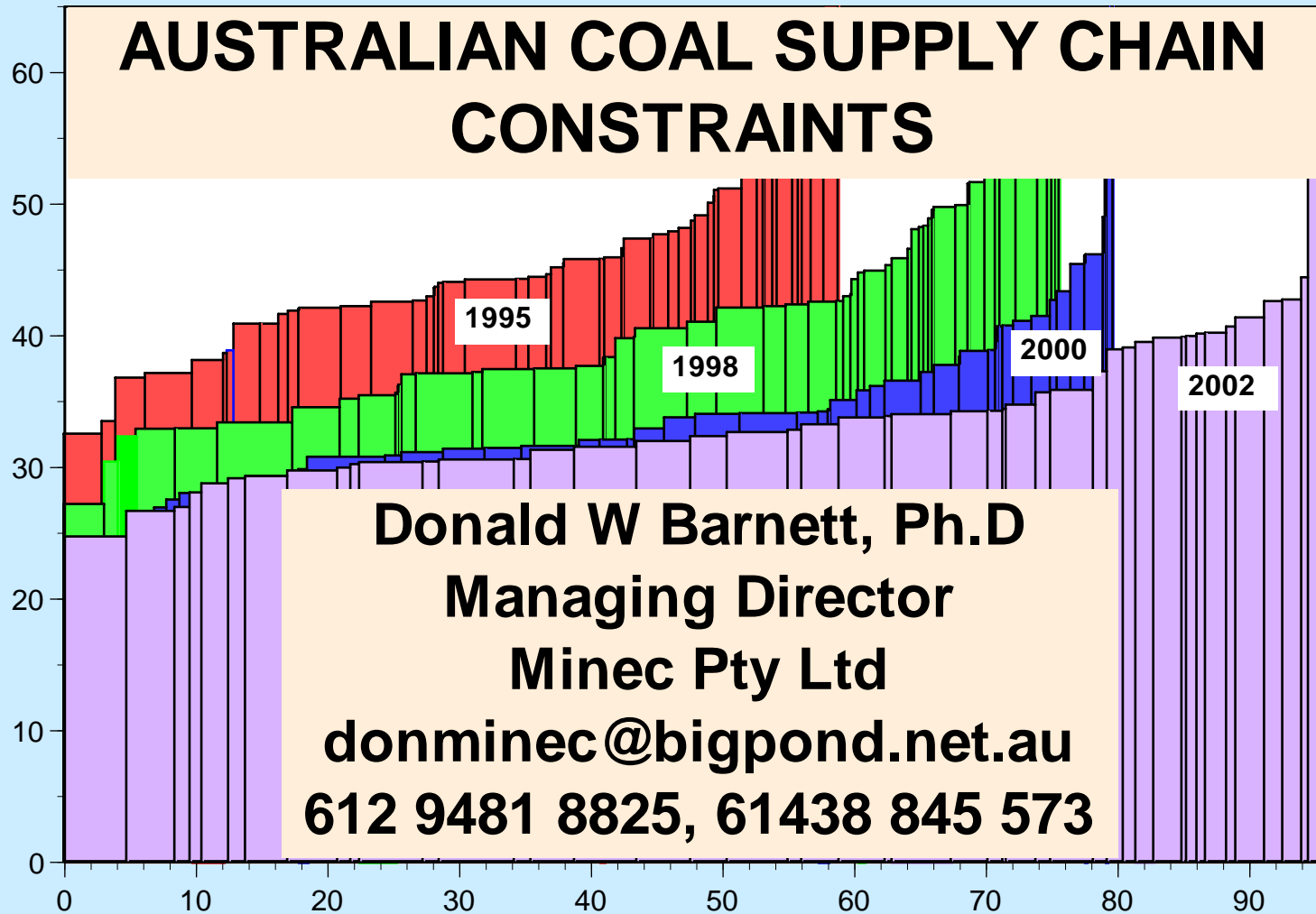


AUSTRALIAN COAL SUPPLY CHAIN CONSTRAINTS



Donald W Barnett, Ph.D
Managing Director
Minec Pty Ltd
donminec@bigpond.net.au
612 9481 8825, 61438 845 573

Contents

Study of 4 Mines' Cost Changes, June.03–June.09

- MCC's View of Mine Costs June 08
- NSW & Qld old & new rail-ports
- New Qld Ports Expensive, NSW OK
- Outlook: HCC OK?, New mines?? -
if A\$ strong, new infrastructure
costs, Carbon Taxes & take-or-pay.

