A Tale of Two Steam Coal Industries

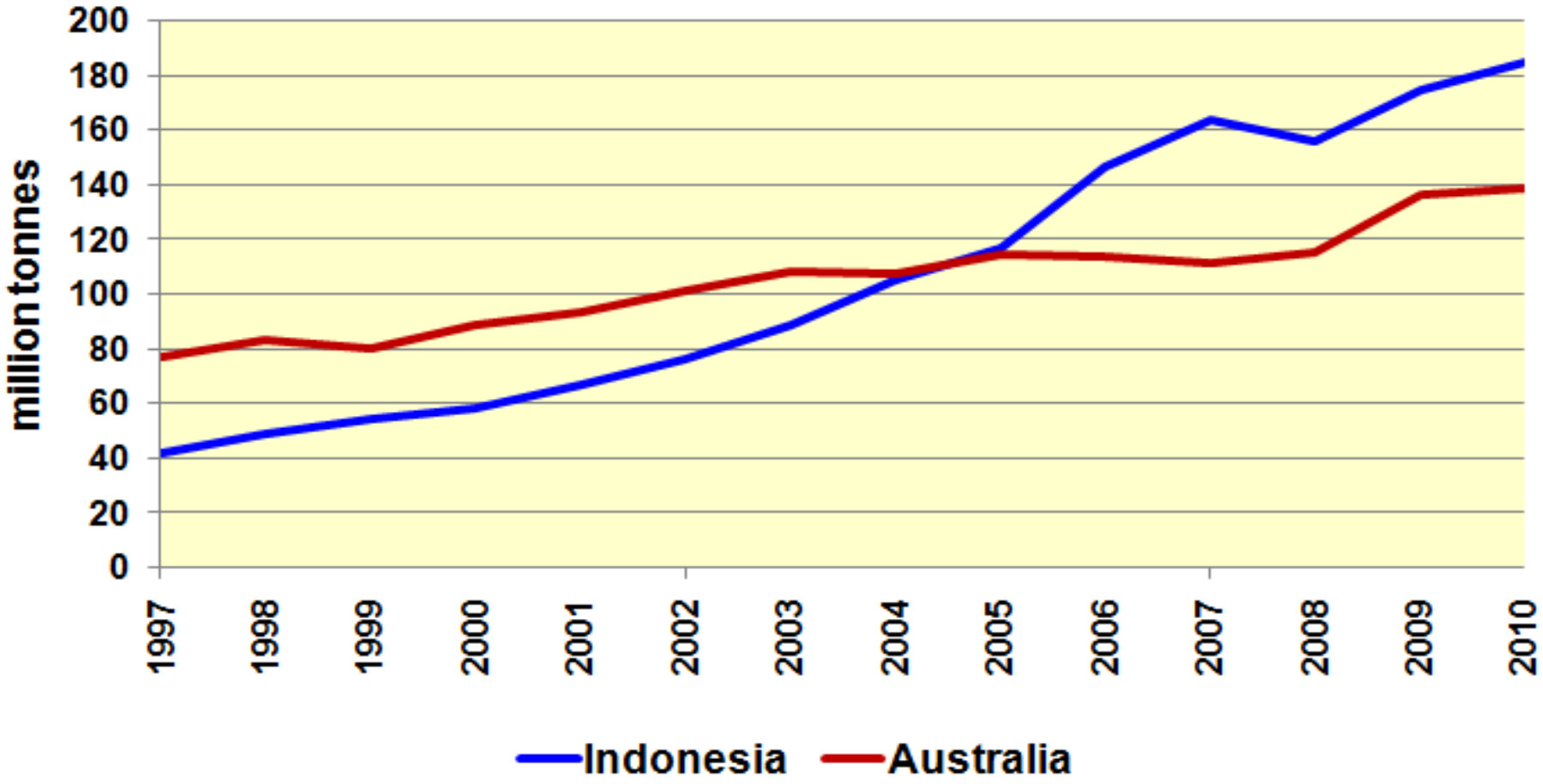
Topics for Discussion

- **Competitive Strengths & Weaknesses of Indonesia's Steam Coal industry**
- **Major Questions facing Indonesia as the World's #1 Steam Coal Exporter**
  - **Can Indonesia's Coal Industry meet expected growth in the domestic and export sectors?**
  - **How will the shift to low rank coals affect its steam coal exports?**
  - **Are new Australian steam coals from Queensland a threat to Indonesia's steam coal industry?**
  - **Might the regulatory uncertainty surrounding Indonesia's new Mining Law seriously damage Indonesia's reputation as a reliable coal supplier?**

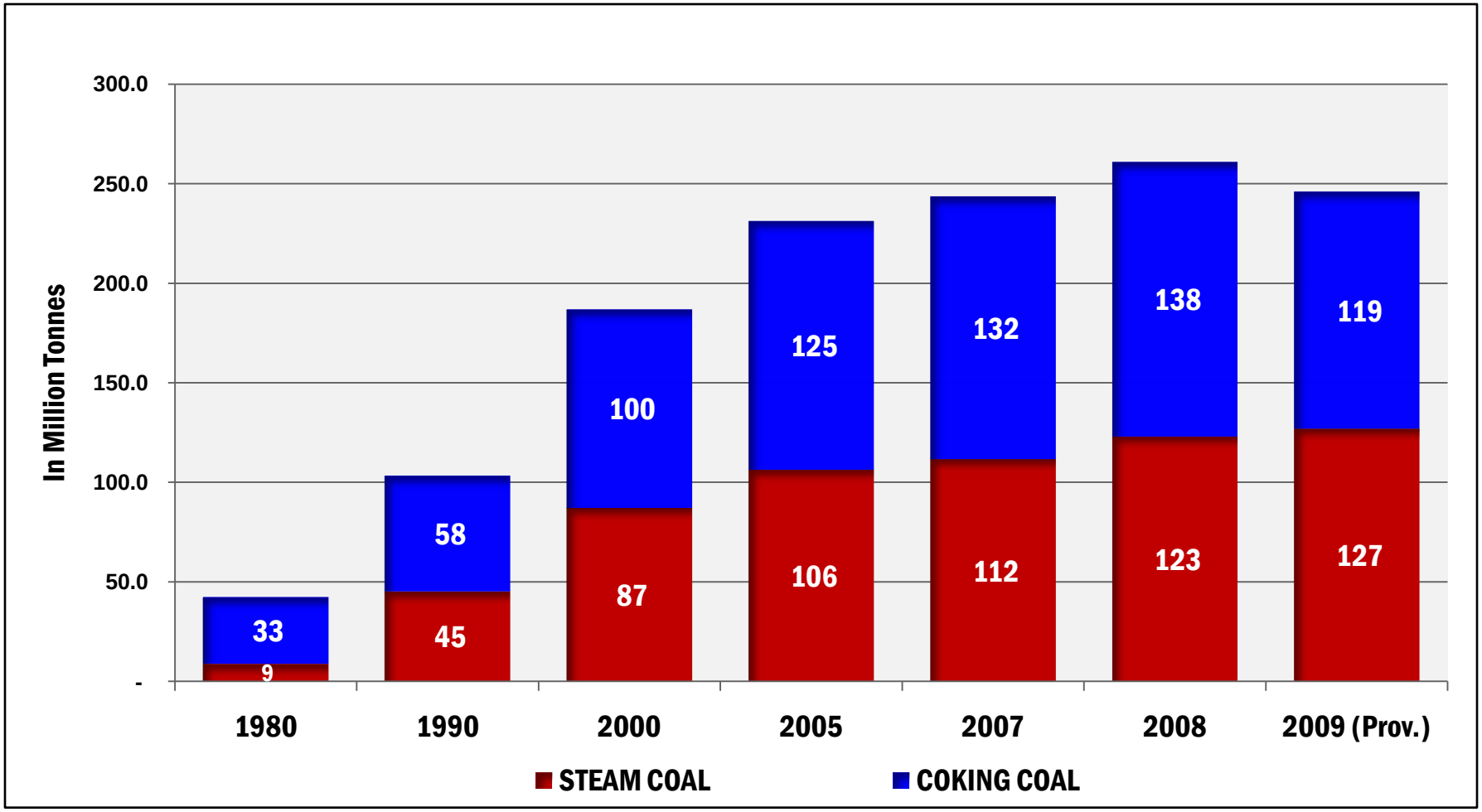
Competitive Strengths & Weaknesses of Indonesia, relative to Australia, as a steam coal exporter

Strengths	Weaknesses
• Highly Diversified Market • Proximity to Major Coal Demand Centers • Flexible and Modular Inland Transportation Systems • Low stripping ratios and attractive conditions for open-cut mining	• Lower CV, Higher Moisture Coal • Political Risk and Regulatory Uncertainty • Non-transparent Resource & Reserve Estimates • High Diesel Dependency

Indonesia only started exporting steam coal in 1990 but by 2006 had become the World's largest steam coal exporter in raw tonnes.

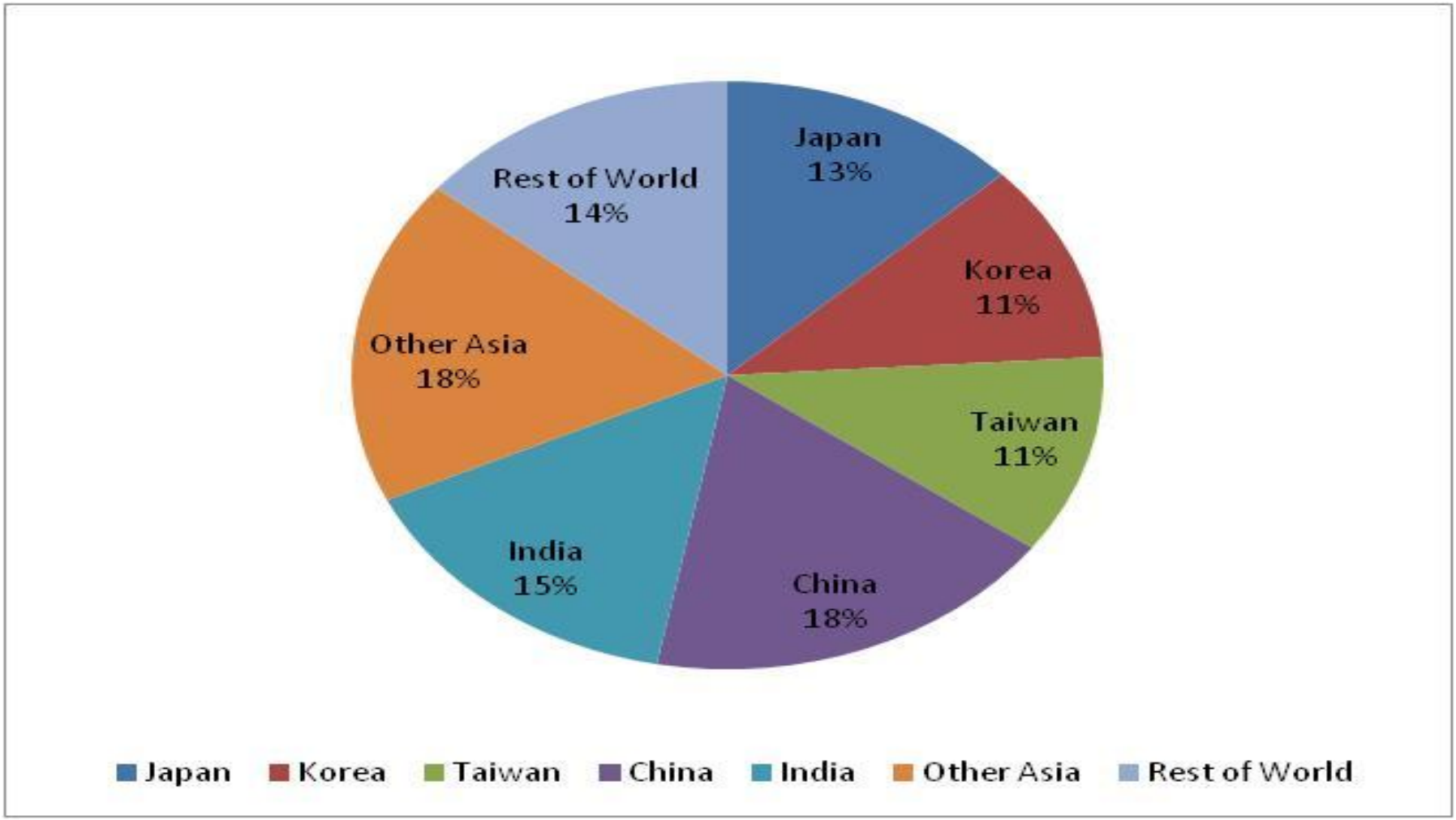


Australia, however, exports a higher CV steam coal than Indonesia does and also exports coking coal, making it the largest exporter of "black coal" in the World

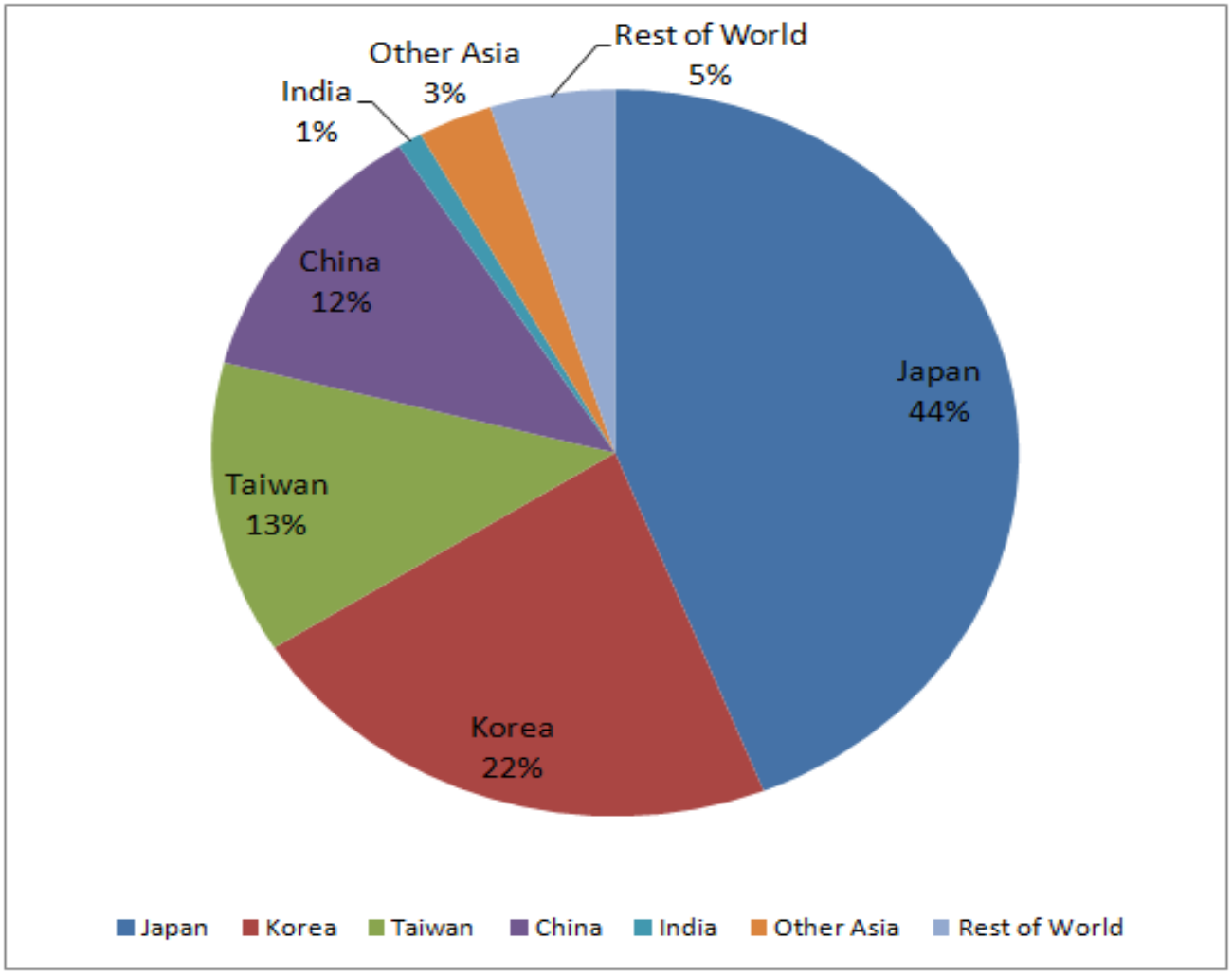


Market Diversity

Indonesia's 2009 coal exports were evenly spread across Asia while....



