply for India.
- Adani is proposing to invest US\$6.9 billion in a 60 Mtpa mine, rail and port project with first production targeted for 2014 and with a mine life of 80 to 100 years.
- This is the largest ever Indian investment in Australia.

5 Australian Coal Export Forecast to 2015

Coal Exports could grow from 274Mt in 2009 to about 450Mt by 2015, driven by strong growth in demand from China and India and by aligned investment in Mines & Coal Export Infrastructure.

	2009a	2010f	2011f	2012f	2013f	2014f	2015f
Metallurgical Mt	135						
ABARE forecast		150	158	167	173	178	183
+5 to10% to China				8	17	18	18
Total	135	150	158	175	190	196	201
Thermal Mt	139						
ABARE forecast		146	150	160	176	185	207
+high ash to India		34	42	40	32	52	50
Total	139	180	192	200	208	237	257
Total Australian Exports Mt (1)	274a	330	350	375	398	428	458

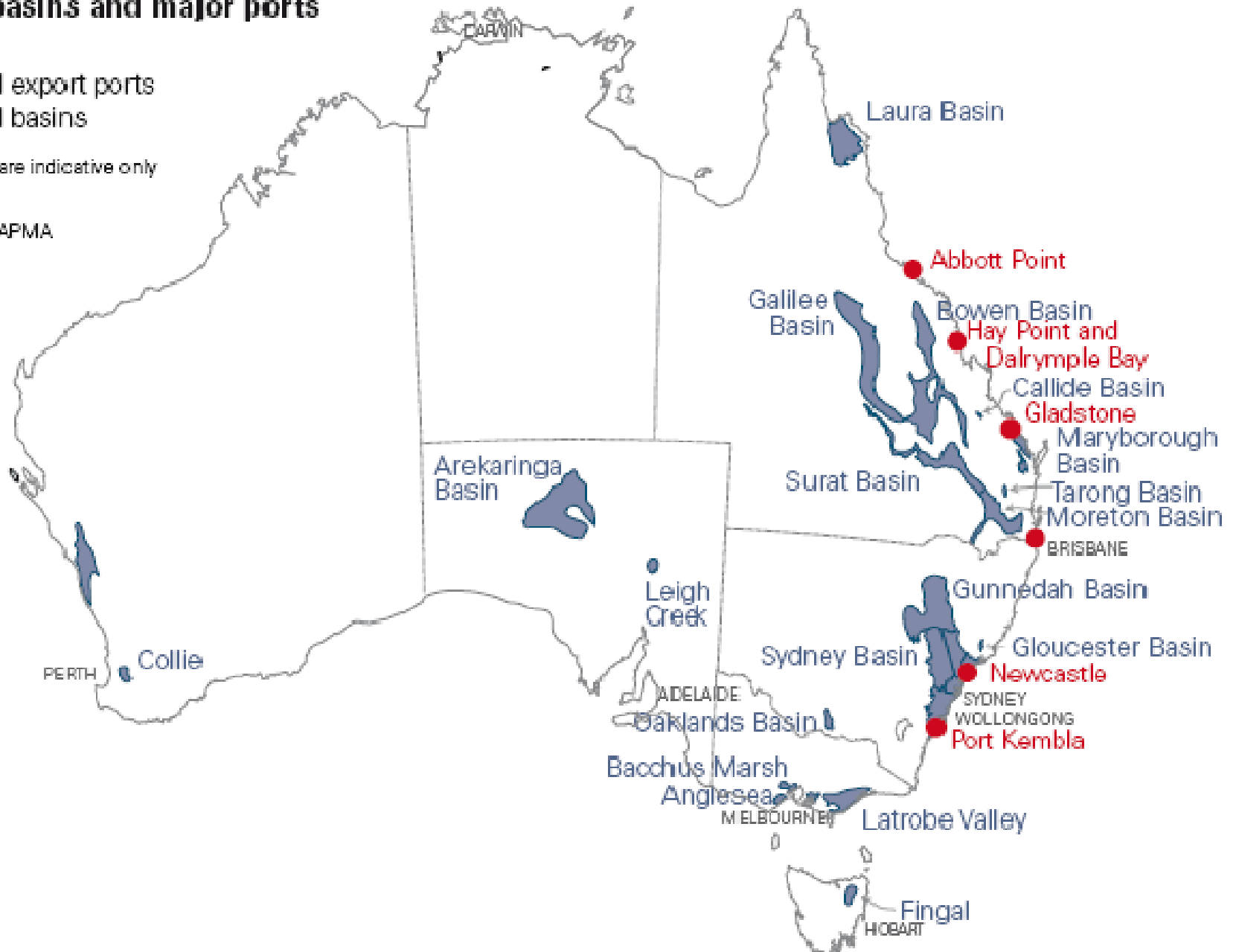
Note 1 – based on estimated coal chain capacity as shown on 8