Fig.3 Company Saleable Production, Mil. Tonnes

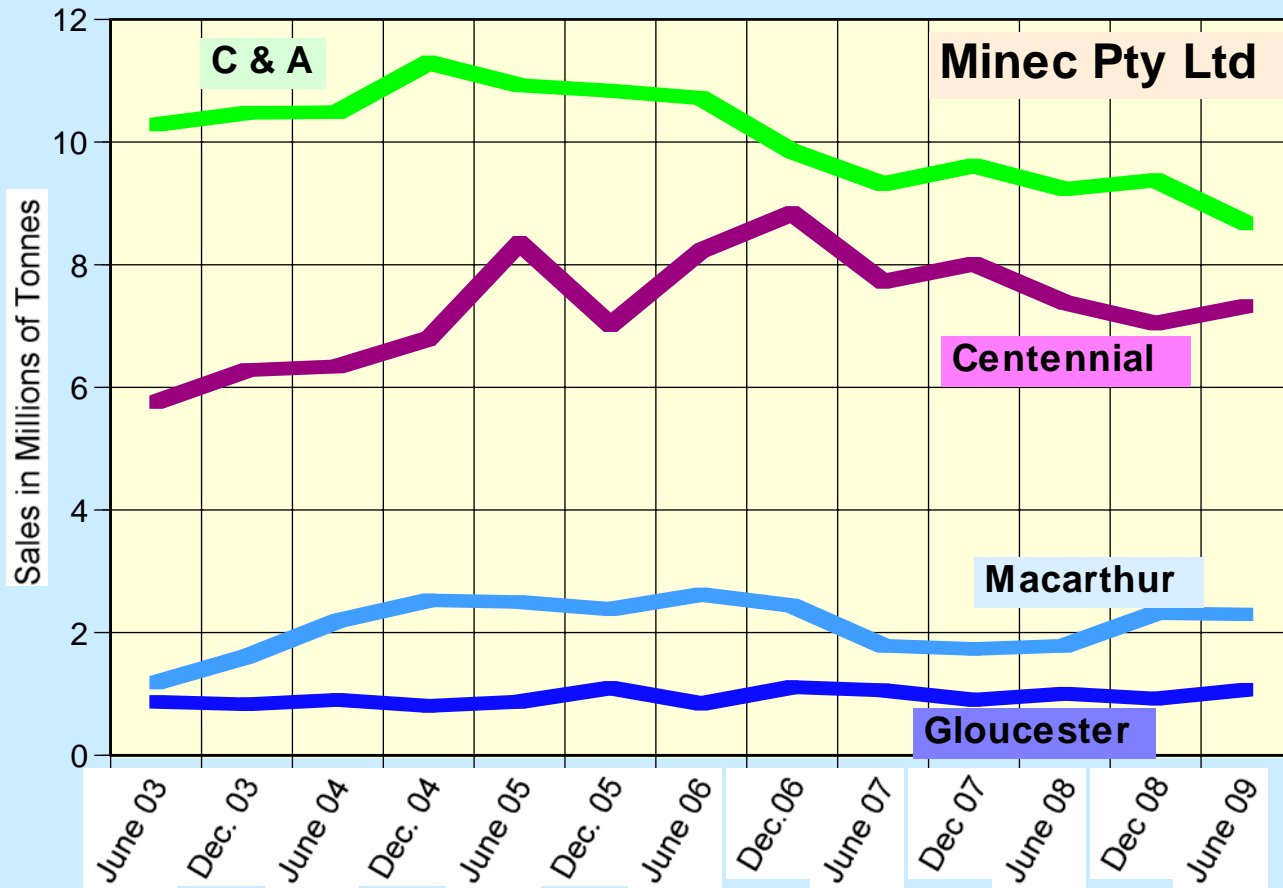


Fig.4 Coal & Allied FOB Cash Costs by Cost Centre