.. Australia's steam coal exports were heavily concentrated in East Asia.



Comparison of Inland Transport and Coal Loading Facilities

(Photos courtesy of PT Adaro)

Inland transport arrangements for Indonesia's 6 largest coal producers favor truck & barge with some overland conveyors

Company	2009 Production (million tonnes)	2009 Exports (million tonnes)	Mine Site to Barge Port (km)		Remarks
KPC	38.2	35.3	13 (OLC)	1/9 (OLC)	Load Port: TBCT
Adaro	40.6	31.6	79 (truck)	250/450 (Barge)	Loading @Taboneo anchorage or IBT
Kideco	24.7	18.4	39 (truck)	58 (Barge)	8-12 KT Barges loads @ TMCT and then 28 KM to Floating Cranes
Arutmin	19.3	17.1	7 -18 (truck)	124/199 (Barge)	Barges @ Sauti & Mulia travel 160 KM to NPLCT; can load PMX and Cape vessels
Berau	14.3	10.0	13 (truck)	74 (Barge)	From Lati to Muara Pantai
Indominco	12.4	13.8	35 (truck)	0/9 (OLC)	From Port to Bontang Coal Terminal

Offshore Facilities

- As of June 2010, Indonesia had:
  - 47 floating facilities ranging from 10,000 t/d floating cranes to a 72,000 t/d floating loading facility w/ a total nameplate capacity of 400 mtpa
  - 11 land ports ranging in size from 5,000 t/d to 80,000 t/d w/ a total nameplate capacity of 150 mtpa
- Each year more floating facilities are being added, which are larger in scale and have faster loading rates than facilities installed 2-3 years ago.

Australia's steam coal industry relies on fixed rail transport with each train hauling 6,000 – 12,000 tonnes to transport coal from the mines to fixed ports such as.....

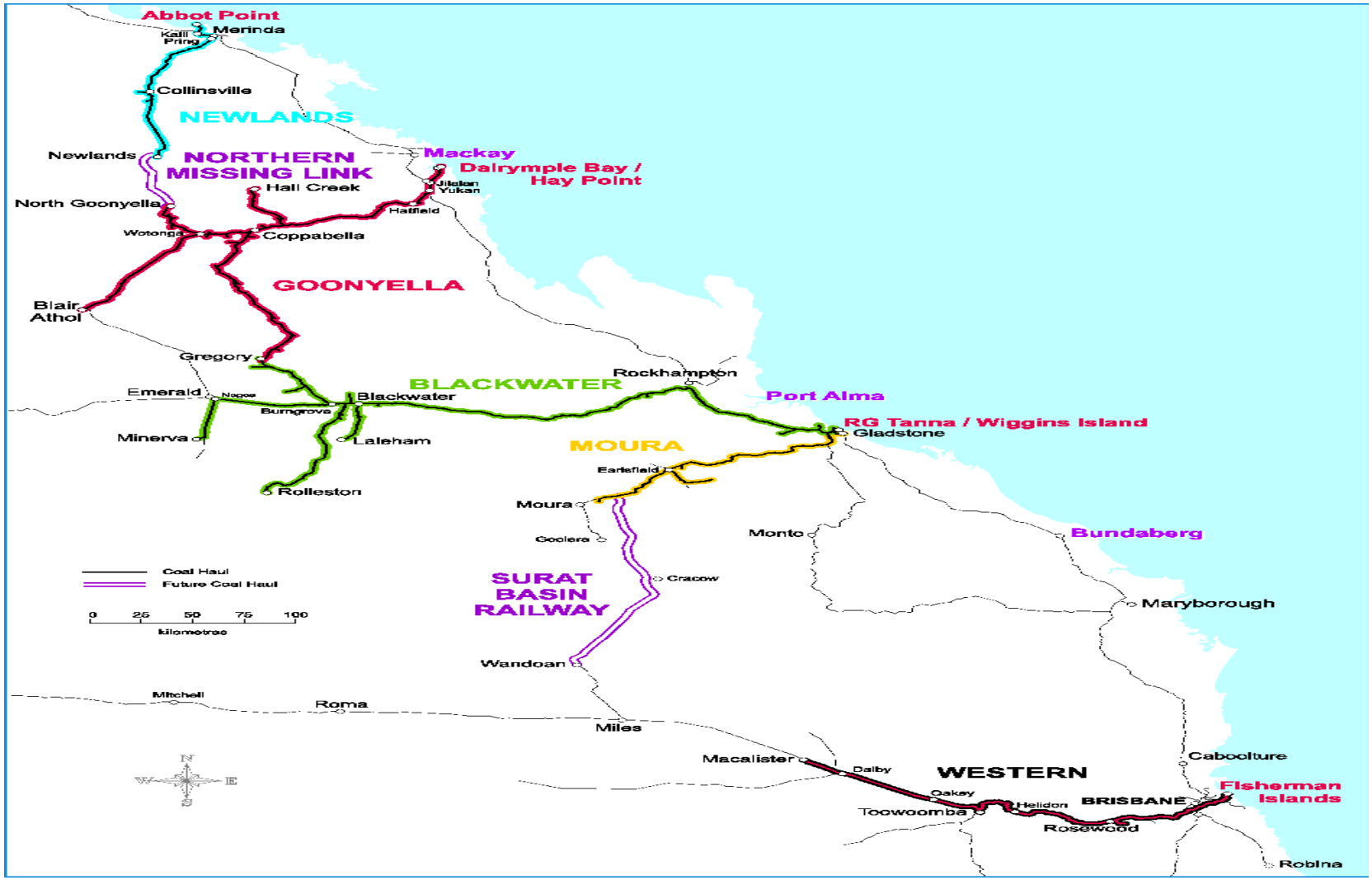
… the port of Gladstone with a 2009 nameplate capacity of 79 mtpa but with plan to expand to 142 mtpa by 2020


INDONESIA
Semarang
Dili
EAST TIMOR
Kupang
Timor Sea
Darwin
Gulf of Carpentaria
Indian Ocean
PAPUA NEW GUINEA
Lae
Port Moresby
SOLOMON ISLANDS
Honaira
Derby
Broome
Port Hedland
Learmonth
Carnarvon
Western Australia
Tennant Creek
Northern Territory
Alice Springs
Mount Isa
Cairns
Abbott Pt
Hay Point
Mackay
Coral Sea
Queensland
Gladstone
Tropic of Capricorn
VANUATU
Port-vila
Noumea
NEW CALEDONIA
AUSTRALIA
South Australia
Cook
Geraldton
Kalgoorlie
Perth
Great Australian Bight
Port Augusta
Broken Hill
Darling
Bourke
New South Wales
NSW
Newcastle
Brisbane
Port Lincoln
Adelaide
Canberra
Sydney
Victoria
Melbourne
Tasmania
Hobart
Tasman Sea
Indian Ocean
Auckland
Hamilton
Rotorua
New Plymouth
NEW ZEALAND
Westport
Greymouth
Wellington
Christchurch
Timaru
Invercargill
Dunedin
0
1000 Miles
0
1000 Km

Coal Terminal Expansion Plans: NSW & Queensland, 2006 – 2020 (in mtpa)

Newcastle	NSW	2006	2008	2010	2012	2015	2020
1. Kooragang Coal Terminal		64.0	77.0	91.0	101.0	101.0	101.0
2. Carrington Coal Terminal		25.0	25.0	25.0	25.0	25.0	25.0
3. NCIG Coal Terminal (Planned)		0.0	0.0	30.0	45.0	66.0	66.0
Sub Total		**89.0**	**102.0**	**146.0**	**171.0**	**192.0**	**192.0**
Port Kembla	NSW	16.0	16.0	16.0	16.0	16.0	16.0
NSW Total		**105.0**	**118.0**	**162.0**	**187.0**	**208.0**	**208.0**
Gladstone	Queensland						
1. RG Tanna Coal Terminal		51.0	72.0	72.0	72.0	72.0	72.0
2. Barney Point Coal Terminal		7.0	7.0	7.0	7.0	0.0	0.0
3. Wiggins Island (Planned)		0.0	0.0	0.0	0.0	25.0	70.0
Sub Total		**58.0**	**79.0**	**79.0**	**79.0**	**97.0**	**142.0**
Hay Point	Queensland						
1. Dalrymple Bay Coal Terminal		55.7	85.0	85.0	85.0	85.0	85.0
2. Hay Point Coal Terminal		40.0	44.0	44.0	55.0	55.0	55.0
Sub Total		**95.7**	**129.0**	**129.0**	**140.0**	**140.0**	**140.0**
Abbott Point	Queensland	15.0	25.0	50.0	80.0	100.0	100.0
Brisbane	Queensland	5.0	5.0	5.0	5.0	8.0	10.0
Queensland Total		**173.7**	**238.0**	**263.0**	**304.0**	**345.0**	**392.0**
TOTAL		**278.7**	**356.0**	**425.0**	**491.0**	**553.0**	**600.0**

Railway-Port Connections from Existing & Planned Queensland Coal Mines



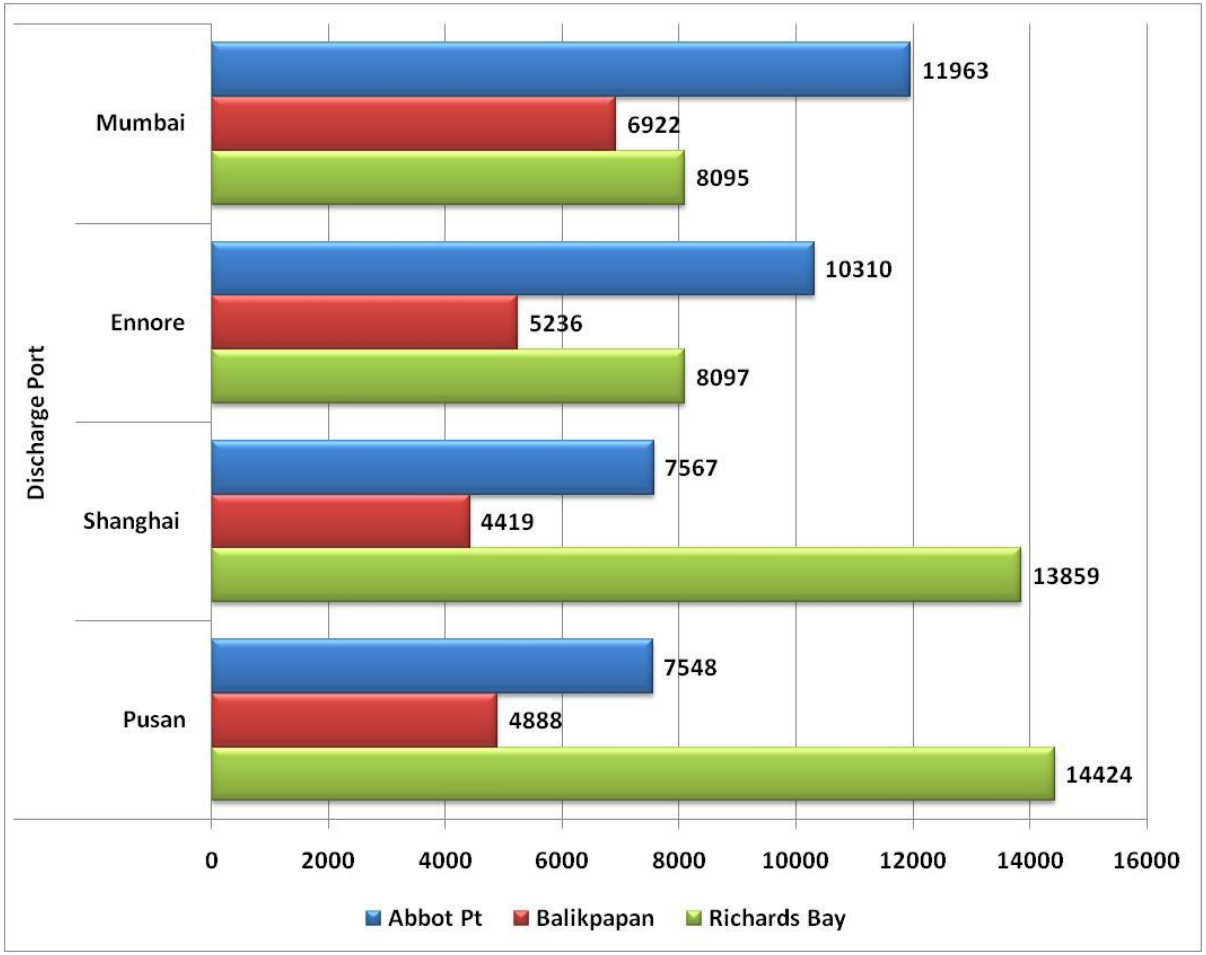
Source: Queensland Government, "Coal Transport Infrastructure in Queensland: Overview of Future Expansion" updated on September 2008 and available at: www.transport.qld.gov.au.