Coal basins and major ports

- Coal export ports
- Coal basins

Locations are indicative only

Source: AAPMA



Source: Australian Department of Industry,
Tourism and Resources

7 Development of Coal Export Terminals

CAPACITY	2009a	2010	2011	2012	2013	2014	2015
<u>QLD Mtpa</u>		*expansion project					
Abbot Point	15	25	*50	50	*80	80	*100
Hay Point	34	44	44	*55	55	55	55
Dalrymple Bay	54	85	85	85	85	85	85
Gladstone	59	75	75	75	75	69	69
-Wiggins Island						*25	25
Brisbane	6	8	*10	10	10	10	10
QLD Total	169a	237	264	275	305	324	344
<u>NSW Mtpa</u>							
Newcastle							
PWCS	93	106	108	*130	*133	*136	136
NCIG		*30	30	30	*53	*66	66
Port Kembla	17	18	18	*21	21	21	*25
NSW Total	110a	154	156	181	207	223	227
TOTAL Mtpa	279a	391	420	456	512	547	571

8 Forecast Coal Exports by Port to 2015

based on estimate of coal chain capacity

mine loading point – rail system capacity – export terminal

	2009a	2010	2011	2012	2013	2014	2015
<u>QLD Mtpa</u>							
Abbot Point	15	18	20	30	45	45	45
Hay Point	88	100	105	110	115	115	115
Gladstone	58	70	70	70	70	70	70
-Wiggins Island						10	20
Brisbane	6	6	8	8	8	8	8
QLD Total	167a	194	203	218	238	248	258
<u>NSW Mtpa</u>							
Newcastle	93	120	130	140	140	160	180
Port Kembla	14	16	18	18	20	20	20
NSW Total	107a	136	148	158	160	180	200
TOTAL Mtpa	274a	330	351	376	398	428	458

9 Future Impact of Technical Change on Metallurgical Coal Demand

The high cost of Metallurgical Coal is driving advances in steelmaking technologies

- Kobe Steel ITmk3 process produces granular iron from iron ore concentrate and **thermal coal** in a rotary hearth furnace
- First commercial plant commissioned by USA Steel Dynamics in January 2010
- Kobe Steel announced planned uptake of ITmk3 in Vietnam, India and Australia