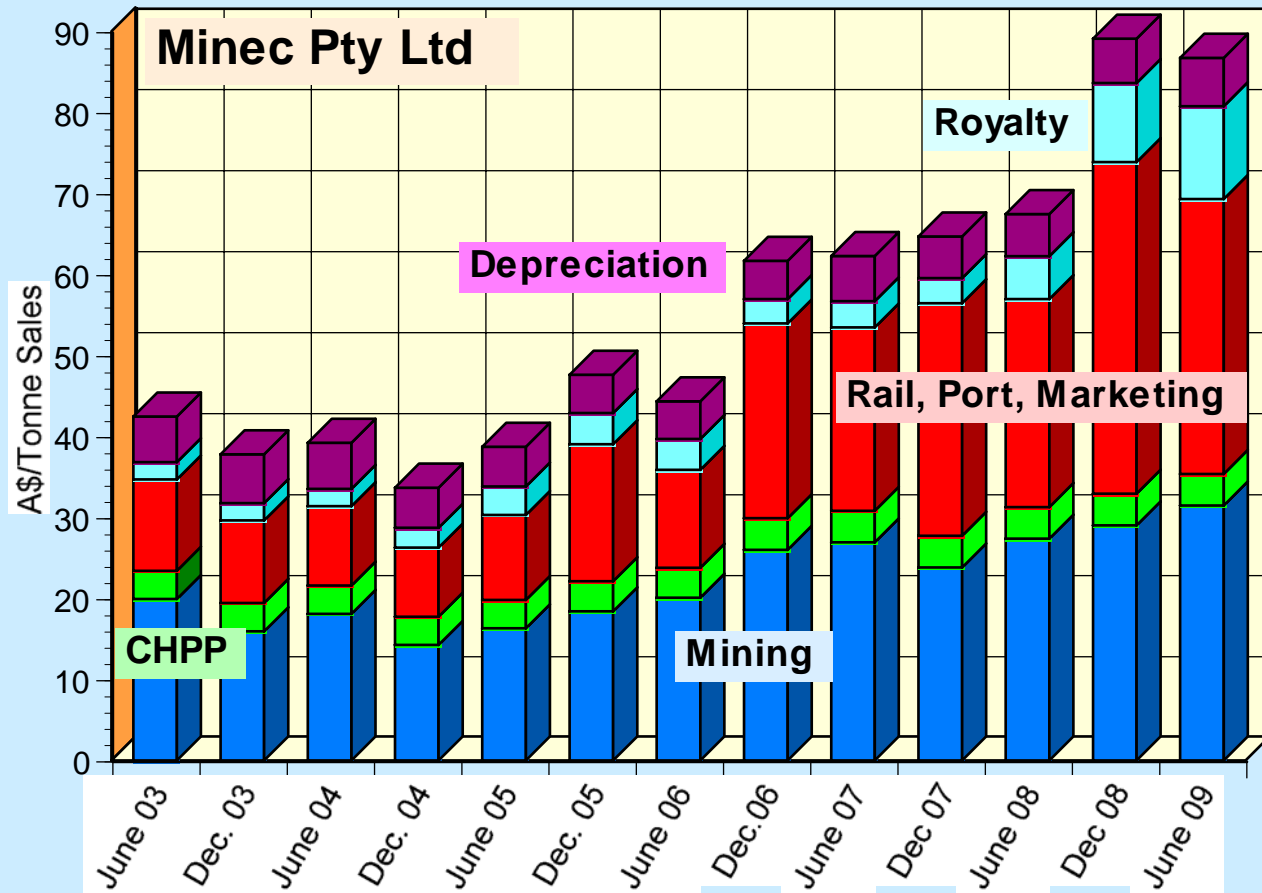


Fig.5 Gloucester FOB Cash Costs by Cost Centre

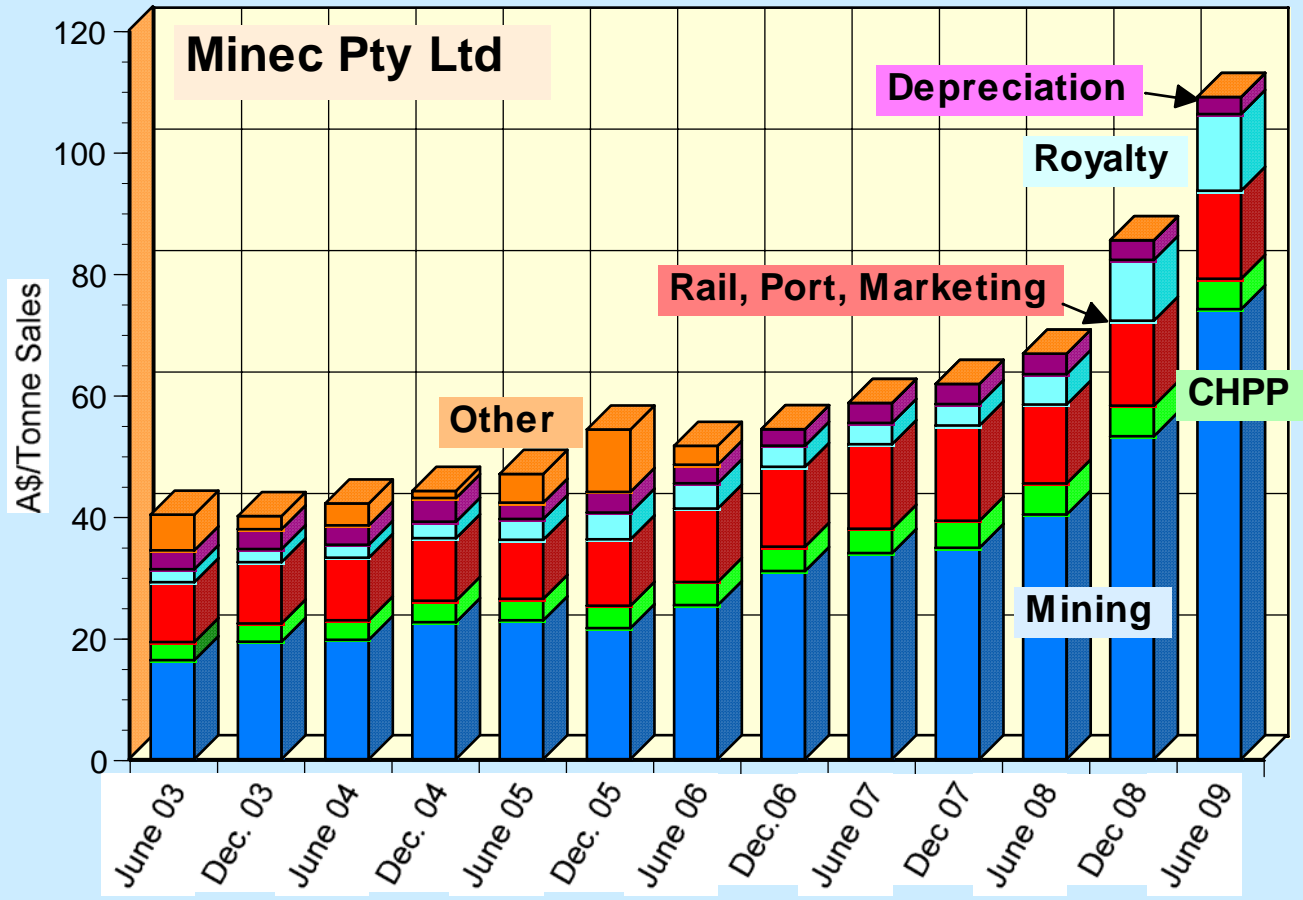


Fig.6 Macarthur FOB Cash