Queensland and NSW rely 100% on fixed rail and land port systems to export coals while Kalimantan is increasing its dependence on floating facilities and barges

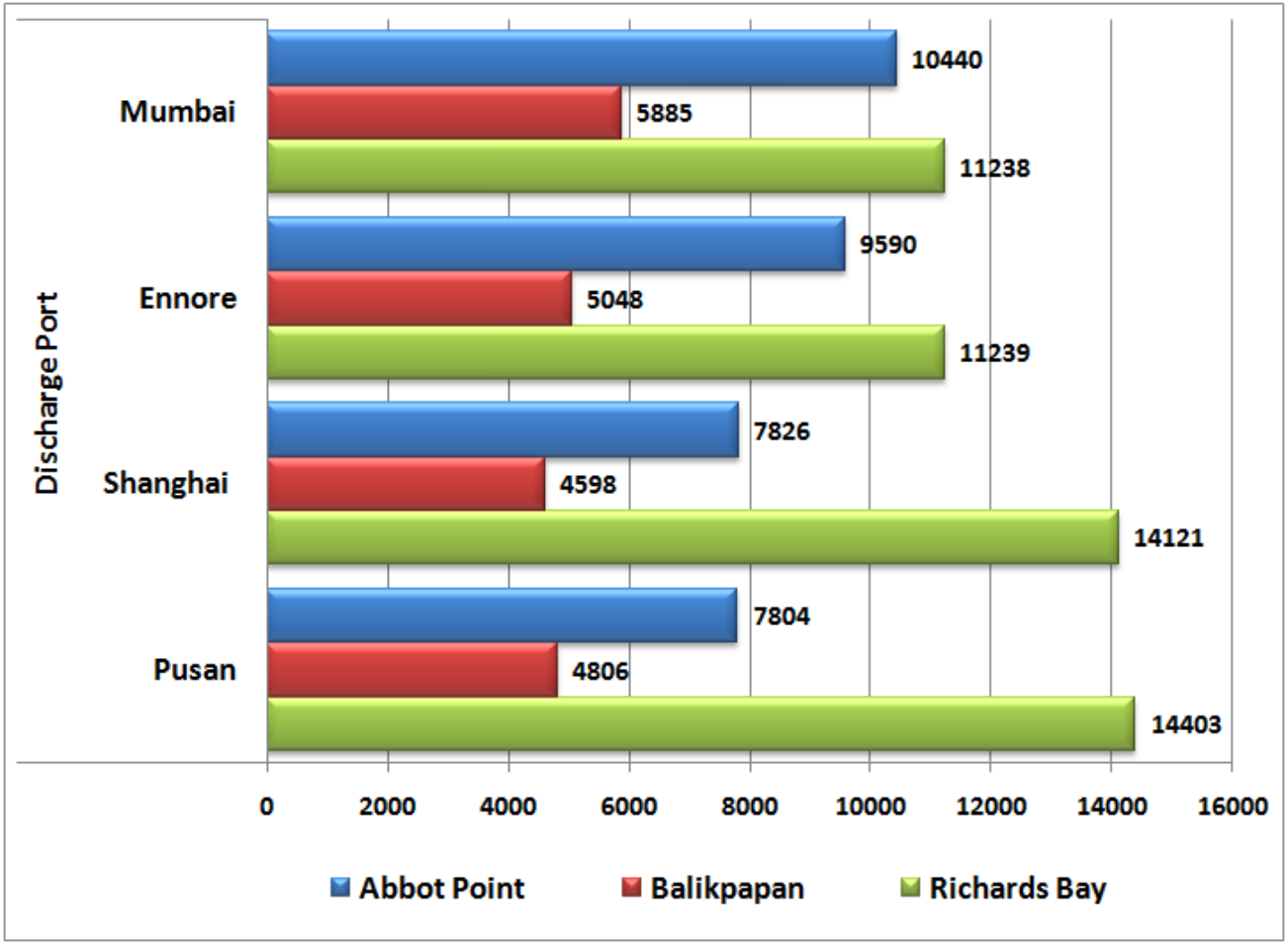
	Queensland	NSW	Kalimantan (barge)	Sumatra
Rail/Barge	233 mtpa	>100 mtpa	200 mtpa (Barito) >100 mtpa (Mahakham)	n/a
Fixed Land Ports	238 mtpa	118 mtpa	70 – 80 mtpa	10 -20 mtpa
Offshore Facilities	n/a	n/a	175 mtpa (80% of nameplate capacity)	n/a
Anchorages	n/a	n/a	Geared vessels (10 -20 mtpa extra?)	5-7

Transport Distance Differences

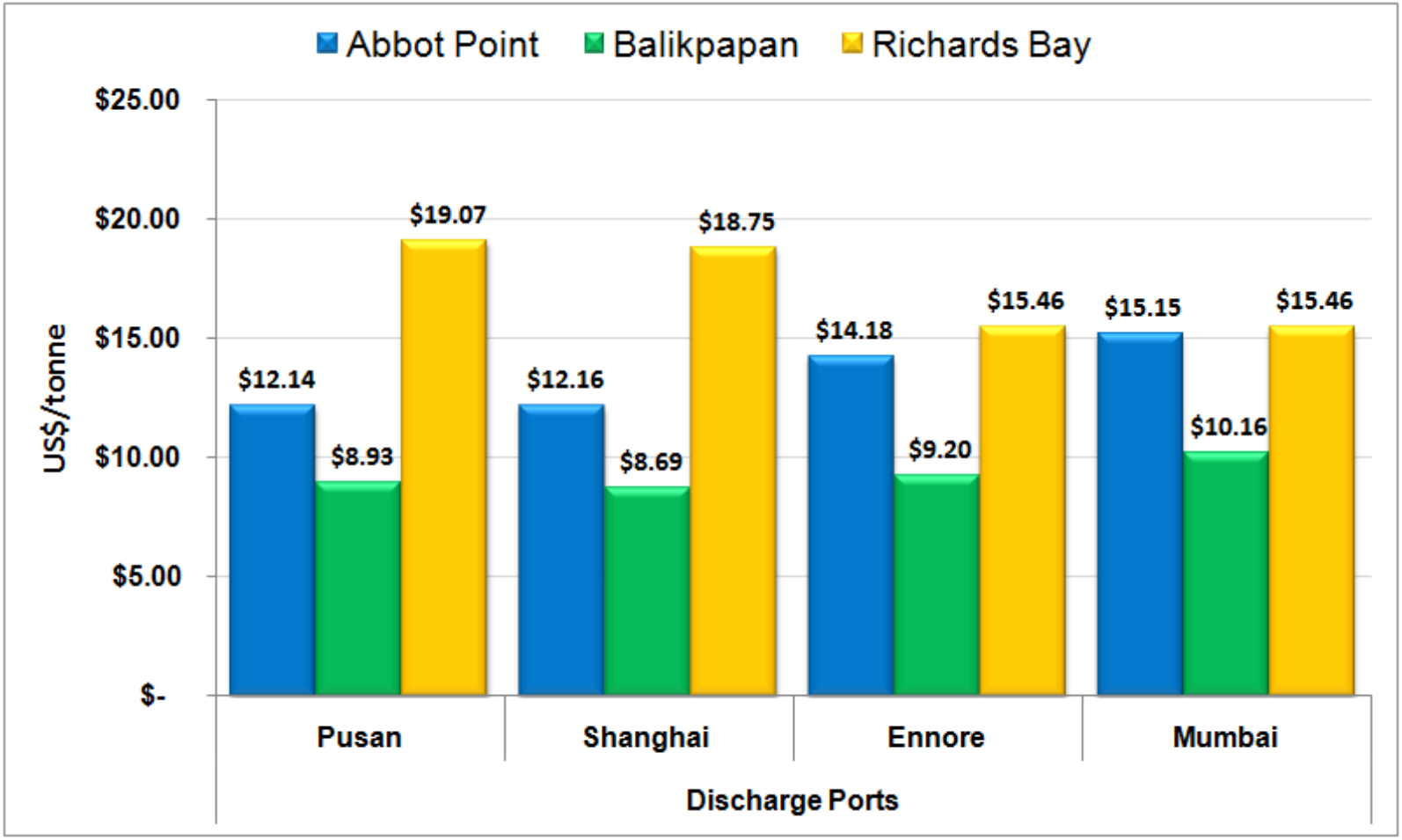
Indonesia is closer to all major Asian markets than Australia, and has a significant ly lower transport costs compared to Australia and South Africa to most Asian discharge ports (RT distances in nautical miles)

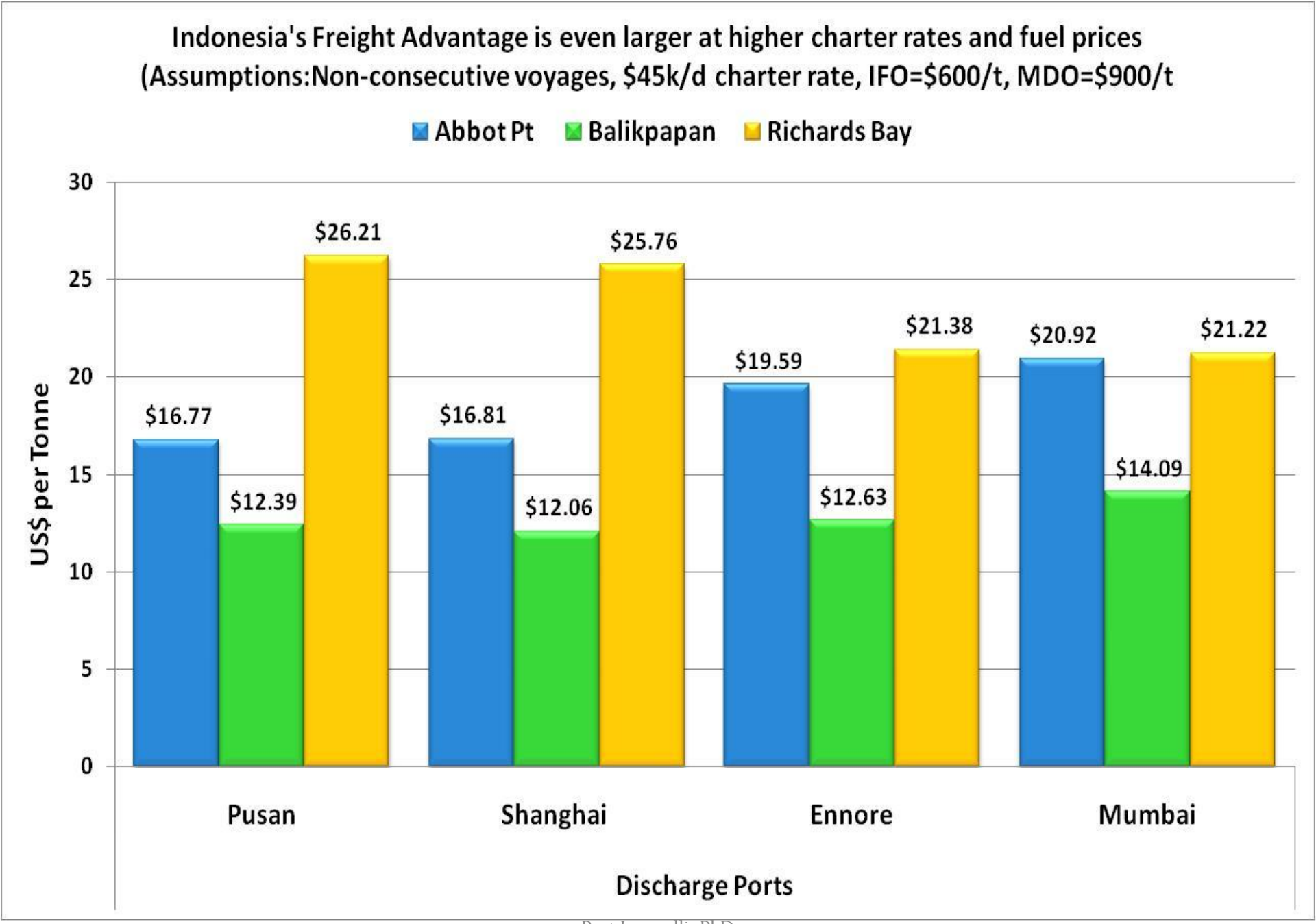


If contract is for non-consecutive voyages, a sea vessel must first be “ballasted into position” from an open position . For cape vessels with Asian destinations, Qingdao is the preferred “open position” (distances in nautical miles)



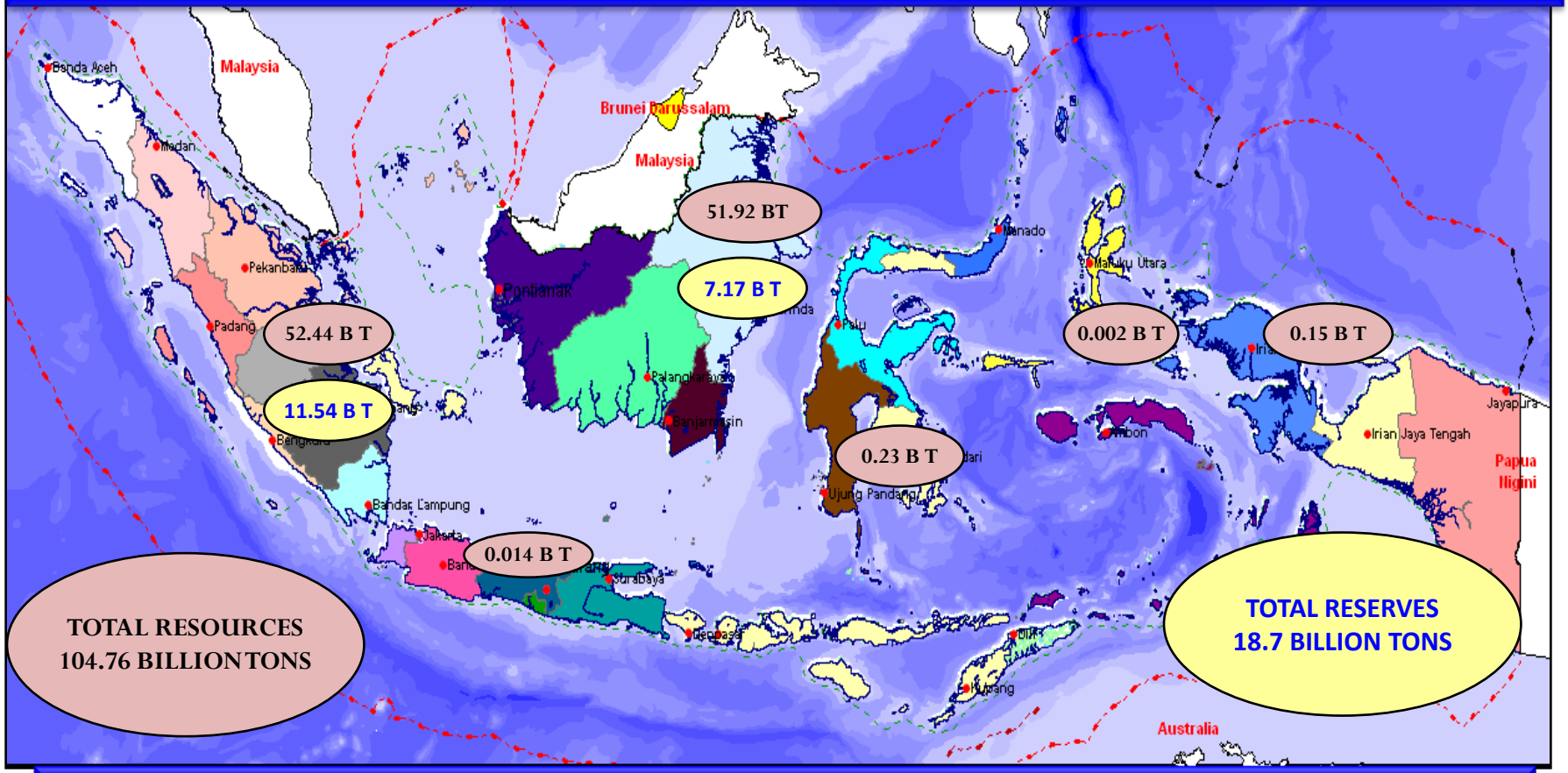
Indonesia's freight rate advantage provides a significant competitive advantage over RSA & Australian steam coal industries (US$/tonne (ar))
(Assumptions: Non-consecutive voyages, $30K/day Charter Rate, IFO= $480/t, MDO=$750/t)