11 Queensland Coal Exports 2008-2009

Metallurgical	109.6Mt
Thermal	<u>49.7Mt</u>
Total Exports	159.3Mt 2008-2009

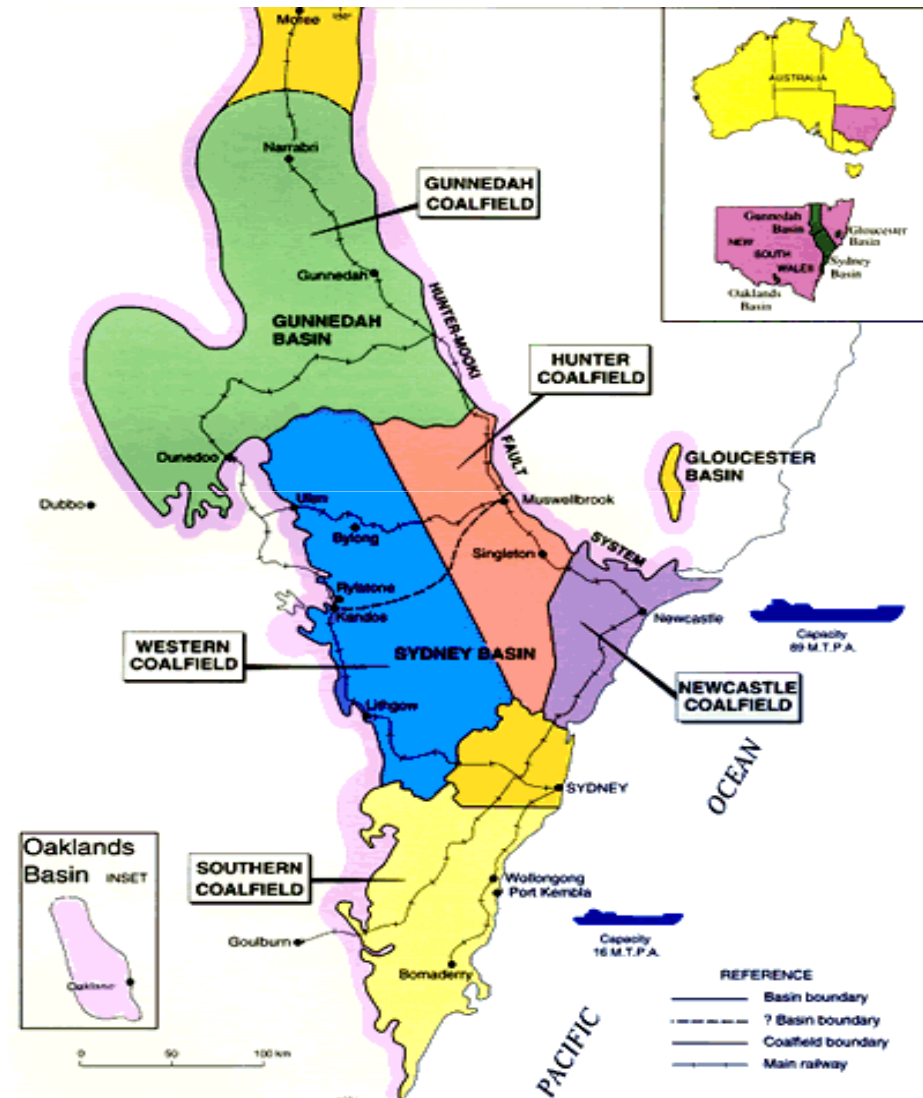
Open-cut mines	41
Underground mines	<u>13</u>
Total mines	54 produced 190.5Mt domestic 31.2Mt

Total QLD Coal resources 34billion tonnes

QLD Coking coal resources 8.7billion tonnes

12 NSW Export Coalfields

- Hunter Coalfield
- Newcastle Coalfield
- Gunnedah Basin
- Southern Coalfield
- Gloucester Basin
- Western Coalfield



