

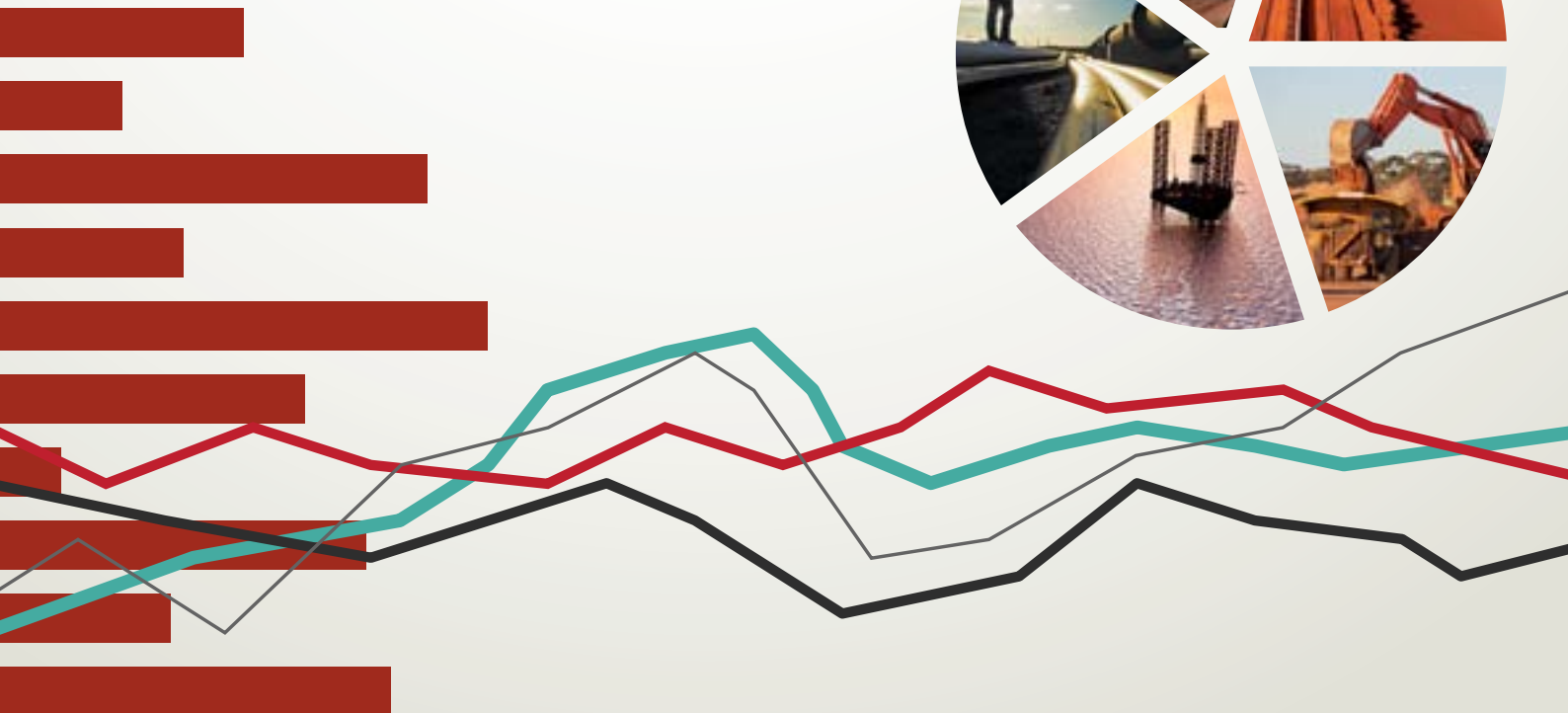


Government of **Western Australia**
Department of **Mines and Petroleum**

WESTERN AUSTRALIA
MINERAL AND PETROLEUM

STATISTICS DIGEST

2013



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The value of Western Australia's mineral and petroleum sector in 2013 reached a new record of \$113.8 billion. This was 15 per cent above 2012. This is a strong outcome given weakened commodity prices and the strength of the Australian dollar through the first five months of 2013.