Indonesia's Freight Advantage is even larger at higher charter rates and fuel prices
(Assumptions:Non-consecutive voyages, $45k/d charter rate, IFO=$600/t, MDO=$900/t
Abbot Pt
Balikpapan
Richards Bay
US$ per Tonne
30
25
20
15
10
5
0
$16.77
$12.39
$26.21
$16.81
$12.06
$25.76
$19.59
$12.63
$21.38
$20.92
$14.09
$21.22
Pusan
Shanghai
Ennore
Mumbai
Discharge Ports

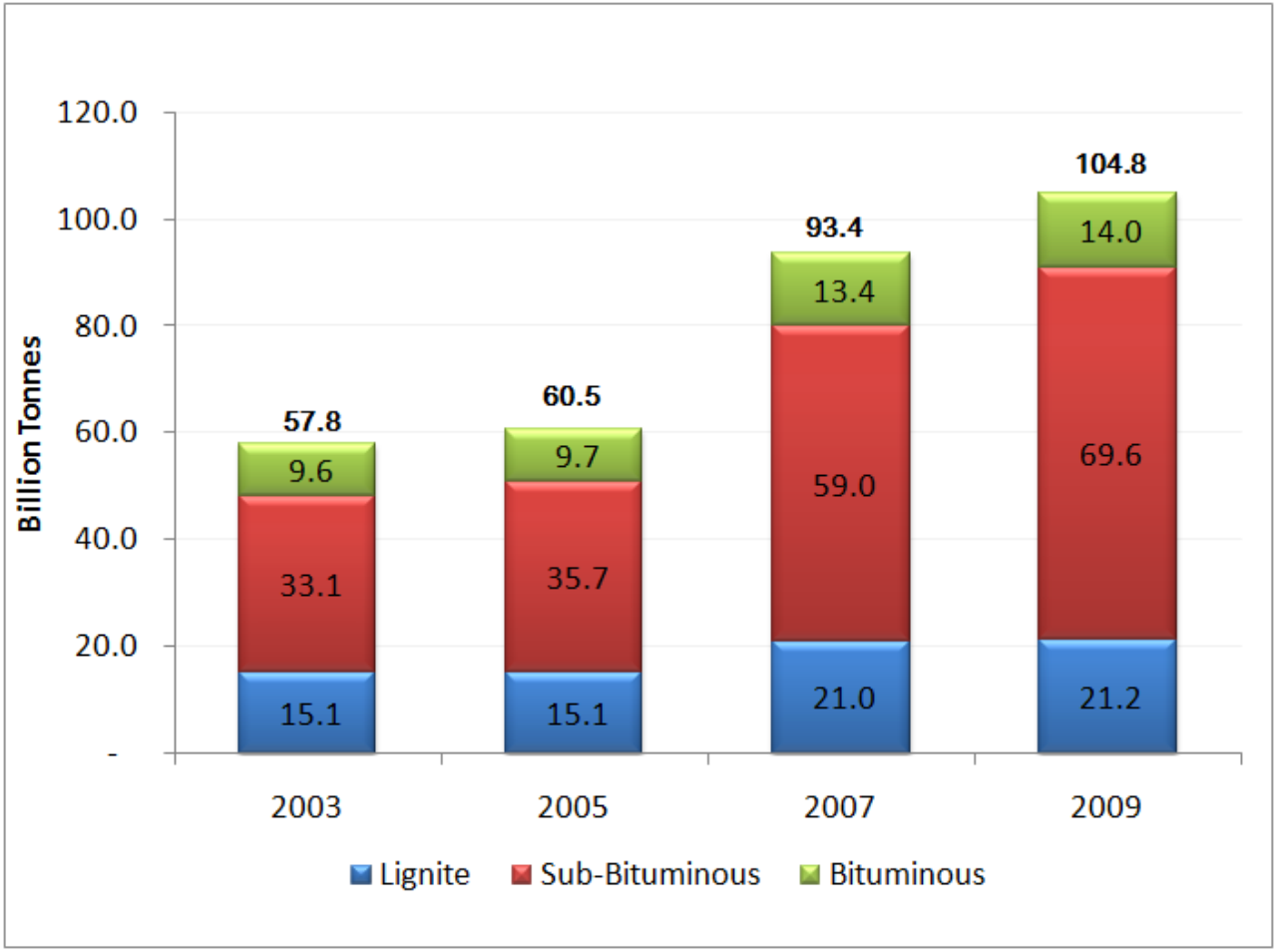
Comparison of Coal Resource & Reserve Estimates

MAP OF INDONESIA'S COAL RESERVES AND RESOURCES, 2009

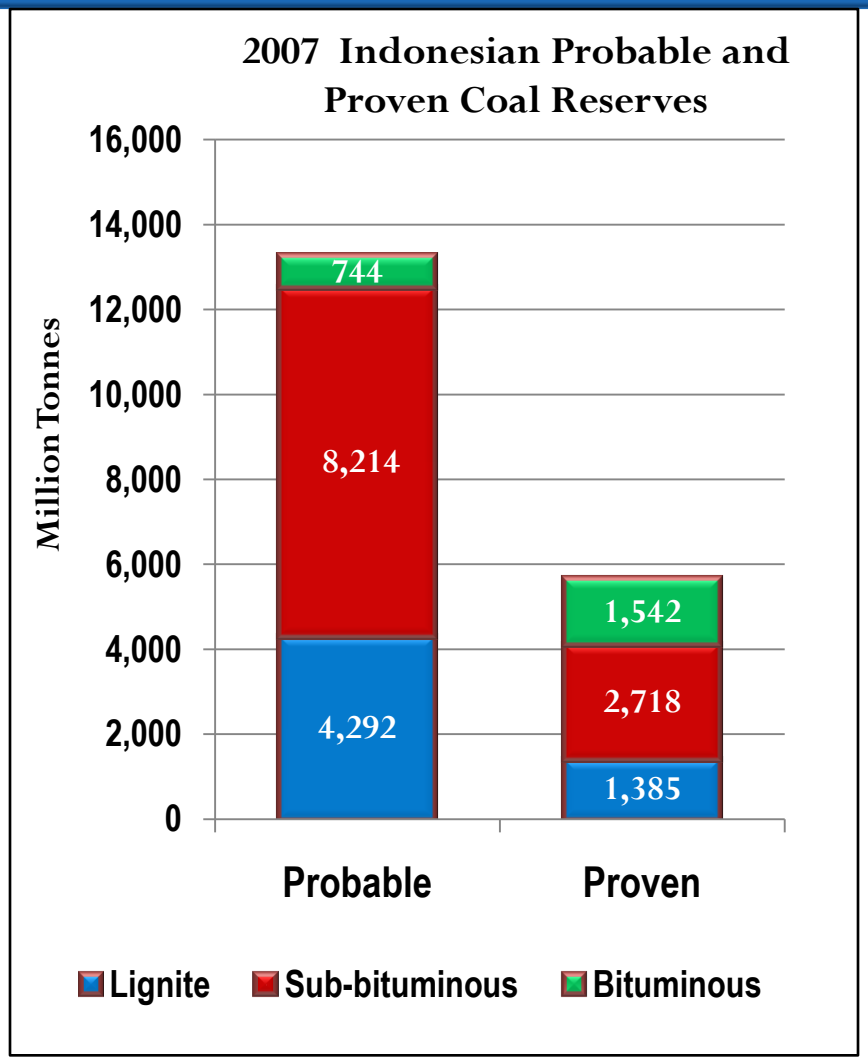


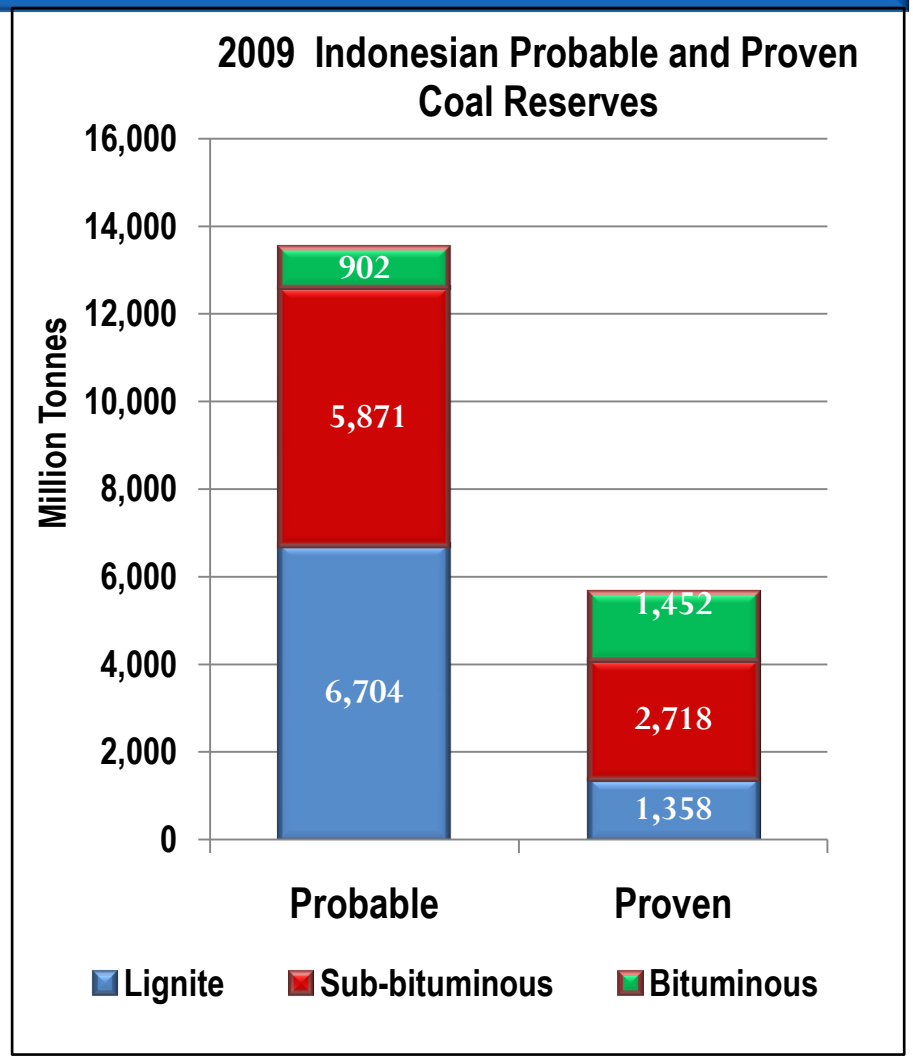
Note : Coal Resource Estimates for South Sumatra, East Kalimantan & South Kalimantan are based on Joint NEDO – MEMR Study (2007 – 08)

NEDO-MEMR Joint Study resulted in 2007 resources increasing by 54% over 2005 figures due to an increase in hypothetical sub-bit resources. MEMR increased sub-bit resources by an additional 12% in 2009

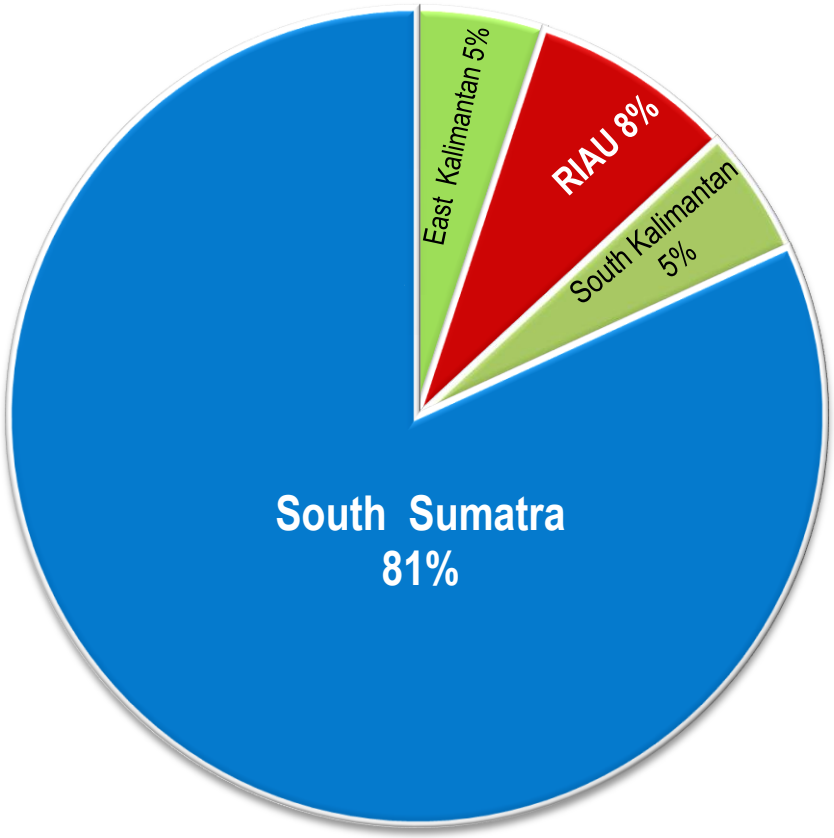


Indonesia's Proven Coal Reserves remained largely unchanged from 2007 and 2009. Small changes appear to be corrections of errors. Probable reserves , however, shifted from sub-bit to lignites.





Location of Indonesia's low rank coal resources (2009 low rank resource estimate = 21.2 billion)



MEMR-NEDO Coal Reserve and Resource Estimates are much higher than previous estimates but....

- Most of the reserve increases are for "probable reserves". Proven reserves have actually declined over this period.
- Increases in the resource base are a mixture of hypothetical and measured resources mainly for sub-bituminous grades of coal.
- MEMR has thus far refused to release the Joint NEDO-MEMR study, which is the basis for the official increases in reserves and resources, to the public.
- This report, if released for public comment, should shed light on:
  - by MEMR for its reserve and resource estimates;
  - the standard adopted (was it JORC?) for classifying coal deposits into different resource and reserve categories;
  - the specific changes in the data base that led to such large increases in both resources and reserves.
- Until the this study is released for review and comment, one must treat the latest reserve and resource data with extreme caution.