13 NSW Coal Exports 2008-2009

Metallurgical 21.2Mt

Thermal 82.1Mt

Total Exports 103.3Mt 2008-2009

Open-cut mines 29

Underground mines 31

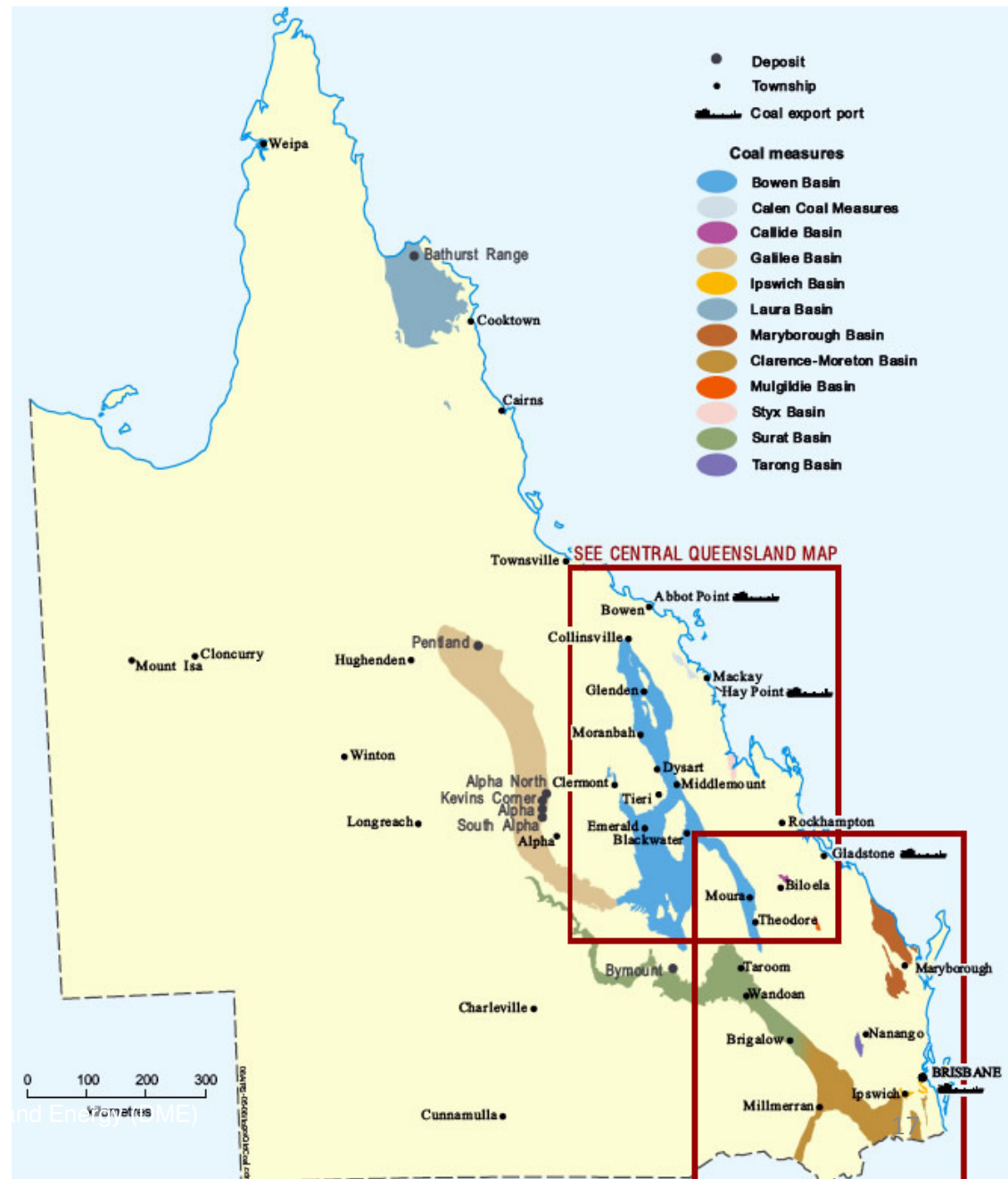
Total mines 2008-2009 60 produced 138.5Mt
domestic 35.2Mt

NSW Coal Reserves 11.5billion tonnes

14 Queensland Coal Seam Gas Basins

The commercial Coal Seam Gas basins are:

- **Bowen Basin**
- **Surat Basin**



15 Queensland Coal Seam Gas

CSG is largely composed of methane and is sold as Natural Gas.

Rapid growth in QLD CSG Production

1998-99 4PJ

2002-03 27PJ

2008-09 151PJ

CSG now supplies 80% of QLD gas market

QLD 3P Reserves 47 383PJ (89% of Australia)

16 Queensland LNG Proposals

53Mtpa Advanced Gladstone LNG Projects

- | | |
|--|---------------|
| 1. BG Group* | 12Mtpa |
| 2. Santos / Petronas/ Total* | 7Mtpa |
| 3. ConocoPhillips / Origin Energy | 18Mtpa |
| 4. Shell Australia/Arrow Gas | 16Mtpa |