For more than two years, since December 2010, the Australian dollar has been at or above parity with the US dollar. Since reverting to historical patterns in May 2013, the lower value of the Australian dollar has helped shield producers from lower commodity prices.

The mineral sector is dominated by iron ore and gold. Together they accounted for \$76.8 billion (or 86 per cent) of all mineral sales in 2013.

Iron ore is the State's highest value commodity, accounting for \$68 billion (or 76 per cent) of total mineral sales in 2013. With strong demand from China, the iron ore sector achieved a record 556 million tonnes in exports, an increase of 16 per cent over the previous calendar year. This growth, combined with the weaker Australian dollar and the comparatively high prices achieved by exporters, resulted in a total iron ore sales value increase of 29 per cent.

In 2013 the gold price was on average 16 per cent lower in US dollar terms compared to 2012. Therefore, while output increased slightly by nearly three per cent, total gold sales fell by seven per cent to \$8.7 billion for 2013.

The petroleum sector, which includes crude oil, condensate, LNG, natural gas and LPG (butane and propane), was valued at a record \$24.7 billion, rising marginally by one per cent compared to 2012. This increase was primarily due to the Pluto LNG facility coming on-stream, which countered falls in the sales values of crude oil and LPG.

The dominance of the resources sector in the nation's economy is expected to continue given the number of projects which have been expanded or developed, in particular iron ore and LNG. However, new capital expenditure levels in the State's resources industry are relatively lower now as major projects transition from their construction phase to an operational phase. Recent falls in US dollar commodity prices have also caused some mining companies to re-evaluate their investment positions.

The average commodity price movements, in both US and Australian dollar terms, for the 2013 calendar year are shown here:

Commodity	US\$	A\$
Lead	UP 4%	UP 11%
Iron Ore Fines China	UP 3%	UP 10%
Crude Oil	DOWN 1%	UP 6%
Alumina	DOWN 2%	UP 3%
Zinc	DOWN 2%	UP 5%
Cobalt	DOWN 7%	STABLE
Copper	DOWN 8%	DOWN 1%
Nickel	DOWN 14%	DOWN 8%
Gold	DOWN 16%	DOWN 10%

2013 highlights

Iron ore is the State's most valuable resource sector, dominating the mining industry and accounting for \$68 billion (76 per cent) of the mineral sector's total sales. Continuing strong demand for iron ore saw the quantity sold in 2013 increase by 16 per cent to 556 million tonnes. This, combined with the higher prices achieved through a lower Australian dollar, meant that total sales value rose by 29 per cent.

Gold was the second most valuable mineral commodity, with total sales of \$8.7 billion, representing 10 per cent of total mineral sales. The average gold price in 2013 was down by 16 per cent in US dollar terms. This contributed to a decrease of seven per cent in the sales value compared to the previous calendar year, despite increased output of almost three per cent.

Alumina and nickel maintained their long-held positions as the State's third and fourth most valuable sectors respectively. In 2013 the total volume of nickel sold dropped by four per cent to 223 thousand tonnes. Combined with lower prices, this resulted in a 10 per cent decrease in total nickel sales value to \$3.4 billion. In contrast, the total value of alumina increased by nearly 13 per cent to \$4.1 billion, supported by a six per cent increase in quantity sold.

The overall value of **base metals** (copper, lead and zinc) increased by 16 per cent to \$1.7 billion in 2013. This increase was due to the recommencement of shipments from the Paroo Station lead project (near Wiluna) and the ramping-up of Sandfire's DeGrussa-Doolgunna copper-gold project. By far the most significant base metal was copper, with a total sales value in 2013 of \$1.5 billion. This was up by 11 per cent compared to 2012. Sales of lead increased sharply to just under \$118 million. However, zinc sales output fell by 16 per cent, with total value of sales falling by 15 per cent from \$107 million in 2012 to \$91 million in 2013.

The total value of **mineral sands** sales fell by 36 per cent to \$619 million.

This was due to lower sale volumes of ilmenite and synthetic rutile in combination with weak prices.