Australia's Steam Coal Resources and Reserves

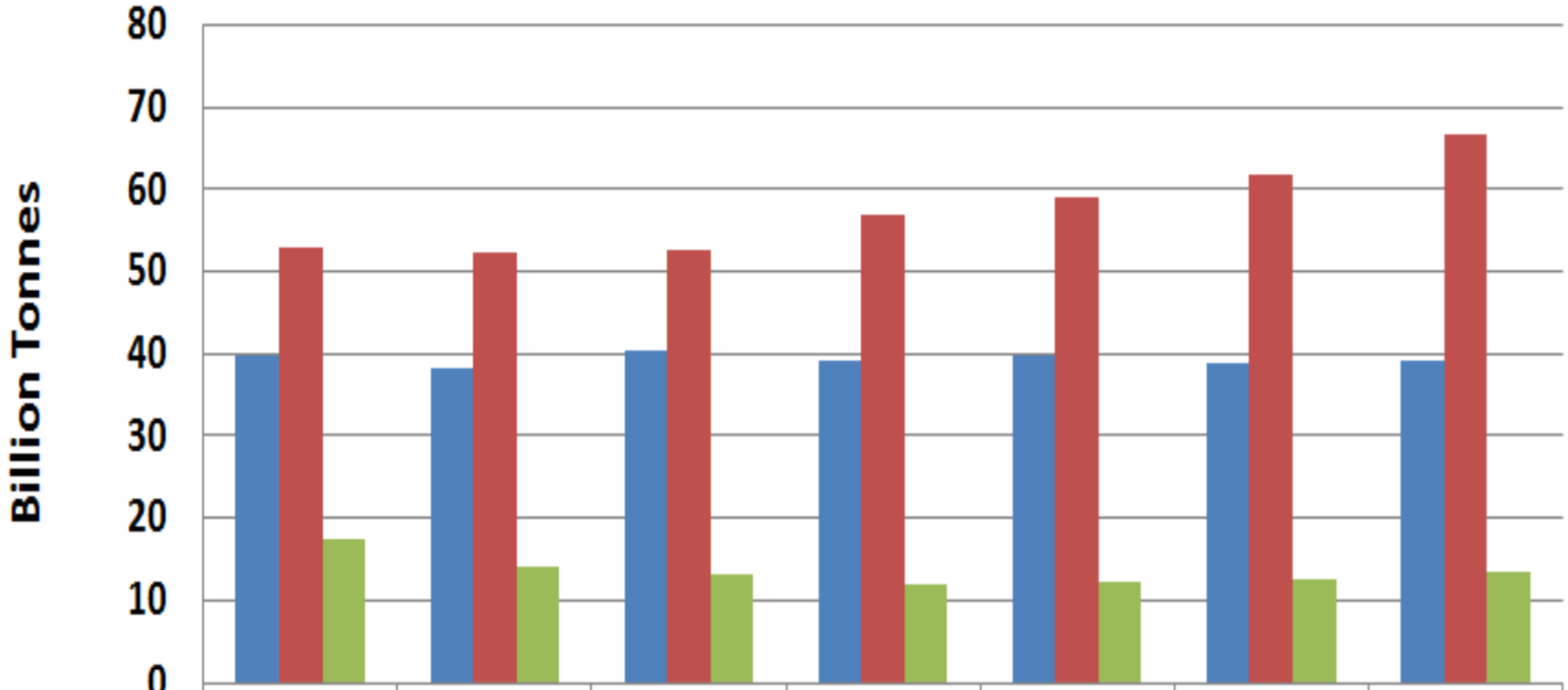
- The Australian Government through **Geoscience Australia (GA)** publishes official estimates of Australia's black and brown coal resources and reserves in an annual report titled "AUSTRALIA'S IDENTIFIED MINERAL RESOURCES" (AIMR).
- GA has been publishing the AIMR since 1999. The most recent issue, which is dated December 2009, provides resource and reserve data as of December 2008
- GA expresses coal resources as Demonstrated Resources, which are separated into Economic and Sub-economic categories. Demonstrated Resources are reported on an as-received basis.
- The Economic Demonstrated Resources (EDR) represent those resources that GA concludes have either near-term or long-term potential to be developed economically.
- EDR are substantially greater than the JORC Reserves reported annually by publicly traded mining companies– roughly 3-4 times greater.
- This information is available to the public w/o charge through a single contact person (Ron Sait) who answers questions promptly by email.

This table shows GA's December 2008 estimates of Australia's black coal EDR data (billion tonnes, as-received)

	Demonstrated Resources				Company + Geoscience Estimates	
	Economic (EDR)	Accessible EDR (AEDR)	Sub-economic		Inferred Resources	JORC Reserves (% of AEDR)
			Para-marginal	Sub-marginal		
Black Coal						
• in situ	56.2	n/a	3.0	10.3	106.0	n/a
• recoverable	39.2	39.1	1.5	6.7	66.7	13.4 (34%)
Brown Coal						
• in situ	44.3	n/a	43.1	18.1	112.3	n/a
• recoverable	39.2	32.2	38.8	16.3	101.1	4.8 (15%)

Source: Geoscience Australia, "Australia's Identified Mineral Resources, 2009", Table 1

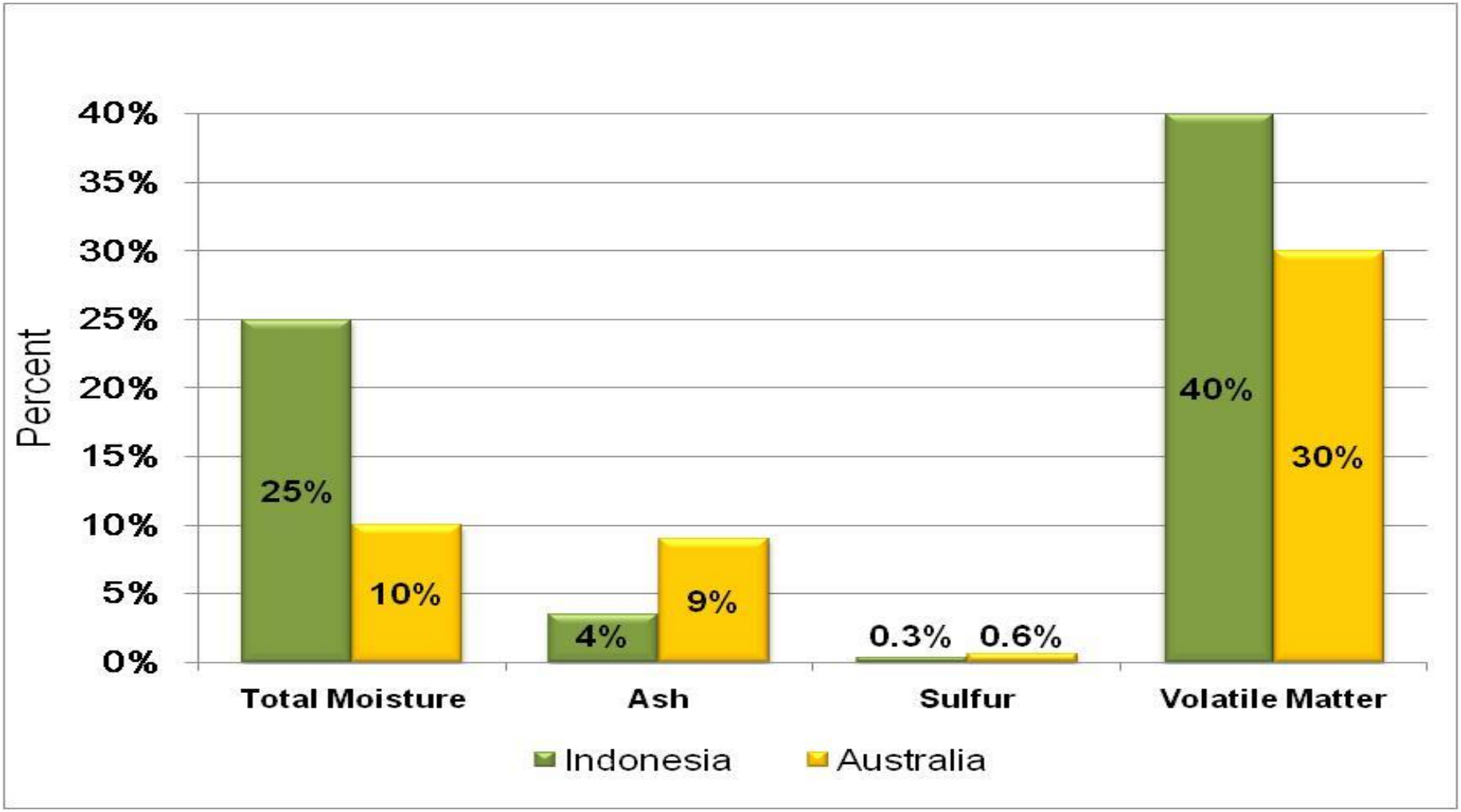
Australia's black coal EDR and JORC Reserves have oscillated within a narrow range since 2003 while inferred resources have climbed by 28%.



	2002	2003	2004	2005	2006	2007	2008
EDR	39.7	38.3	40.4	39.2	39.6	38.9	39.2
Inferred Resources	52.8	52.3	52.7	57.0	58.9	61.6	66.7
JORC Reserves	17.4	14.2	13.1	11.8	12.1	12.5	13.4

Comparison of Qualities of Indonesian and Australian Steam Coals

Indonesian coals have an average CV of 5200 kcal/kg (gar) while Australian coals are 6300 kcal/kg (gar). However, Indonesian coals have much lower S and Ash contents making them excellent blending coals for Indian and Chinese power plants.



Indonesia's coals have lower CV, higher moisture and lower AFT but, in many cases, ultra low sulfur and ash when compared with……

Coal Quality Parameter	Coal Brand → / Reporting Basis ↓	KPC Pinang	KPC Melawan	Adaro Envirocoal	Arutmin Ecocoal	Kideco Roto
GCV (Kcal/kg)	GAD	6, 546	5,735	5 ,900	5 ,000	5,310
GCV (Kcal/kg)	GAR	6,150	5,350	5 ,100	4 ,221	4,700
Moisture (%)	AR	14.5	23.5	26.0	35 .0	2 6 .5
Moisture (%)	AD	9 .0	18.0	14.5	23 .0	17.0
Ash (%)	AD	5.5	3.0	1.5	3.9	3.0
VM (%)	AD	40.0	38.0	43.0	38.0	41.5
TS (%)	AD	0.70	0. 25	0.20	0.20	0. 24
AFT (C°)	Initial Deform. Red. Atmos.	1150	1 130	1200	1150	1150
HGI (#)	n/a	45	42	50	60	45

..... NSW export-grade steam coals

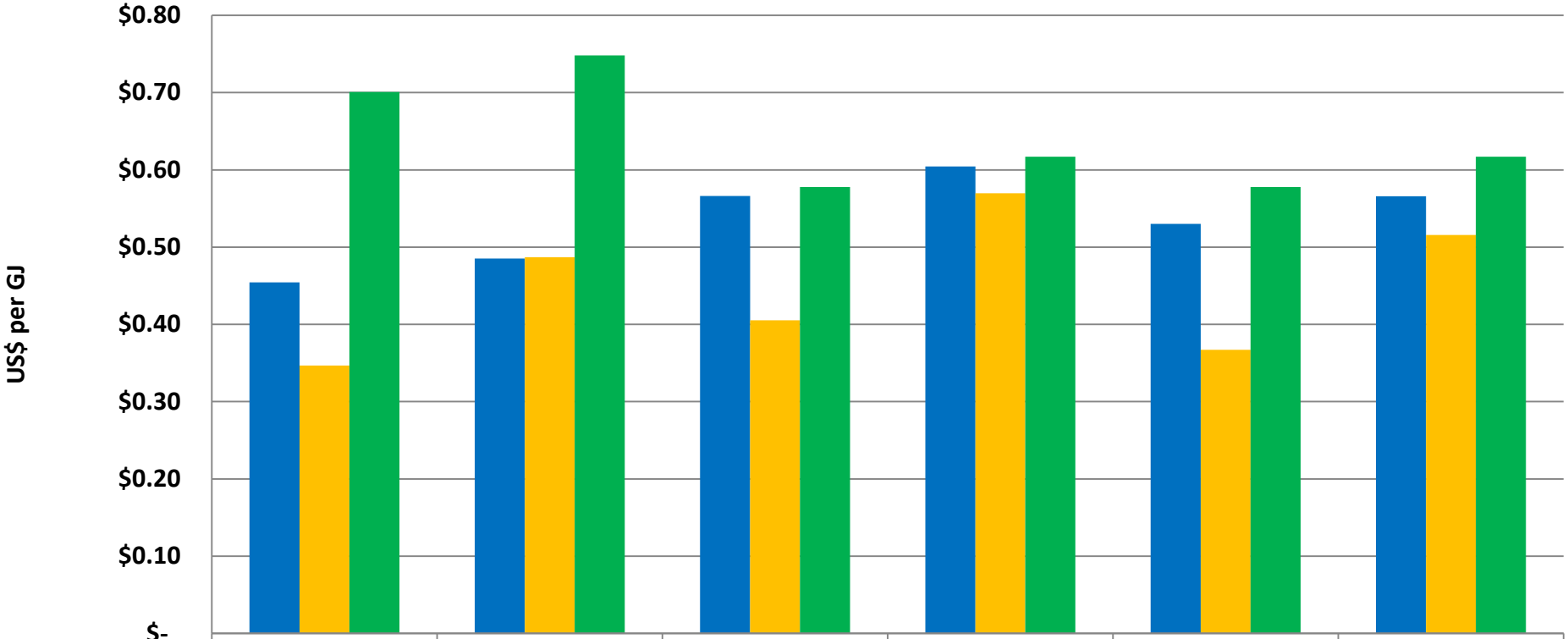
Coal Quality Parameter ↓	Coal Field → / Reporting Basis ↓	Southern	Western	Hunter	Newcastle	Gunnedah
GCV (Kcal/kg)	GAD	6,750	6,600	6,810	6,760	7,050
GCV (Kcal/kg)	GAR	6,390	6,220	6,360	6,330	6,515
Total Moisture (%)	AR	6.4	8.0	9.1	8.5	9.0
Inherent Moist. (%)	AD	1.1	2.6	2.7	2.3	1.5
Ash (%)	AD	19.5	20.4	13.5	15.1	17.5
VM (%)	AD	20.8	28.7	32.7	30.6	26.8
TS (%)	AD	0.45	0.55	0.60	0.60	0.65
AFT (C°)	Int. Deform. Red. Atmos.	1460	1460	1270	1380	1530
HGI (#)	n/a	64	45	50	52	65

Source: www.australianminesatlas.com

Differences in CV and moisture levels will become even more pronounced once Indonesia's low rank coal are brought into the market

		Indonesian Low Rank Coals			Australian New Coals	
Coal Quality Parameter ↓	Coal Brand →	Adaro Wara	Kideco SM	Arutmin Ecocoal	Hancock (Alpha/ Galilee Basin)	Xstrata (Wandoan/ Surat Basin)
	Reporting Basis ↓					
GCV (Kcal/kg)	GAD	4,865	5,255	5,000	6,500	6,350
GCV (Kcal/kg)	GAR	4,000	4,100	4,221	6,040	5,975
Total Moisture (%)	AR	40.0	36.0	35.0	15.0	15.0
Inherent Moisture. (%)	AD	27.0	18.0	23.0	8.5	9.7
Ash (%)	AD	2.5	4.0	3.9	7.7	8.0
VM (%)	AD	37.0	43.0	38.0	34.4	41.5
TS (%)	AD	0.15	0.10	0.20	0.45	0.4
AFT (C°)	Initial Deform. Red. Atmos.	1300	1120	1150	1350	1340
HGI (#)	n/a	50	45	60	50 - 55	35

Indonesia will lose most of its transport advantage to India once shift to low rank coals occurs



	Shanghai Trad.	Shanghai New	Mumbai Trad.	Mumbai New	Ennore Trad.	Ennore New
Abbot Point	$0.45	$0.49	$0.57	$0.60	$0.53	$0.57
Balikpapan	$0.35	$0.49	$0.41	$0.57	$0.37	$0.52
Richards Bay	$0.70	$0.75	$0.58	$0.62	$0.58	$0.62