Costs by Cost Centre

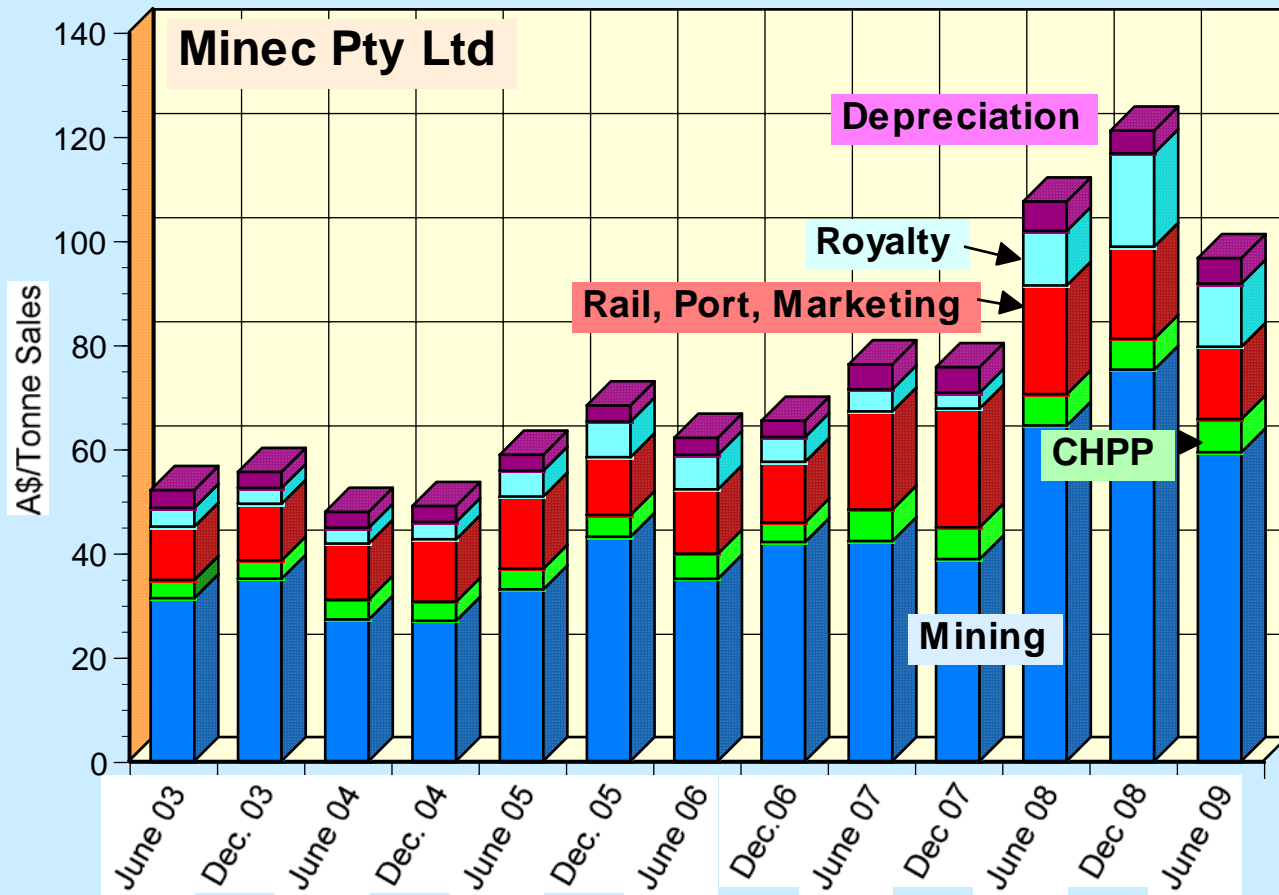
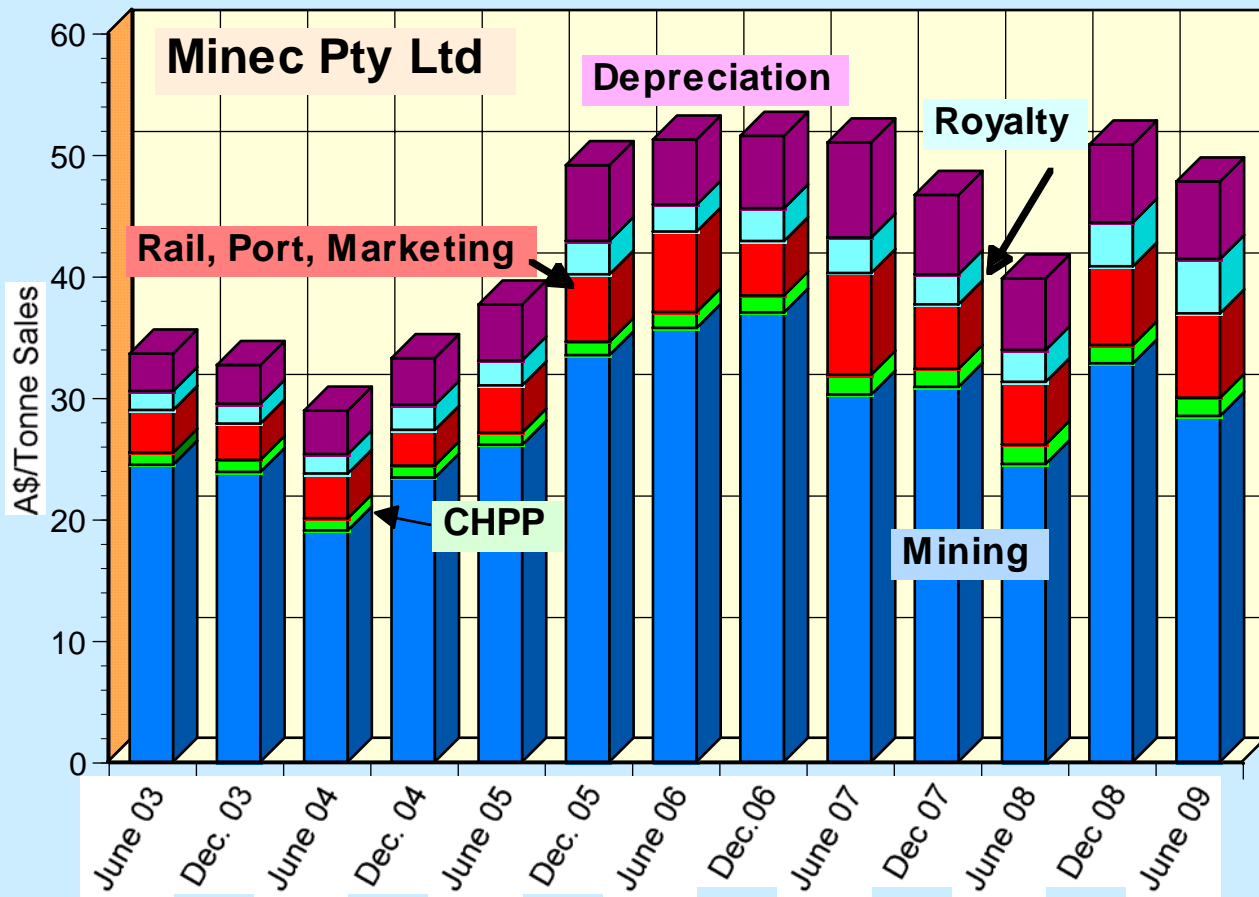
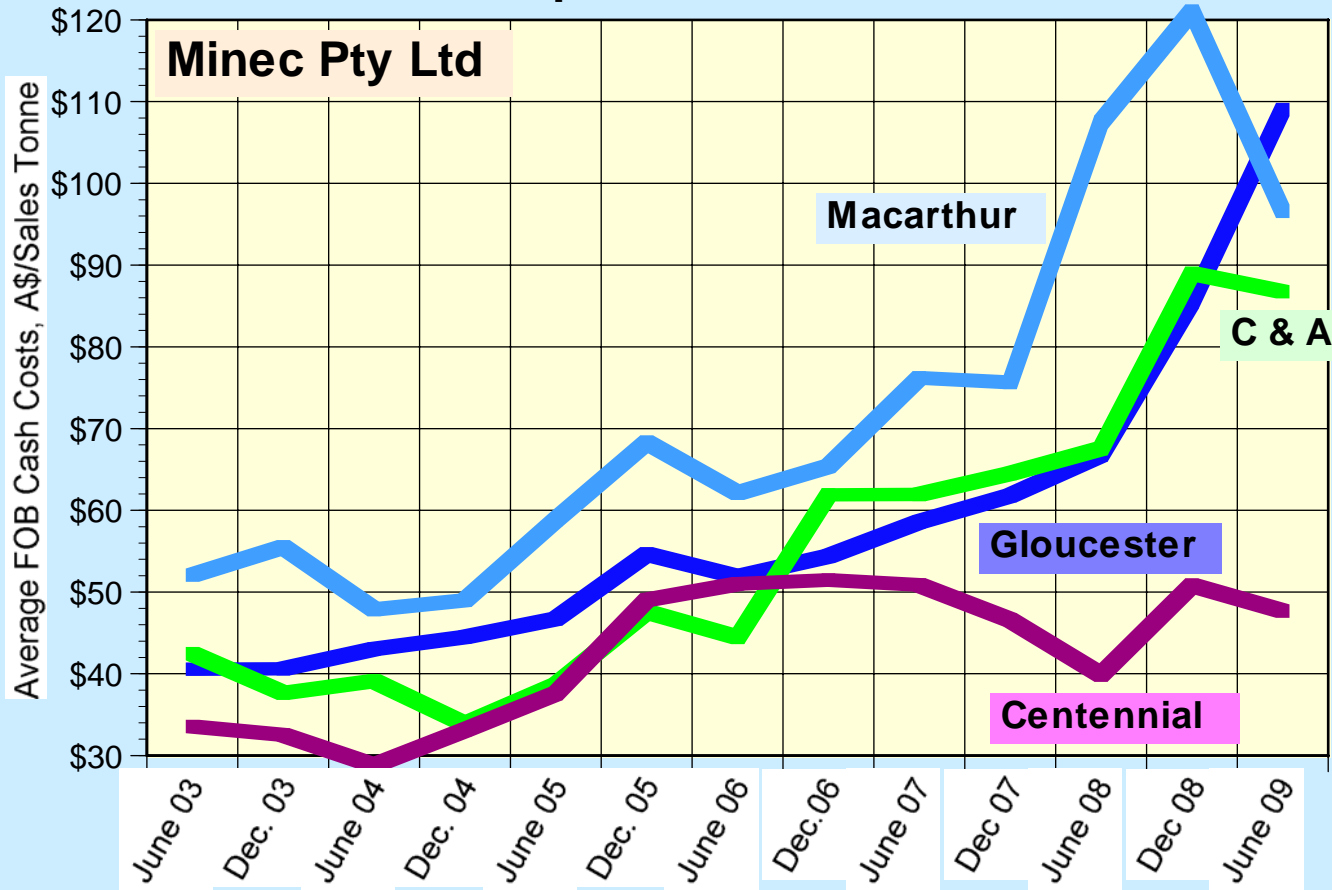