The value of **salt** sales rose by around 14 per cent to \$415 million, supported by a marginal increase in sales volume of three per cent to 12.9 million tonnes.

In 2013 **diamond** sales volumes rebounded by eight per cent to 10.7 million carats due to increased tonnages and higher grades from the Argyle underground mine.

While **coal** prices remained static, the total output and sales value decreased by around three per cent to reach seven million tonnes and \$296 million respectively.

Output of **cobalt**, as a by-product of nickel mining, increased by nine per cent to 6,398 tonnes and resulted in a 14 per cent increase in sales value, which reached \$177 million for the period.

Petroleum comprises crude oil, condensate, LNG, natural gas and LPG (butane and propane). Valued at a record \$24.7 billion in 2013, it is the second most valuable sector after iron ore. The total sales value of petroleum in 2013 represented only a slight increase of one per cent compared to the previous year. This increase was due to Pluto LNG coming onstream, which countered falls in the sales volumes and total values of crude oil and LPG.

LNG was the most valuable petroleum product in the State in 2013, with output increasing by five per cent to a record 19.2 million tonnes. The value of LNG sales increased to \$13.3 billion, up nearly 18 per cent compared to the previous calendar year. LNG remains

second only to iron ore in terms of value to the State. Production is forecast to grow in the period ahead due to increased demand from Asia and supply from new projects including Wheatstone and Gorgon.

Production of **crude oil**, the second most valuable petroleum product in 2013, decreased by almost 31 per cent to 43.6 million barrels, with the total value falling to \$5.1 billion. Crude oil output is continuing its downward trend due to maturing fields.

The value of **condensate** increased by seven per cent to \$4.1 billion with output almost static at 37.5 million barrels.

In 2013 domestic **natural gas** sales remained relatively constant at nine billion cubic metres whilst the value of sales rose by more than three per cent to \$1.5 billion. Output of **LPG (butane and propane)** fell by 15 per cent and the sales value also fell, to \$600 million, which was down 18 per cent on the previous calendar year.

The **other** category, which includes vanadium, rare earths, manganese and industrial minerals, reached a total sales value of \$1 billion for the period.

Western Australia's mineral and petroleum resources for 2013 are summarised below.

Commodity	\$A Billion
Iron Ore	68.0
LNG	13.3
Crude Oil and Condensate	9.3
Gold	8.7
Alumina	4.1
Nickel	3.4
Others	7.0
TOTAL	113.8

TABLE 1. QUICK RESOURCES FACTS

All data is for the 2013 calendar year unless otherwise stated.

Output of minerals and energy	\$ million
Western Australia	\$113,761
Australia (DMP estimate)	\$180,000
WA minerals	\$89,082
WA petroleum	\$24,679
Major West Australian Commodities	\$ million
Iron Ore	\$68,071
Petroleum	\$24,679
Gold	\$8,710
Alumina	\$4,117
Nickel	\$3,398
Crude Oil and Condensate	Million barrels
Western Australia	82
Australia	120
WA share	69%
Natural Gas (inc. LNG feedstock and CSG)	Million cubic metres
Western Australia	38,106
Australia	58,534
WA share	65%
Merchandise Exports	\$ million
Western Australia	\$124,687
Australia	\$262,308
WA share	48%
WA exports of minerals and energy as % share of all State Merchandise exports	91%
Mineral and Energy Exports	\$ million
Western Australia	\$112,861
Australia (DMP estimate)	\$189,000
WA share	60%
Exploration	\$ million
Western Australian mineral	\$1,508
Australian mineral	\$2,523
WA share	60%
Western Australian petroleum	\$2,984
Australian petroleum	\$4,529
WA share	66%
Private New Capital Investment	\$ million
Western Australia	\$55,975
Australia	\$159,187
WA share	35%
Western Australian minerals and energy	\$46,754
Australian minerals and energy	\$93,905
WA share	51%
Australia GDP 2011–12	\$1,493,171
Western Australian GSP 2011–12	\$238,870
Mining component of WA GSP	37%