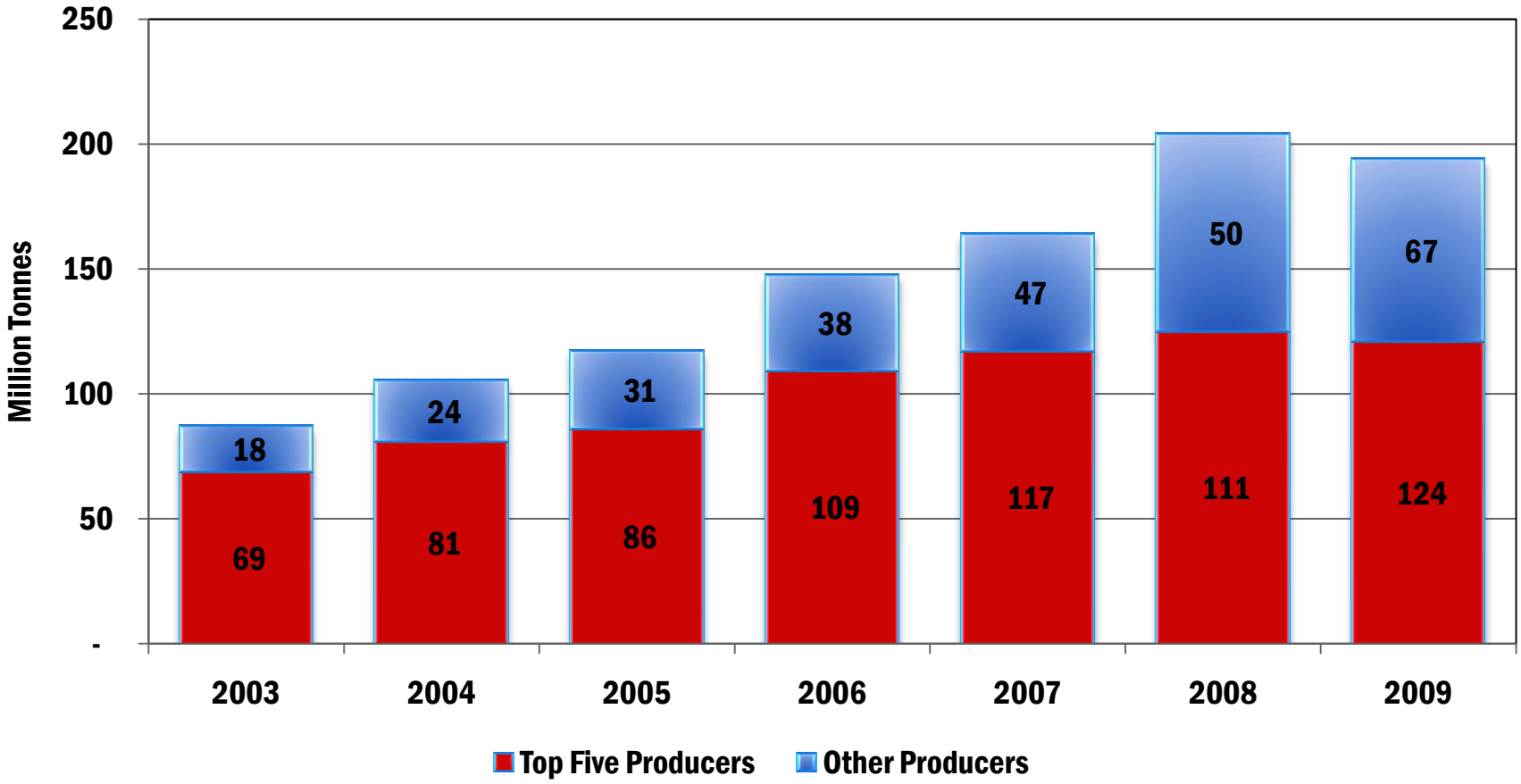
CVs (kcal/kg) for Traditional Abbot Pt/Richards Bay/Balikpapan Coals = 6300/5900/5400

CVs (kcal/kg) for New Abbot Pt/Richards Bay/Indonesian Low Rank Coals= 5900/5900/4200

Comparison of Industry Concentration

Indonesia's coal industry is highly concentrated but the level of concentration is declining:

- In 2003, KPC, Adaro, Kideco, Arutmin & Indominco (incl. Jorong and Trubaindo) accounted for 79% of Indonesia's coal exports.
- In 2009, the "Big Five" accounted for 65% of total exports,.



Source: Indonesian Coal Book, 2010/2011 for 2008 & 2009, Energy Publishing for years 2003-07

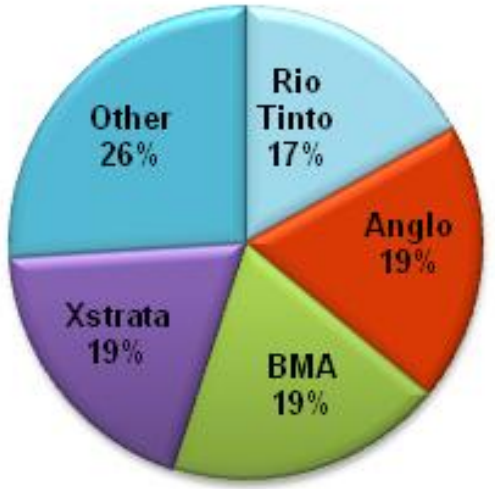
Concentration of Australia's Black Coal Industry

- **Between 1986 and 1997, Australia's black coal industry had a more diversified ownership than it has today.**
- **1997 saleable production shares:**
  - **38% by BMA, Rio Tinto, Anglo and Xstrata (the Big Four)**
  - **20 % by Shell, Arco, Exxon, MIM Holdings, Peabody Coal, and QCT**
- **Between 1997 and 2001, oil companies, MIM, Peabody and QCT sold out their interests to the Big Four which increased their share of total saleable production to 64 percent by 2002**

Concentration in Australia's Black Coal Industry

- In 2008, the Big Four accounted for 61 percent of 2008 coal production.
- They also control most of Australia's recoverable reserves of hard and soft coking coal.
  - BMA controls 60 percent of the hard coal coking reserves located in the Bowen Basin of Queensland.
  - Xstrata, Rio Tinto, Anglo, and Peabody control another 20%.
  - Xstrata and Rio Tinto control 45 percent and 25 percent of NSW's recoverable soft coking coal reserves.
- Steam coal less concentrated but will become more so once Galilee and Surat Basins enter into production

Australia's "Big Four" Coal Producers Produced 74% percent of Australia's Black Coal in 2008



Can Indonesia Meet Both Domestic and Export Requirements for Steam Coal?

PLN's Fast Track Coal-fired Power Plant Program and its Implications for Coal Export Markets

New Coal-fired Power Plants being built for PLN's 1st Fast Track Program On Java-Bali

No	Project	Total MW	US$ Portion(M)	Bank	IDR portion (B)	Bank	Construction Progress (%)
1	Labuan, Banten	630	289	BNI	1,189	BCA	95
2	Rembang, Jateng	630	262	CDB/Barclays	1,911	Mandiri	87
3	Indramayu, Jabar	990	592	CDB	1,273	BNI	78
4	Suralaya, Bantem	625	284	CEXIM	735	Mega	76
5	Pacitan, Jatim	630	293	Pending	1,046	Bukopin	72
6	Paiton, Jatim	660	331	CEXIM	601	Mega	59
7	Teluk Naga, Bantern	945	455	BOC	1,607	Bukopin	43
8	Pelabuhan Ratu, Jabar	1,050	482	CEXIM	1,874	Mega	39
9	Tanjung Awar Awar, Jatim	700	372	Pending	1,155	BNI	2
10	Adipala, Jateng	660	468	Pending	1,890	Pending	0
	Total	**7,520**	**3,827**		**13,282**		

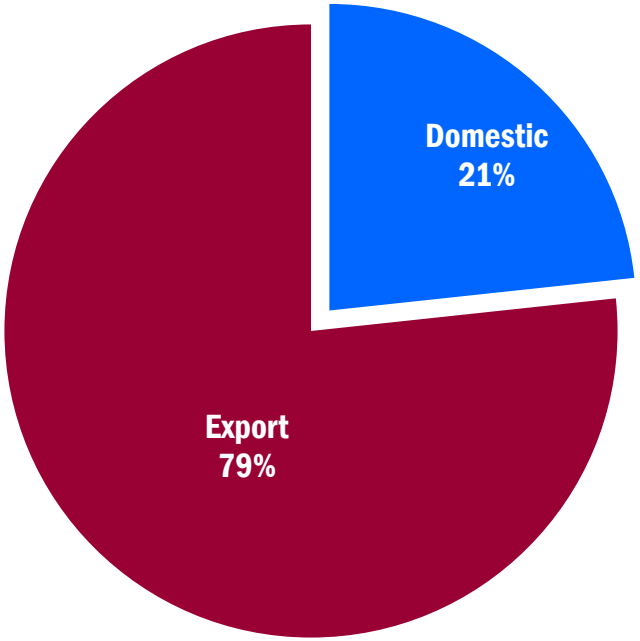
Off Java-Bali

No	Project	Total MW	US$ portion (M)	Bank	1DR portion (B)	Bank	Construction Progress (%)
1	Meulaboh, NAD	220	124	CEXIM	614	Asbanda	25
2	Pangkalan Susu, Sumut	400	209	Pending	781	Mega	25
3	Tarahan, Lampung	200	119	Pending	460	Mega	21
4	Susel, Barru	100	52	BRI	380	BRI	9
5	Kalteng 1, Pulang Pisau	120	62	Asbanda	414	Mega	2
6	Teluk Sirih, Sumbar	224	138	Pending	521	Asbanda	1
7	Kalsel, Asam-Asam	130	84	SRI	313	SRI	1
8	Katbar 1, Pant Baru (L0I)	100	62	Pending	111	Pending	0
9	Others (15 small plants <100MW)	469	n/a	n/a	n/a	n/a	n/a
	Total	**1,963**	**1,104**		**6,050**		

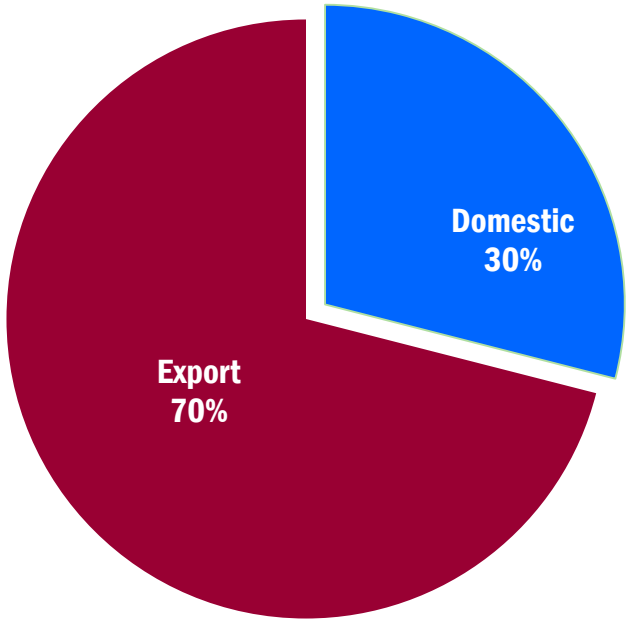
Source: "Indonesian Coal and Power Report" Issue 0141, Energy Publishing June 2009

- In 2009, Indonesia's domestic coal requirements were 56.3 mt (21% of total sales)
- By 2013, domestic requirements are expected to reach 100 mt , which will account for 30% of total sales.
- Exports + domestic sales are expected to grow from 254 mt in 2009 to 328 mtpa in 2013, largely due to PLN's 10 GW fast track power plant program.

2009



2013



Between 2008 and 2015, domestic coal demand expected to increase by 14% per year as new PLN-owned coal-fired power plants are brought into operation.

Coal market	2009	2012	2013	2015
Power	33	55	60	70
Other Domestic	23	36	39	46
Total Domestic Demand	**56**	**91**	**99**	**116**
Exports	198	212	229	267
Total Demand	**254**	**303**	**328**	**383**

Source: Indonesian Coal Book, 2010/2011 for 2009 figures, LP Power estimates with inputs from UBS and James T. Booker for other years

Impact of 1st Crash Program Projects on Domestic Coal Consumption

- Industry views range from
  - "By 2012 all projects will be in operation" to
  - "Hey this is PLN we are largely talking about and one should expect further delays that will result in a more gradual increase in domestic coal consumption than PLN is forecasting."
- The cynics will be proven correct and Indonesia will experience a more gradual increase in domestic coal demand than PLN would like everyone to believe.
- But there seems to be a consensus that all projects will be in operation and running close to their optimal capacity factors by 2015.

Can Indonesia meet new domestic demand + increased export demand?

My View: Yes, should not be a problem as long as government price and non-price regulations do not cripple the industry.

- Indonesia will experience a more gradual increase in domestic coal demand than PLN is forecasting.
- Indonesia's coal producers have demonstrated the ability in the recent past to rapidly increase their production levels to accommodate demand growth. No reason it cannot do so in the future .
- Indonesia's Coal Reserves, if official figures are accurate, are more than adequate to meet this forecasted demand into the foreseeable future.
- In any case, the new domestic demand is largely for LR coals while export demand is predominantly for sub-bituminous coals.
- Shortages , if they do occur, are likely to result from PLN's refusal to pay the market FOB price for Indonesian coal.

What are the implications of Indonesia's coming shift to low rank coals

Sub-bituminous coals

Resource Base (2009 est.)