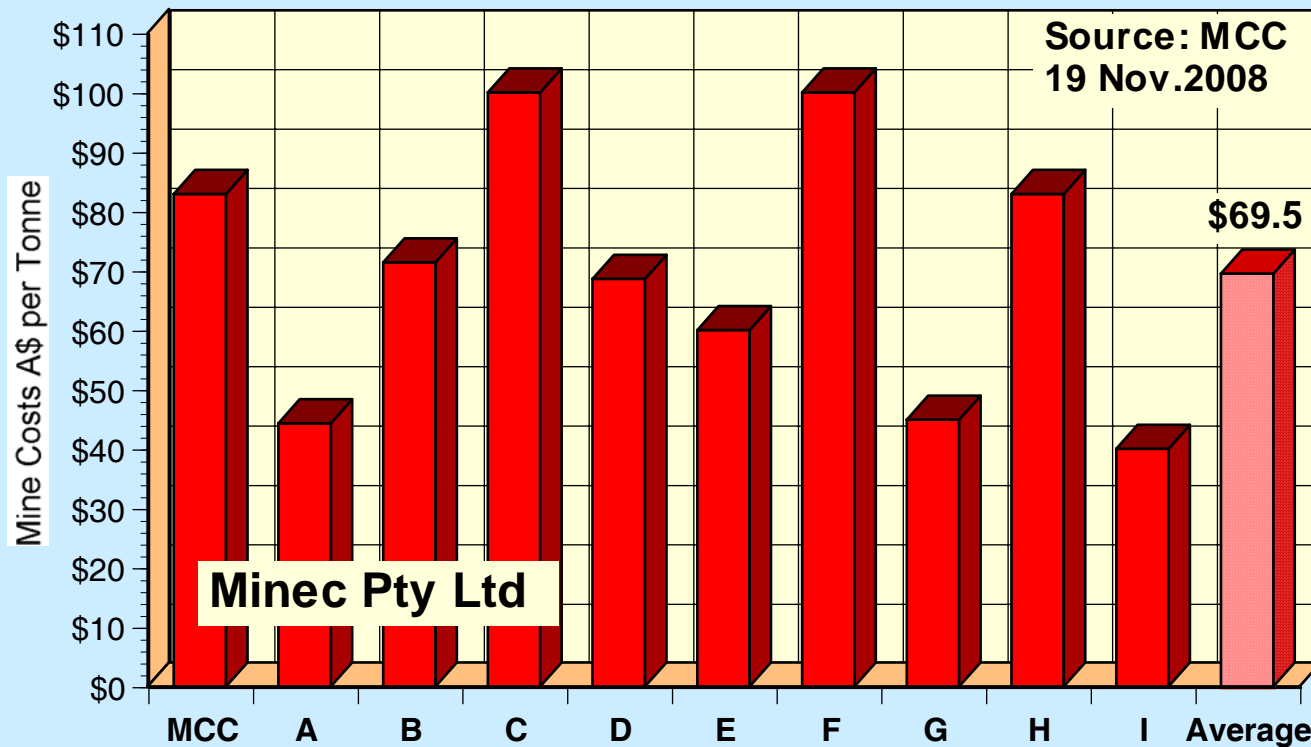
Fig.7 Centennial FOB Cash Costs by Cost Centre



**Fig.8 Average FOB Cash Costs Incl. Depreciation,
\$A per Saleable Tonne**



**Fig.9 Australian Coal Mine Costs June Half 2008,
A\$ per Tonne**



Average Cost Movements

- Minec's 4 Cos. June03-June09: 100%
- Minec's 3 Xpt Cos Jun03-June09:120%
- Centennial Coal June 03-June 09: 42%
- MCC's costs @June 08: HCC A\$100 fob,
Export Steam coal A\$60-70 fob,
Domestic steam coal A\$40-45.