Data Sources: BREE, ABS, DMP, DSD, CME, NOPTA and EnergyQuest

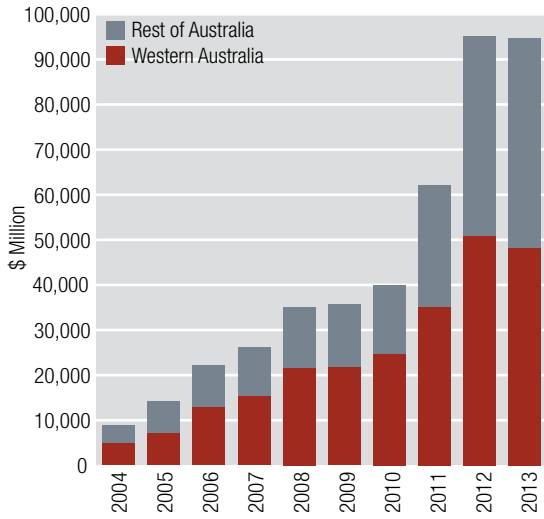


Figure 1. Mining Investment Source: ABS

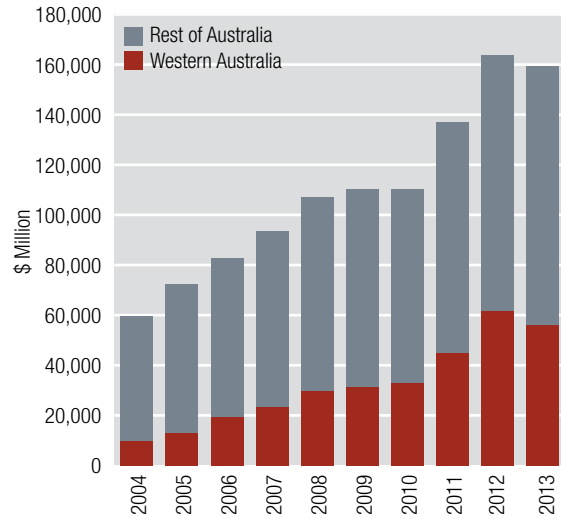


Figure 2. New Capital Investment Source: ABS

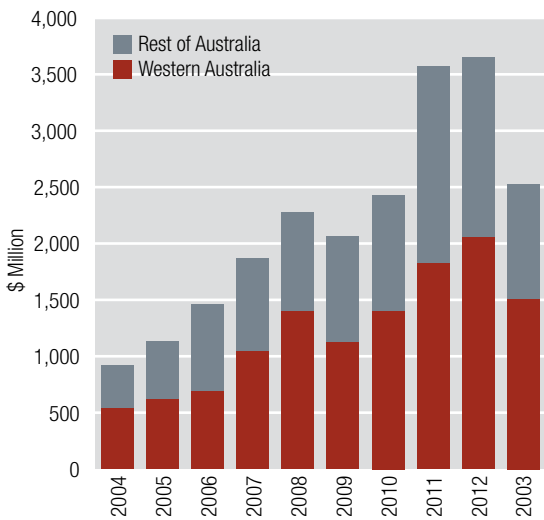


Figure 3. Mineral Exploration Expenditure Source: ABS

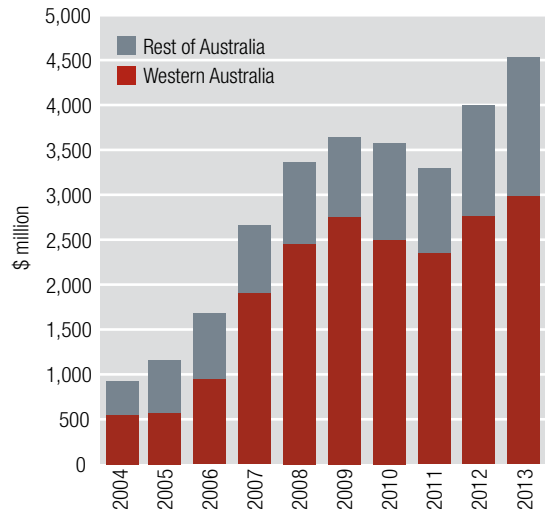


Figure 4. Petroleum Exploration Expenditure Source: ABS