- **Measured: ~ 12 billion tonnes**
- **Indicated + Inferred: ~ 29.9 billion tonnes**
- **Hypothetical: 27.8 billion tonnes**

Measured resources sufficient to last 55 years at current production rates

Reserves (2009): 8.6 billion tonnes

But a number of Indonesia's major coal suppliers claim that they are already sold out of their sub - bituminous coals

Typical Specification

- **CV : *4500 – 5800 kcal/kg***
- **S : 0.2% – 0.6%**
- **Ash : 3.0% – 7.0%**
- **TM : *20.0% – 28.0%***

Low rank coals

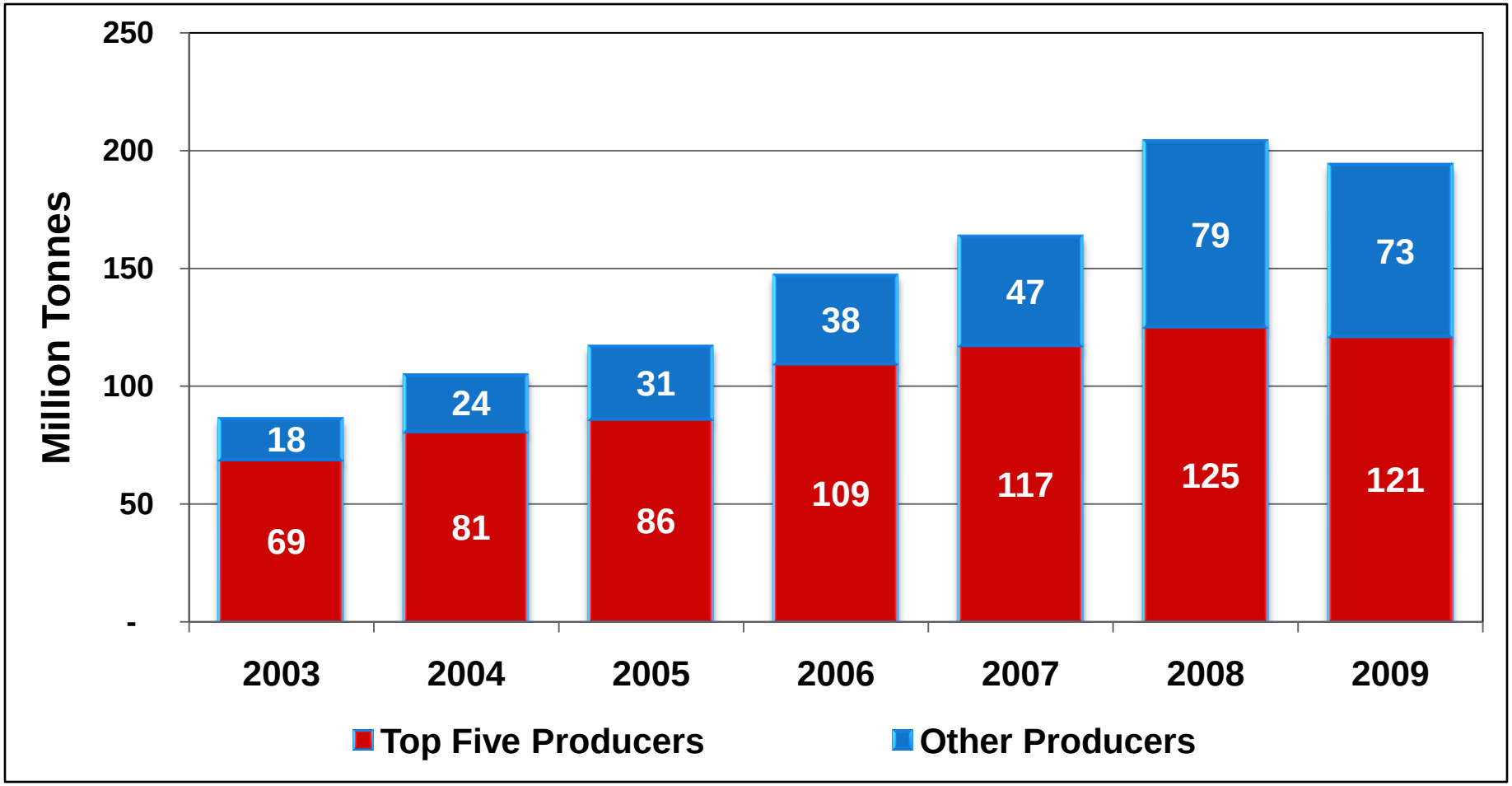
- **Resource base (2009 est.)**
  - **Measured: ~5.8 billion tonnes**
  - **Indicated + Inferred: ~10.4 billion tonnes**
- **Reserves: 8.1 billion tonnes**
- **Major producers are starting to shift production to LR coals**
- **But creating a market for LR coals will be a slow process – unless the TM of LR Coal can be reduced to levels of sub-bit coals**

Typical Specification

- **CV : *3900 – 4500 kcal/kg***
- **S : 0.2% – 0.6%**
- **Ash : 3.0% – 7.0%**
- **TM : *35.0% – 40.0%***

Indonesia's coal industry is highly concentrated but concentration is declining:

- In 2002, Bumi (KPC + Arutmin), Adaro, Banpu (Indominco, Trubaindo & Jorong), Kideco, Berau and PTBA accounted for 79% of Indonesia's coal exports .
- In 2008, these same five producers accounted for 62% of total exports.



Source: Energy Publishing, "Indonesian Coal and Power Report" various issues from 2003 through April 2010.

The Big 6 accounted for most of Indonesia's coal production between 2002 and 2009 with their share of total production ranging from a low of 65 percent in 2008/209 to a high of 78 percent in 2002

Company	Coal Production in (million tonnes)							
	2002	2003	2004	2005	2006	2007	2008	2009
Bumi Resources (KPC+Arutmin)	28.2	29.8	36.3	44.3	51.3	53.7	52.0	57.5
Adaro	20.8	22.4	24.3	26.6	33.5	36.1	38.5	40.6
Kideco	11.5	14.1	16.9	18.1	18.9	20.5	21.9	24.7
Berau	7.1	7.4	9.1	9.2	10.8	11.8	13.1	14.3
Banpu (Indo Tambangraya Megah Tbk) (Indominco Mandiri, Jorong, and Trubaindo.)	7.2	8.6	9.9	9.1	10.2	12.9	17.8	20.7
Bukit Asam (PTBA)	9.5	10.0	8.7	8.7	8.7	9.3	10.1	10.8
Subtotal	84.3	92.3	105.2	116.0	134.8	142.9	153.4	168.6
All Others	21.6	27.3	33.1	43.6	53.9	69.6	81.8	56.4
Total	105.9	119.6	138.3	159.6	188.7	212.5	235.2	257.7
Big 6 as % of total	80%	77%	76%	73%	71%	67%	65%	65%

Source: Indonesian Directorate of Minerals and Coal Enterprises for 2002-2006 data; Indonesian Coal Books 2008/2009 and 2010/2011 for 2007-2009 data

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Kideco	11.5	14.1	16.9	18.1	18.9	20.5	21.9	24.7
Berau	7.1	7.4	9.1	9.2	10.8	11.8	12.9	14.3
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Bukit Asam (PTBA)	9.5	10.0	8.7	8.7	8.7	9.3	11.0	10.8
Subtotal	84.3	92.3	105.2	116.0	134.8	142.9	147.1	160.3
All Others	21.6	27.3	33.1	43.6	53.9	69.6	57.4	56.4
Total	105.9	119.6	138.3	159.6	187.3	212.5	204.5	216.7
Big 6 as % of total	78%	75%	75%	72%	71%	67%	72%	74%

Source: Indonesian Directorate of Minerals and Coal Enterprises 2002-2006; Indonesian Coal Book, 2008/2009 for 2007 estimates; Energy Publishing, Indonesian Coal and Power Report, April 2010 for 2008 and 2009 estimates.

Australia's black coal industry is also highly concentrated

- Hard Coking Coal
  - 92% of hard coking coal reserves are located in the Bowen Basin
  - 60% of those reserves are controlled by BHP-B
  - 25% by Xstrata, Rio Tinto, Anglo and Peabody
- Soft Coking Coal
  - All JORC Reserves of soft coking coal are located in NSW
  - 45% managed by Xstrata
  - 25% by Rio Tinto
- Thermal is much less concentrated but Xstrata owns Rolleston (8 mtpa), Anglo-American owns Callide (9 mtpa) and Rio Tinto owns Blair Athol/Clermont (12 mtpa).
- New Mines in Galilee and Surat Basins will be world-scale and will likely lead to greater concentration in thermal coal industry too.

Queensland's 10 largest coal mines accounted for 44% of 2009 saleable production (sales in metric tonnes)

Mine	Operator	2009 Sales	Type of Coal
Callide & Boundary Hill	Anglo	8,766,657	Steam
Blair Athol	Rio Tinto	11,386,867	Steam
Peak Downs	BMA	8,753,660	Coking
Curragh	Wesfarmers	9,010,348	Coking/Steam
Rolleston	Xstrata	6,117,575	Thermal
Newlands	Xstrata	6,502,158	Coking/Steam
Ensham	Idemitsu Kosan	7,664,282	Steam
Goonyella - Riverside	BMA	9,374,948	Coking
Blackwater	BMA	11,178,271	Coking/Steam
Dawson	Anglo	6,742,429	Coking/Steam
	Subtotal	85,497,195	44%
	Saleable Production	195,431,915	

Source: Queensland Department of Mines and Energy, Coal Statistics (www.dme.qld.gov.au)

Are Competing Sources of New Supply from Australia a threat to Indonesia's steam coal exports?

What if Australia gets its act together?


INDONESIA
Semarang
Dili
EAST TIMOR
Kupang
Timor Sea
Darwin
Indian Ocean
Gulf of Carpentaria
PAPUA NEW GUINEA
Lae
Port Moresby
SOLOMON ISLANDS
Honaira
Derby
Broome
Port Hedland
Learmonth
Carnarvon
Western Australia
Tennant Creek
Northern Territory
Alice Springs
Mount Isa
Cairns
Abbott Pt
Hay Point
Mackay
Queensland
Gladstone
Tropic of Capricorn
Coral Sea
VANUATU
Port-vila
Noumea
NEW CALEDONIA
AUSTRALIA
South Australia
Cook
Geraldton
Kalgoorlie
Perth
Great Australian Bight
Port Augusta
Broken Hill
Darling
Bourke
New South Wales
NSW
Newcastle
Brisbane
Port Lincoln
Adelaide
Canberra
Sydney
Victoria
Melbourne
Tasmania
Hobart
Tasman Sea
Indian Ocean
Auckland
Hamilton
Rotorua
New Plymouth
NEW ZEALAND
Westport
Greymouth
Wellington
Christchurch
Timaru
Invercargill
Dunedin
0
1000 Miles
0
1000 Km

Australia Black Coal Industry – Quick Summar

Present	Outlook
• NSW & Queensland account for 98% of Australia's black coal production and 100% of exports: – coking coal (53%) – steam coal (47%) • In 2009, – NSW mainly a steam coal exporter (78% steam : 22% coking) – Queensland exported mostly coking coal (72% coking: 28% steam). – Queensland produced 82% of its coal from O/C mines vs. 66% for NSW. • Transport is by fixed rail to fixed land ports; new transport projects subject to slow government approvals	• New Queensland mines – mostly O/C mines in the Surat and Gallilee Basins – will produce steam coal. • New NSW mines – Underground mines in Hunter Valley + O/C mines in the Gunnedah Basin. – Steam coal main coal product. • New mines located in the Surat, Galilee and Gunnedah Basins will have significantly higher cash costs due to long distances from ports and need for new rail lines and coal terminals. • CPRS and MRRT will increase mining costs.

Australia's coal exports are currently constrained by chronic infrastructure shortages as well as a certain amount of regulatory uncertainty

- Continued uncertainty about the schedule for expanding ports and rail networks.
- Carbon Pollution Reduction Scheme – on hold but not dropped completely – worst of both worlds.
- Resource Super Profits Tax (RSPT) of 40%, known renamed the Mineral Resources Rent Tax (MRRT), may delay development of new mining projects and reduce foreign investment in mining sector.

Mega-Mines under development in Queensland

Developer	Basin	Deposit	2010 Resource Estimate? (billion tonnes)	First Shipment (years)	Export Capacity (MTPA)	Distance to Port (Km)	Total Capital (billion AUS$)
Hancock Coal	Galilee	Alpha Coal	3.6	2013	30	495	7.5
Hancock Coal	Galilee	Kevin Comer	3.4	2013	30	495	9.0
Clive Palmer	Galilee	Waratah	4.3	2013	40	495	5.3
Xstrata	Surat	Wandoan	2.7	2015	22	380	n/a
Syntech	Surat	Cameby Downs	1.4	2010	12-15	430	n/a

* Hancock Coal and Wandoan resource estimates include Measured, Indicated and Inferred only;

  Xstrata also estimated that it has 400 mt of Reserves (Proved and Probable)

Australia's New Coal Supplies and Infrastructure Expansion Plans

New Coal Sources by 2015

Galilee Basin(Queensland)

- Alpha A/Kevins Corner: 60 mtpa
- Waratah : 40 mtpa
- South Galilee : 20 mtpa

Surat Basin (Queensland)

- Wandoan : 22 mtpa
- Cameby Downs : 15 mtpa

Other Queensland/NSW : 50 mtpa

Total 207 mtpa

Infrastructure Expansion Plans

Rail Hauling Capacity

- ↑ From 333 mtpa in 2008 to over 600 mtpa in 2020

Usable Port Handling Capacity

- Total: ↑ from 320 mtpa in 2008 to 540 mtpa in 2020
- Steam coal: ↑ from 164 mtpa in 2008 to 253 mtpa in 2020


INDONESIA
Semarang
Dili
EAST TIMOR
Kupang
Timor Sea
Darwin
Indian Ocean
Gulf of Carpentaria
PAPUA NEW GUINEA
Lae
Port Moresby
SOLOMON ISLANDS
Honaira
Derby
Broome
Port Hedland
Learmonth
Carnarvon
Western Australia
Tennant Creek
Northern Territory
Alice Springs
Mount Isa
Cairns
Abbott Pt
Hay Point
Mackay
Coral Sea
Queensland
Gladstone
Tropic of Capricorn
VANUATU
Port-vila
Noumea
NEW CALEDONIA
AUSTRALIA
South Australia
Cook
Geraldton
Kalgoorlie
Perth
Great Australian Bight
Port Augusta
Broken Hill
Darling
Bourke
New South Wales
NSW
Newcastle
Brisbane
Port Lincoln
Adelaide
Canberra
Sydney
Victoria
Melbourne
Tasman Sea
Tasmania
Hobart
Indian Ocean
Auckland
Hamilton
Rotorua
New Plymouth
NEW ZEALAND
Westport
Greymouth
Wellington
Christchurch
Timaru
Invercargill
Dunedin
0
1000 Miles
0
1000 Km

Coal Terminal Expansion Plans: NSW & Queensland, 2006 – 2020 (in mtpa)

Newcastle	NSW	2006	2008	2010	2012	2015	2020
1. Kooragang Coal Terminal		64.0	77.0	91.0	101.0	101.0	101.0
2. Carrington Coal Terminal		25.0	25.0	25.0	25.0	25.0	25.0
3. NCIG Coal Terminal (Planned)		0.0	0.0	30.0	45.0	66.0	66.0
Sub Total		**89.0**	**102.0**	**146.0**	**171.0**	**192.0**	**192.0**
Port Kembla	NSW	16.0	16.0	16.0	16.0	16.0	16.0
NSW Total		**105.0**	**118.0**	**162.0**	**187.0**	**208.0**	**208.0**
Gladstone	Queensland						
1. RG Tanna Coal Terminal		51.0	72.0	72.0	72.0	72.0	72.0
2. Barney Point Coal Terminal		7.0	7.0	7.0	7.0	0.0	0.0
3. Wiggins Island (Planned)		0.0	0.0	0.0	0.0	25.0	70.0
Sub Total		**58.0**	**79.0**	**79.0**	**79.0**	**97.0**	**142.0**
Hay Point	Queensland						
1. Dalrymple Bay Coal Terminal		55.7	85.0	85.0	85.0	85.0	85.0
2. Hay Point Coal Terminal		40.0	44.0	44.0	55.0	55.0	55.0
Sub Total		**95.7**	**129.0**	**129.0**	**140.0**	**140.0**	**140.0**
Abbott Point	Queensland	15.0	25.0	50.0	80.0	100.0	100.0
Brisbane	Queensland	5.0	5.0	5.0	5.0	8.0	10.0
Queensland Total		**173.7**	**238.0**	**263.0**	**304.0**	**345.0**	**392.0**
TOTAL		**278.7**	**356.0**	**425.0**	**491.0**	**553.0**	**600.0**

Regulatory Uncertainty Related to the new Mining Law: Could it "kill the goose that lays the golden egg"?

Indonesian Political Risk

- Perennial concern for thermal coal buyers and Indonesia's coal producers.
- Between 1998 and 2003, Central and Provincial Government actions were destroying the investment climate in the coal industry.
- Situation was so bad that the US embassy in Jakarta and industry analysts were predicting the demise of Indonesia's coal industry.
- Then, in 2004, the GOI started acting more reasonably.
- In 2008, pendulum swung in the direction of greater political risk but is now "balanced" precariously.