Fig.11 Australian Coal Exports to 2007/08 and Possible Coal Terminal Capacity 2008 to 2023

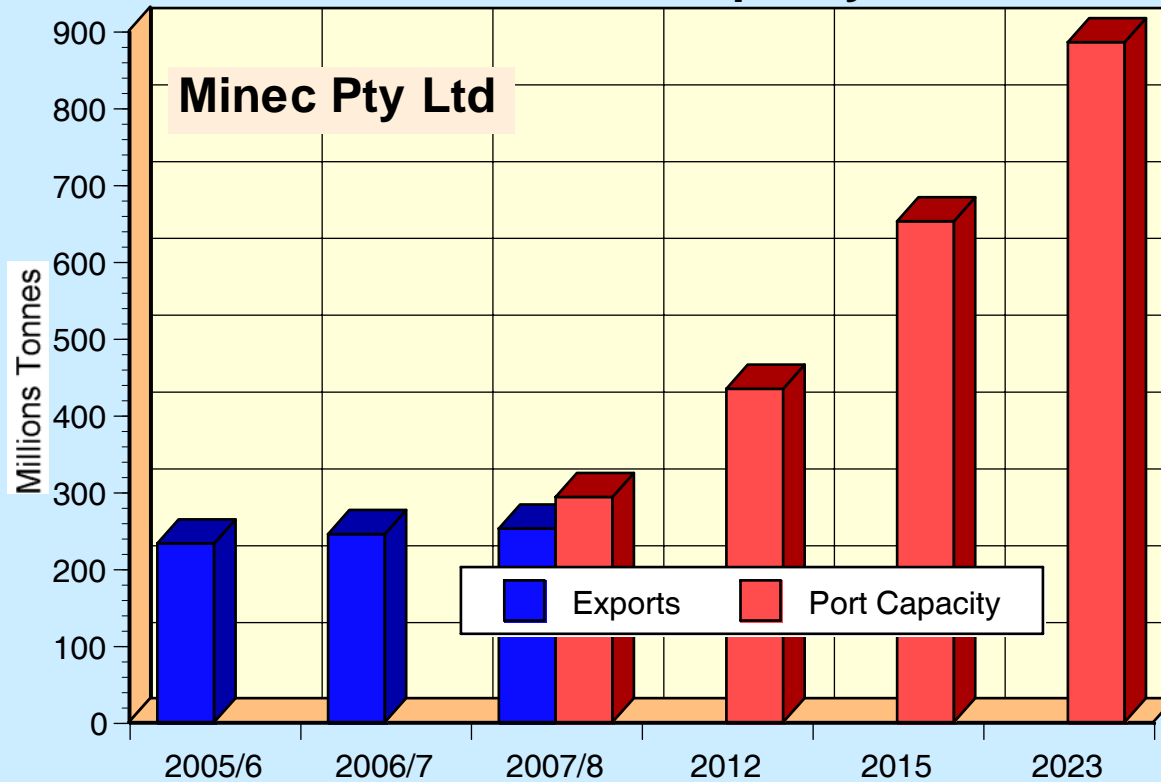
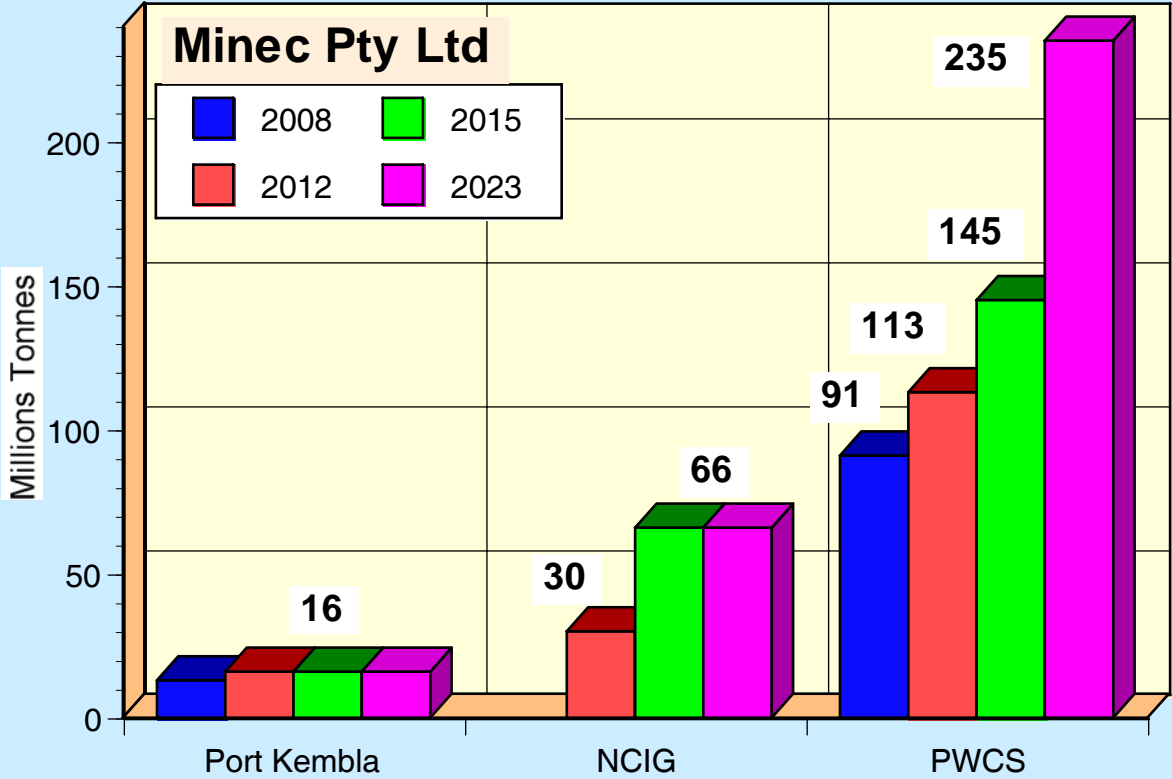
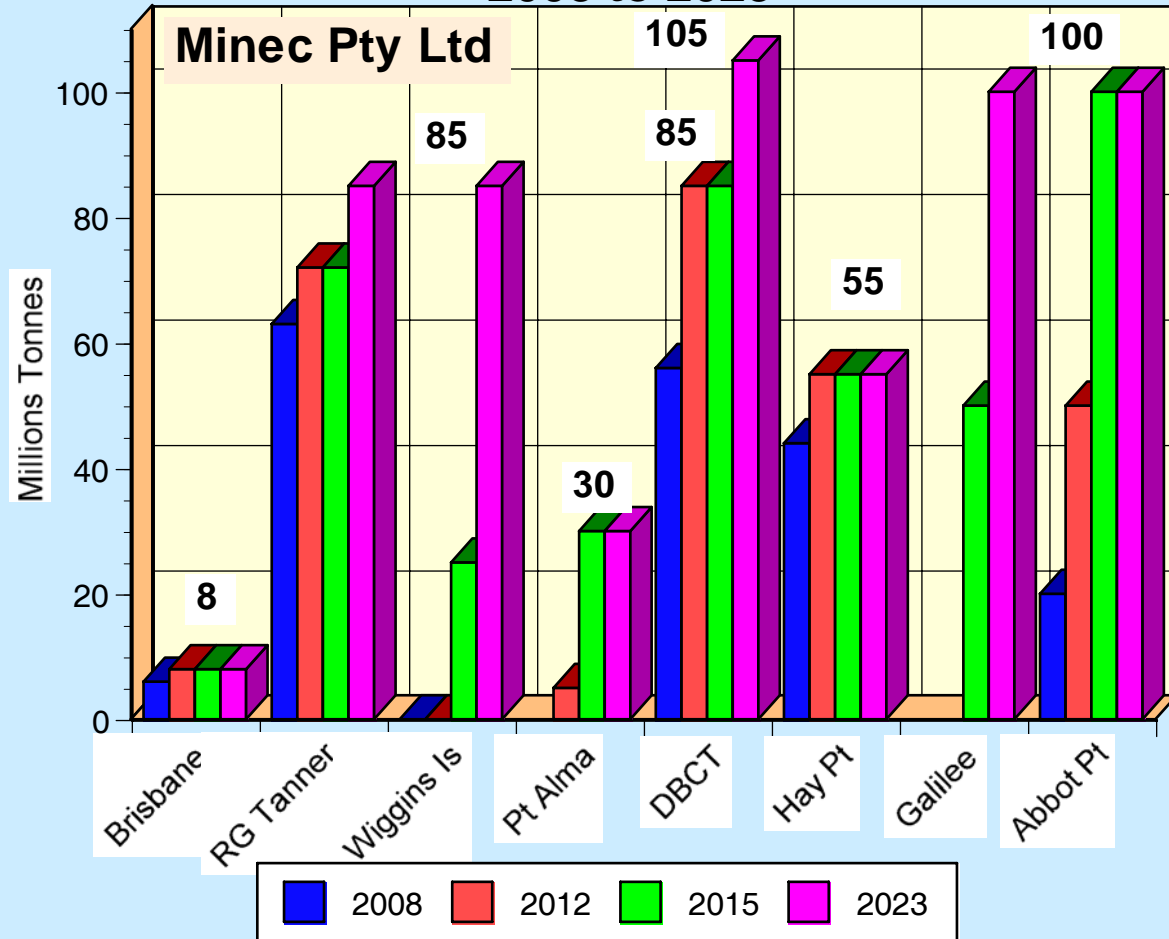