*** Australian federal government approval**

7Mtpa Less Advanced LNG Proposals

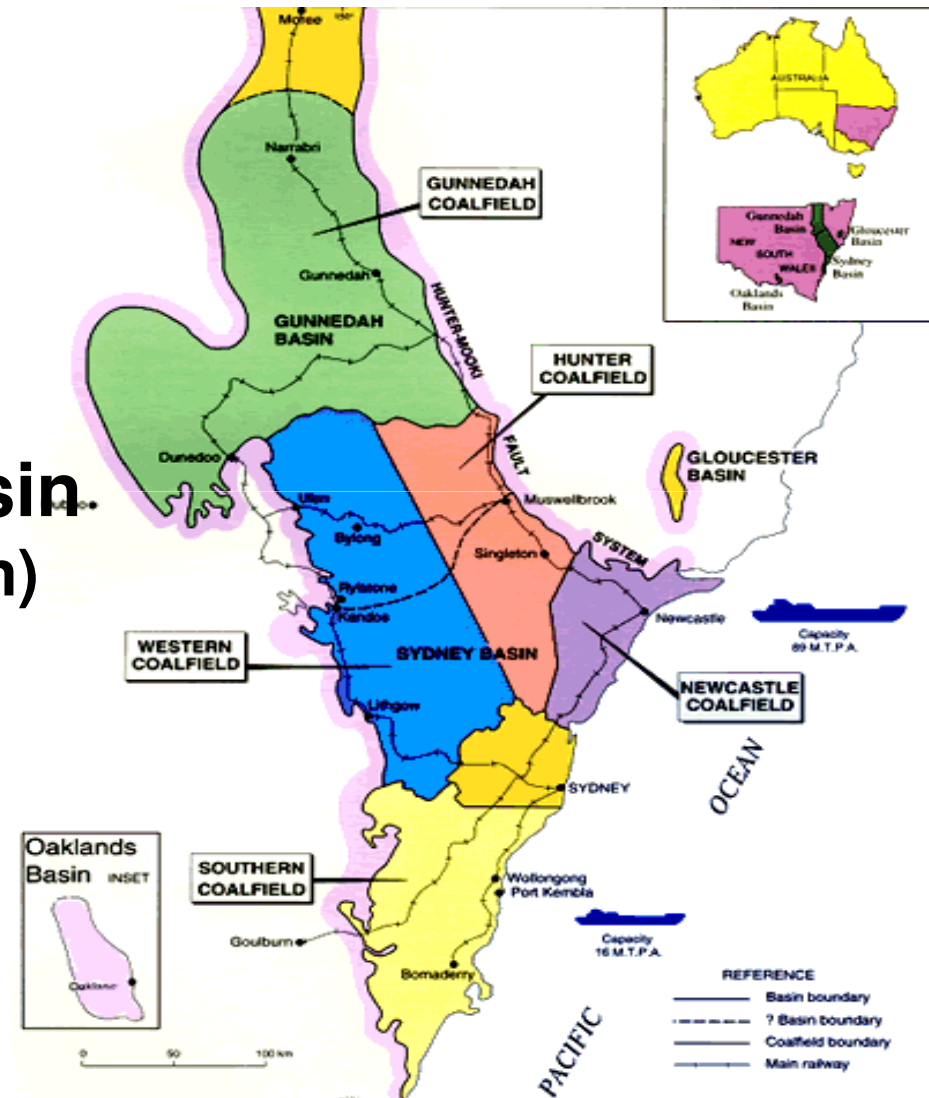
- | | |
|---|--------------|
| 5. LNG Limited | 3Mtpa |
| 6. Impel (Southern Cross LNG) | 1Mtpa |
| 7. Sunshine Gas / Sojitz Corporation | 1Mtpa |
| 8. Energy World Corporation | 2Mtpa |

17 NSW Coal Seam Gas Basins

NSW Coal Seam Gas

Basins are

- **Gunnedah Basin**
- **Sydney Basin**
- **Clarence-Moreton Basin**
(North of Gunnedah Basin)



18 NSW Coal Seam Gas

AGL Camden Gas Project

**132 production wells generating up to
14.5 PJ of CSG per year.**

NSW 3P Reserves 5 836PJ (11% of Australia)

NSW Eastern Star Gas LNG Proposal

offtake agreement with Marubeni Corporation

Port of Newcastle

1.5 to 4Mtpa

We are specialist coal industry advisors

- Analysis of Australian exports of thermal and metallurgical coal and technology trends
- Future thermal and metallurgical coal mine developments in NSW and Queensland
- Formation of joint ventures and investment strategies in coal mine developments
- Thermal and metallurgical coal contract agreements for International Coal Buyers

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Thank You

Questions?

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