Specific Political Events

- Illegal Mining (1998 – 2005)
- Law on Regional Autonomy (22/99)
- Revision of VAT regulations

  (GR 144/2000 & 65/2001
- Forestry Law 41/1999
- 5% Coal Export Tax (2005)
- Strikes/ Industrial Actions (on-going)
- Local government attempts to:
  - impose onerous new taxes
  - set unattractive fiscal terms for new coal concessions
  - nullify agreements and shut down mining operations

Indonesia is now operating under a new mining law that will result in major changes to the industry's structure.

Pre-2009 Contract Arrangements	Main changes under Mining Act of 2009
Coal Contracts of Work (CCOWs) – 1st Gen (1981-90) – 2nd Gen (1994- 1998) – 3rd Gen (2000 – 2008) – Features of 1st Gen CCOWs: • large concession areas (25K – 100K ha) • fixed fiscal terms • little government interference – 110 3rd Gen CCOWs signed; only 50 were still valid in 2008 KPs – Contracts let by Local Government for small areas	• Replacement of CCOWs and KPs with system of mining licenses known as IUPs. • Signed CCOWs remain valid until end of contract term; KPs converted to IUPs this year. • Maximum license area: 15,000 ha • Greater regulation of all aspects of mining, including selection of mining contractors. • MEMR regulation of domestic market obligation (DMO) and mandatory coal reference price (CRP)

If DMO and ICRP regulations are not handled sensibly, they may damage Indonesia's reputation" as a reliable coal exporter.

Domestic Market Obligation Regulation (January 2010)	Indonesian Coal Reference Price Regulation (Sept 2010)
– Requires Coal Suppliers to meet needs of local consumers before meeting exports. – Domestic requirements determined each year by Ministry of Energy and Mineral Resources (MEMR) – If any coal producer does not meet its domestic obligation, its production for the next year may be cut by 50%. – Domestic coal buyers are obligated to buy coal they order but penalties for not buying are not as onerous as for producers.	– MEMR will set a Reference Price for specific coals based on GOI-created price index and quality adjustment formulas – Coal suppliers opposed early drafts of this regulation because penalties were excessive. – Current regulation is so confusing that producers do not know what to expect. – Appears that the Reference Price will apply only for determining Non-Tax Revenues or Royalties. *Question still remains: why have this regulation at all?*

Australia is creating its own share of regulatory & political uncertainty for coal miners

- Precedent exists for the Australian Commonwealth Government to create serious damage to investor confidence in the mining sector. The Whitlam Labor Government, which ruled from 1972 to 1975, damaged mining sector confidence by:
  - imposing price controls on coal exports
  - threatening to rescind the licenses of foreign companies such as Utah International
- The Rudd Government, until Rudd's resignation in June 2010, tried to impose a Carbon Pollution Reduction Scheme and a Resource Super Profits Tax of 40%.
- The Resource Super Profits Tax caused delays in the development of the Gallilee and Surat Basin coal projects and other mining sector investments

Australia is creating its own share of regulatory & political uncertainty (cont.)

- However, in June 2010, Kevin Rudd was removed as PM by his own Party and these two controversial policies remain unresolved.
- New PM Gillard negotiated a settlement with the mining industry on the RSPT, which was renamed “the Mineral Resource Rent Tax” (MRRT) and that issue may be resolved.
- The CPRS is on hold but not dropped completely, creating a worst of both worlds regulatory situation.
- Along with the CPRS issue, the coal mining industry faces continued uncertainty about the schedule for expanding ports and rail networks in Queensland, which is a state government issue.
- A general election, which was held on 21 August 2010, resulted in a hung Parliament. The Gillard Government has still not provided clear policy directions with respect to the CPRS and the MRRT.

Australia Regulatory Risk: What If CPRS is passed into Law?

- Medium Term Impact of CPRS on Australia's steam coal exports:
  - It will largely impact the domestic power market and especially those power plants dependent on brown coal. In 2007, domestic consumption of steam coal was only 12% of total steam coal sales.
  - Plants burning black coal may remain unaffected for a number of years.
  - Alternatively, if affected adversely, the stranded domestic steam coal will find its way into the export market.

- Long-term impacts of CPRS on Australia's steam coal exports:
  - May lead to Australia's major customers (Japan, Korea and Taiwan) adopting similar legislation leading to downturn in demand for Australia's steam coal exports.
  - Reduced long term investments in steam coal mines.

Australia Regulatory Risk (cont.)

- **Impact of MRRT on Australia's steam coal exports:**
  - **Appear to be minimal based on responses from BHP-B, Rio Tinto and XSTRATA.**
  - **In any case, the coal price and investment impacts will not be felt for 2-3 years.**
  - **If the MMRT adversely impacts new mine and infrastructure investments, the region is likely to experience higher steam coal prices due to:**
    - **slow growth in Australian steam coal supply resulting from reduced investments in Australia's mining sector; and**
    - **higher costs of operation for producing companies.**
- **Full details concerning the MRRT are not known at this time. But the MRRT appears to address a number of industry concerns:**
  - **The MRRT will only apply to coal and iron ore projects;**
  - **Coal projects will not be taxed retrospectively;**
  - **The threshold return before the MRRT kicks in has been set at 12% as opposed to 7% under the RSPT**
  - **The tax rate has been reduced to 30% from 40%.**

Summary

- **Kalimantan's coal industry has experienced incredible growth in output and market power over the past 20 years but its best quality reserves are rapidly being depleted.**

- **Infrastructure constraints will not be a problem for the foreseeable future.**

- **Coal resources and reserves, based on official estimates, appear to be adequate to meet reasonable forecasts of both domestic and export requirements for the next two decades and beyond. But how much confidence can one place in these official numbers while the MEMR denies the coal industry access to the NEDO- MEMR Coal Resource and Reserve study?**

- **The expected switch to low rank (LR) coals create the challenge for Indonesian coal producers of developing new markets for LR coals, which will result in a deterioration of Indonesia's transport cost advantage.**

- **Moving to LR coals will require Indonesia's coal producers to develop new markets and invest in risky and unproven coal drying technologies.**

Summary

- **Regulatory and political risks are, at this point in time, the biggest challenge to Indonesia's coal industry. Excessive regulation by the Government of Indonesia (GOI) may hurt exports by creating uncertainty about amounts available for export and the minimum price that Buyers must pay.**
- **Over the past decade, the GOI has implemented laws and regulations (e.g., forestry law and regional autonomy law) that were well-intentioned, but either badly structured or incompetently administered.**
- **Over that same period, the GOI corrected many of its regulatory missteps. The coal industry, due to its scale and financial strength, was able to weather those regulatory and political storms. But, for a time, the coal industry's future was in doubt.**
- **The new mining law is likely to turn into another instance of the GOI "muddling through" the process of issuing administratively efficient and fair implementing rules for a well-intentioned law .**

Summary

- **One always hopes that history will repeat itself and the MEMR, after walking to the edge of the proverbial regulatory cliff, will recognize the regulatory risks it is creating and start to issue regulations that support the continued growth of the coal industry and to do so in a more timely fashion .**

- **But history does not always repeat itself. If the MEMR chooses to continue on its current path, it runs the risk of allowing new coal producers in Queensland to take away existing and new export markets from Indonesia.**

Summary

- **Australia's steam coal producers are currently trapped by chronic shortages of port and rail capacity.**
- **The previous Australian Government under Rudd created significant regulatory uncertainty for mining companies. The new Labour government is trying to right some of these wrongs but it is still too early to say how and when issues will be resolved.**
- **The stakes are huge. Massive, high quality steam coal resources remain to be developed out of the Galilee, Surat and Gunnedah basins.**
- **Total cash costs will be higher than for Indonesian coals on a per gigajoule basis but the quality differentials between new Australian and Indonesian LR coals are so great that it is impossible to make a proper competitive analysis of these new coals at this time.**
- **The outlook for both industries is for higher cash costs due to regulatory changes and risks and the shift in coal types and locations.**

Appendix

- 2005 Reserve Estimates did not include an estimate of "Probable Reserves".
- Lignites represented a surprisingly large share of "Proven Reserves "

			2005 Reserves (million tonnes) ("ar" or "ad"?)			% of total
Coal Rank	Calorific value (kcal/kg) GAD	GAR	Probable	Proven	Total	
Lignite	<5100	<4500	n/a	3,452	3,452	49%
Sub-bituminous	5100– 6100	4500 -5800	n/a	1,828	1,828	26%
Bituminous	>6100	>5800	n/a	1,727	1,727	25%
Total	**n/a**	n/a	**n/a**	**7,007**	**7,007**	**100%**

Source: Indonesian Coal Book, 2006/2007, ICMA, August 2006, except for CV (gar) estimates, which are from LP Power.

- Reserve estimates in 2007 were 260% higher than the 2005 estimate due to inclusion of "Probable Reserves"
- Lignites share of total reserves now much smaller than in 2005.

			Reserves (million tonnes) ("ar or ad"?)			
Coal Rank	**Calorific value (kcal/kg) GAD**	**GAR**	**Probable**	**Proven**	**Total**	**% of total**
Lignite	<5100	<4500	4,292	1,105	5,397	29%
Sub-bituminous	5100– 6100	4500 -5800	8214	2,971	11,185	60%
Bituminous	>6100	<5800	744	1,385	2,129	11%
Total	**n/a**	**n/a**	**13,250**	**5,461**	**18,711**	**100%**

Source: Indonesian Coal Book, 2008/2009, ICMA, July 2008, except estimates of CV (gar), which are from LP Power.

Updated 2009 reserve estimates in 2009 remain unchanged from the 2007 estimates but greater share is now in low rank coal category

			Reserves (million tonnes) ("ar or ad"?)			
Coal Rank	**CV (kcal/kg) GAD**	**GAR**	**Probable**	**Proven**	**Total**	% of total
Lignite	<5100	<4500	6,704	1,358	8,062	42%
Sub-bituminous	5100– 6100	4500 -5800	5,871	2,718	8,589	45%
Bituminous	>6100	>5800	903	1,453	2,356	13%
Total	**n/a**	**n/a**	**13,478**	**5,529**	**19,007**	**100%**

Source: Indonesian Coal Book, 2010/2011, ICMA, September 2010, except estimates of CV (gar) and sub-bituminous reserves, which are from LP Power.

In 2003, lignites were a small share of Indonesia's coal resource base, due to the lack of exploration activity directed at low rank coals and perhaps because the figures were reported on an "air-dried" (ad) basis

2003 Coal Resource Estimates (million tonnes) (unclear whether tonnes are on "ar" or "ad" basis)							% of total
Coal Rank	**Calorific value (Kcal/kg, gar)**	**Hypothetical**	**Inferred**	**Indicated**	**Measured**	**Total**	
Lignite	<4500	0	1,512	9,581	4,021	15,114	26%
Sub-bituminous	4500 – 5800	476	17,463	10,255	4,997	33,191	57%
Bituminous	>5800	57	5,341	697	3,448	9,543	17%
Total	n/a	533	24,316	20,533	12,466	57,848	100%

Source: Indonesian Coal Book, 2006/2007, ICMA, August 2006

In 2005, lignites comprised a very small share of Indonesia's coal resource base, due to the lack of exploration activity directed at low rank coals and perhaps because the figures may have been reported on an "air-dried" (ad) basis

2005 Coal Resource Estimates (million tonnes) (unclear whether tonnes are "ar" or "ad")							% of total
Coal Rank	**Calorific value (Kcal/kg, gar)**	**Hypothetical**	**Inferred**	**Indicated**	**Measured**	**Total**	
Lignite	<4500	1,685	8,711	2,382	2,317	15,095	25%
Sub-bituminous	4500 – 5800	1,924	19,653	9,176	4,939	35,692	59%
Bituminous	>5800	71	5,462	681	3,513	9,727	16%
Total	n/a	3,680	33,826	12,239	10,769	60,514	100%

Source: Indonesian Coal Book, 2006/2007, ICMA, August 2006

- 2007 Resource estimates reflect findings of a Joint NEDO/Badan Geologist study
- 54% increase over 2005 due to increase in hypothetical and measured resources.
- Lignites: relatively small share of Indonesia's coal resources base due to a "air-dried" reporting basis

2007 Resources (million tonnes) (unclear whether tonnes are "ar" or "ad")							% of total
Coal Rank	Calorific value (Kcal/kg, gar)	Hypothetical	Inferred	Indicated	Measured	Total	
Lignite	<4500	5,058	6,579	3,652	5,750	21,039	23%
Sub-bituminous	4500 – 5800	16,925	22,104	9,042	10,867	58,938	63%
Bituminous	>5800	1,650	6,515	968	4,293	13,426	14%
Total	n/a	23,633	35,198	13,662	20,910	93,403	100%

Source: Indonesian Coal Book, 2008/2009, ICMA, July 2008

2009 resource estimates indicate that coal resources have increased 12% since 2007; lignites share has now dropped to 20%. All changes are to sub-bits

Resources by Category (million tonnes) (unclear whether tonnes are "ar" or "ad")							% of total
Coal Rank	CV (Kcal/kg, gar)	Hypothetical	Inferred	Indicated	Measured	Total	
Lignite	<4500	5,058	6,586	3,721	5,816	21,181	20%
Sub-bituminous	4500 – 5800	27,772	18,961	11,008	11,995	69,736	67%
Bituminous	>5800	1,798	6,670	1,075	4,479	14,023	13%
Total	n/a	34,620	32,147	13,662	22,252	104,940	100%

Source: Indonesian Coal Book, 2010/2011.

Sumatra and Kalimantan accounted for 99% of Indonesia's Resources Base in 2005 with Kalimantan accounting for 54% of resources base.

2005 Resources by Category
(Million Tonnes)
(unclear whether tonnes are "ar" or "ad")

Province	Hypothetical	Inferred	Indicated	Measured	Total	% of Total
Sumatra	1,862	12,932	11,675	928	27,397	45%
Kalimantan	1,818	20,706	564	9,820	32,908	54%
Other	0	188	1	21	210	1%
Total	3,680	33,826	12,240	10,769	60,515	100.0%

Source: Indonesian Coal Book, 2006/2007, ICMA, August 2006

In 2007, Sumatra and Kalimantan continued to account for 99% of Indonesia's Resource Base. Today, Sumatra is now estimated to hold a larger share of total resources with the bulk of those new resources being hypothetical resources.

2007 Resources by Category
(Million Tonnes)
(unclear whether tonnes are "ar" or "ad")

Province	Hypothetical	Inferred	Indicated	Measured	Total	% of Total
Sumatra	20,148	13,949	10,735	7,699	52,532	56%
Kalimantan	3,389	21,029	2,894	13,156	40,468	43%
Other	96	220	33	55	403	1%
Total	23,633	35,198	13,662	20,910	93,403	100.0%

Source: Indonesian Coal Book, 2008/2009, ICMA, July 2008

Indonesia's Coal Resources by Province, 2009

Province	Resource Category				
	Hypothetical	Inferred	Indicated	Measured	Total
Sumatra	20,154	13,949	10,634	7,699	52,437
Java	5	7	-	2	14
Kalimantan	14,378	18,051	5,137	14,536	52,101
Sulawesi	-	147	33	53	233
Maluku	2	-	-	-	2
Papua	89	64	-	-	153
TOTAL	**34,628**	**32,218**	**15,804**	**22,290**	**104,940**

Source: Indonesian Coal Book, 2010/2011