Fig. 12 NSW Possible Coal Terminal Capacity; 2008 to Post 2023



**Fig. 13 Qld Possible Coal Terminal Capacity;
2008 to 2023**





OPFRONS - ZOOM IN - SEPT 08/14

5/05/2014

14

Fig. 14 Port and Rail Charges for NSW Systems, 2008 to 2023

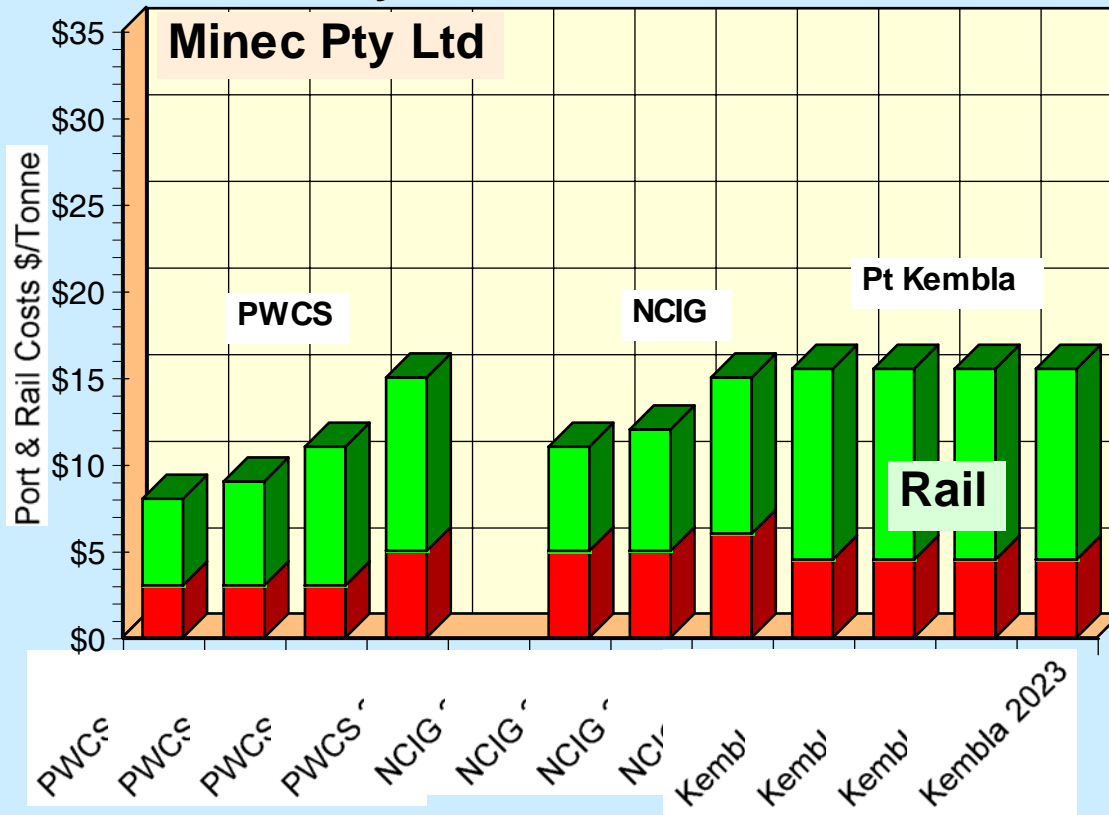


Fig. 15 Port and Rail Charges for Old QLD Systems, 2008 to 2023

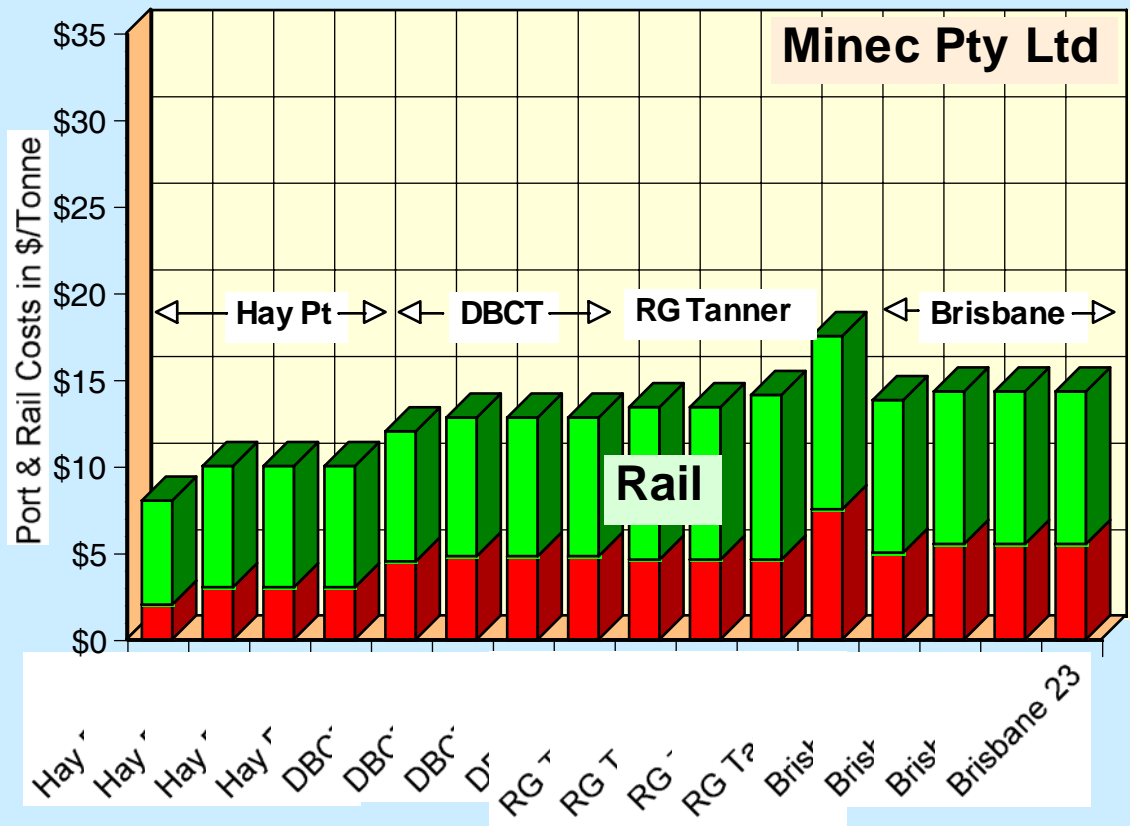


Fig. 16 Port and Rail Charges for New QLD Systems, 2008 to 2023

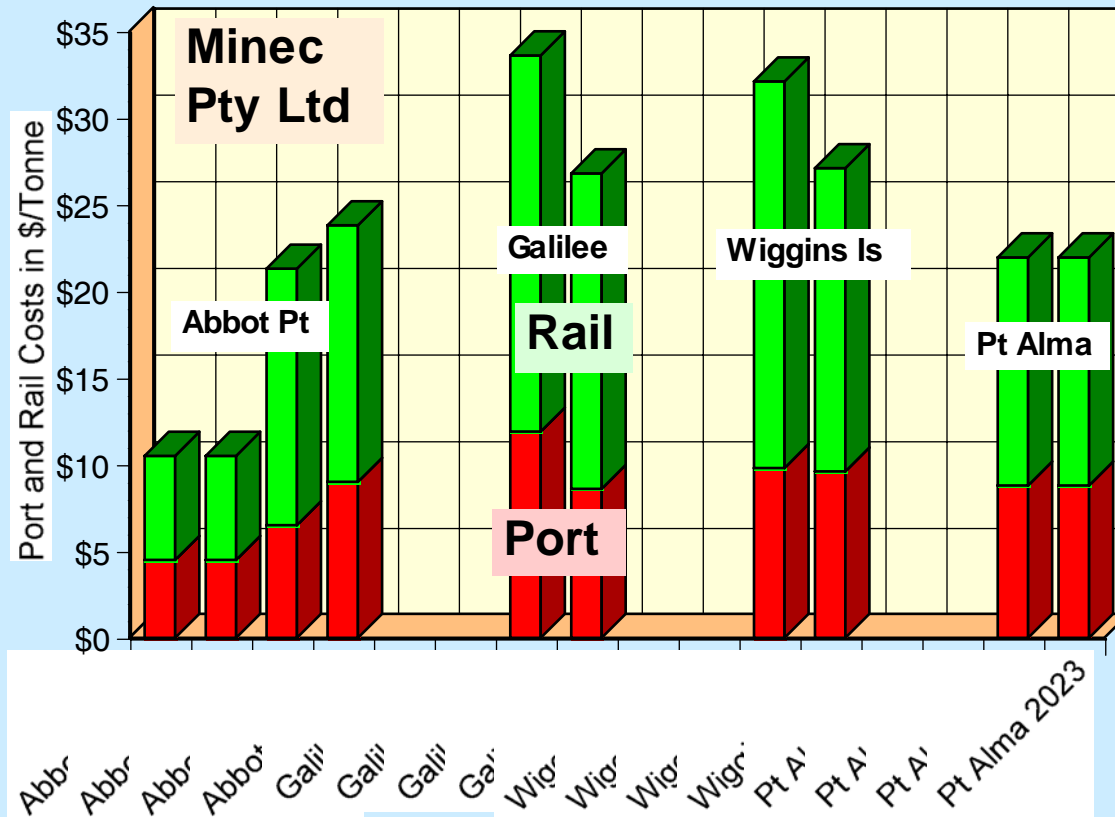
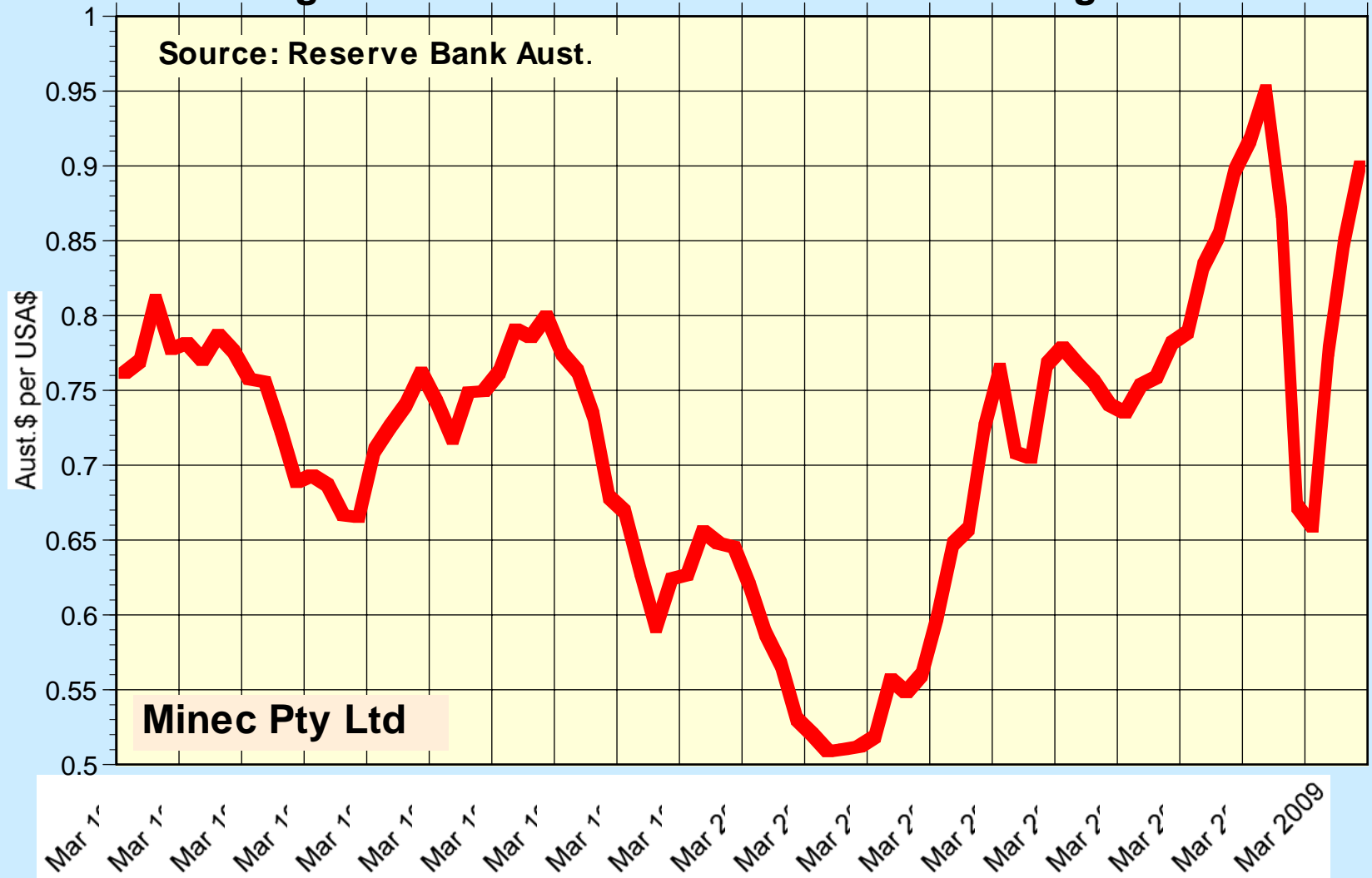


Fig. Australian Dollar - USA Dollar Exchange Rate

Source: Reserve Bank Aust.

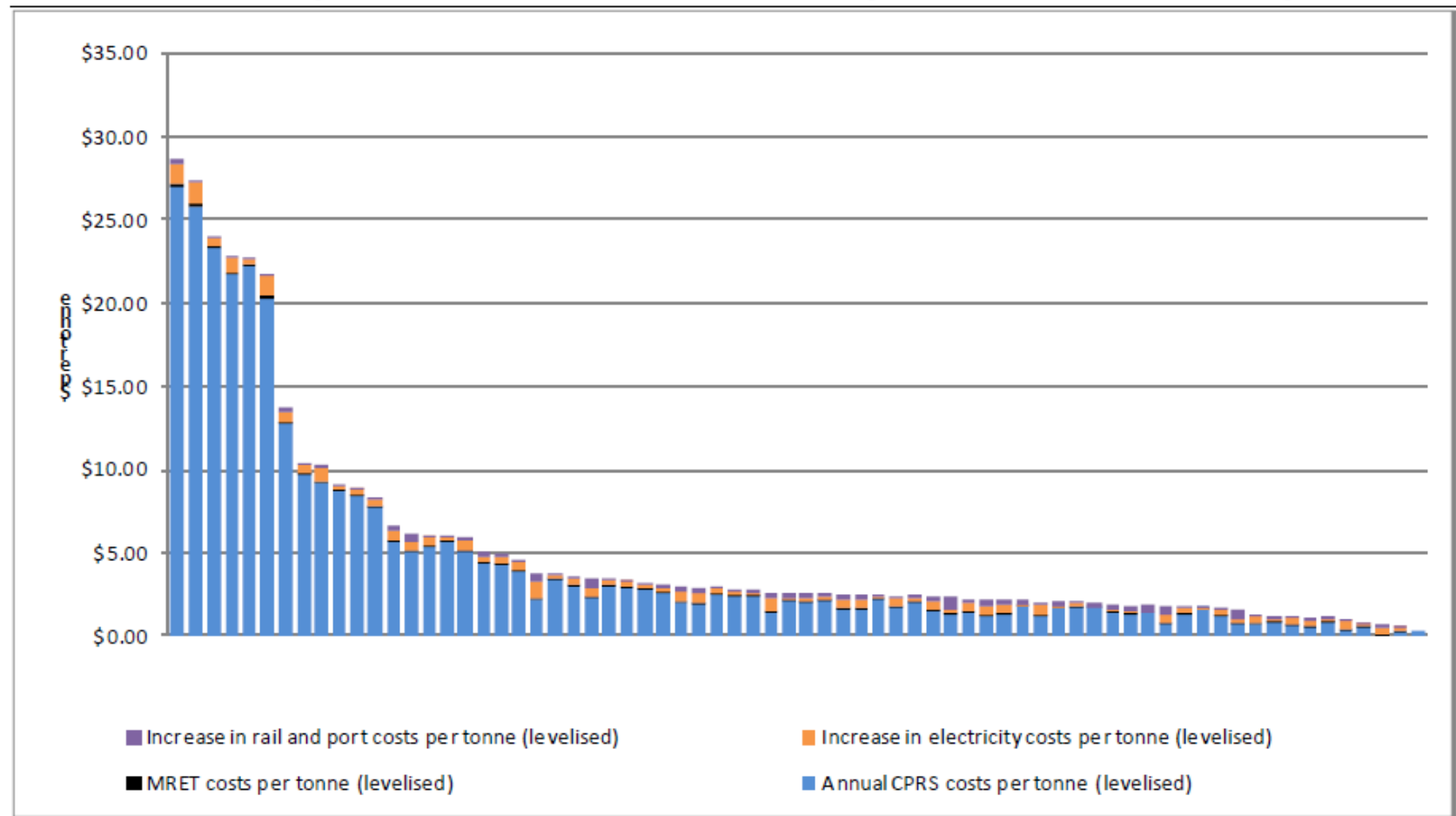


Is there a Cost Price Squeeze?

Existing Mines - No Carbon Taxes

	Steam, US\$72	Hard Coking US\$128
Exchange Rate US\$/A\$	Margin: After Cash Costs + Depreciatn	Margin: After Cash Costs + Depreciatn
US\$0.60	A\$55	A\$115
US\$0.80	A\$25	A\$60
US\$0.95	A\$10	A\$35

Figure 4 Mine by Mine Levelised Increased Costs/Tonne from Emissions Pricing and RET before Coal Sector Adjustment Assistance – Reference Case (timeframe to 2026, 2008-09 \$)



Data source: ACIL Tasman research

Average Increased A\$ Costs/Tonne from Greenhouse Emissions Pricing

- 6 highest mines: A\$24.25/tonne
- 15 highest mines: A\$14.9/tonne
- 20 highest mines: A\$12.3/tonne
- All 70 mine average: A\$5.0/tonne

Add Carbon Tax of A\$12.3/t (av. for 20 highest emitting mines)

Tax Aver. \$12/tonne	Steam Coal; US\$72/t	Hard Coking US\$128/t
Exchange Rate US\$/A\$	Margin: After Cash, Depn & Carbon Tax	Margin: After Cash, Depn & Carbon Tax
US\$0.60	A\$42.7	A\$102.7
US\$0.80	A\$12.7	A\$47.7
US\$0.95	-A\$2.3	A\$22.7

Is there a Cost Price Squeeze?

- Not for non-gassy HCC opencut producer
- UG gassy HCC mines not economic
- For existing thermal producers very tough if exchange rate near parity
- New thermal producer requiring access to new rail-port systems vulnerable >US\$0.7
- New Thermal, Semi soft & PCI mines incl. carbon taxes NEED HIGHER prices
- If A\$ high + Carbon tax: New HCC needing new rail/port, after full capital, uneconomic at price of US\$128; NEED HIGHER prices

Aust.Coal Supply Chain Constraints

- Recent past: lack of port & rail capacity
- Now – Existing system: lack of under track and train capacity in Qld & NSW, and to lesser extent, Qld mine capacity.
- Future: Qld: lack of rail & port capacity from Surat and Galilee Basins; NSW: lack of under track south of Gunnedah, lack of train and port capacity for Greater Hunter Valley.
- New mine costs high + Carbon taxes.
- New 10yr rolling take-or-pay rail & port increases financial risk to mines.