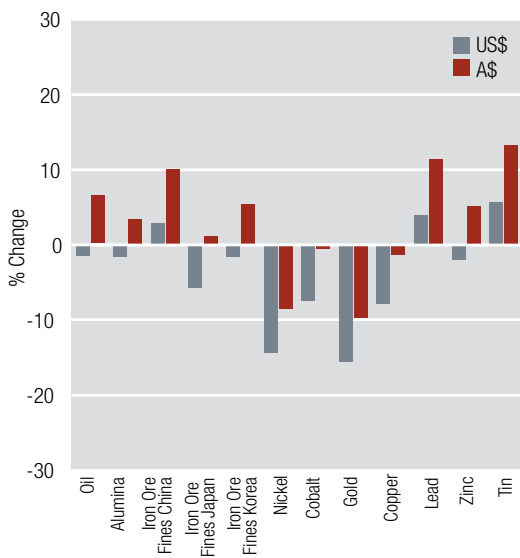


Figure 5. Average Price Comparison 2012 and 2013 Source: LME, Kitco, Metal Prices, WATC and DMP

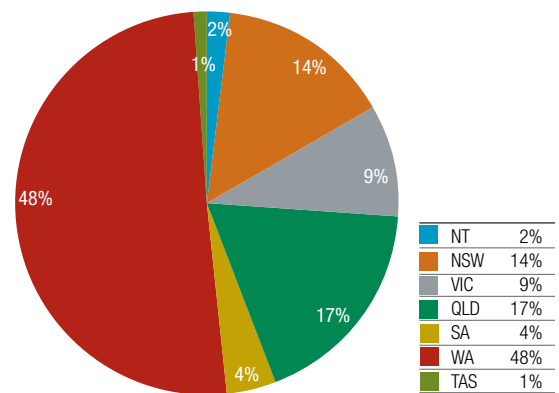


Figure 6. Australian Merchandise Exports 2013 \$262.3 billion Source: ABS
 Note: These percentages are based on data which includes \$8.5 billion of re-exported goods and of no State origin available and account for around 3% of the total.

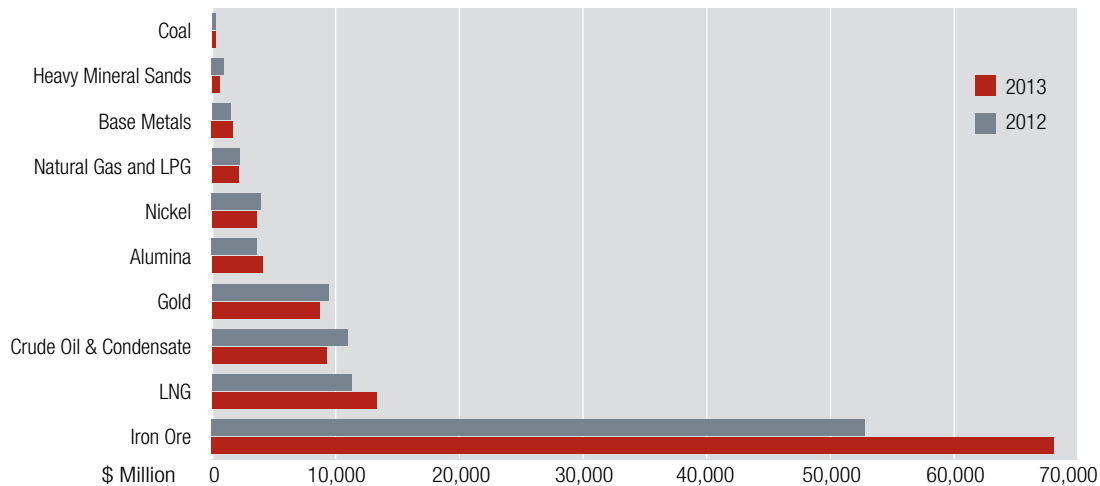


Figure 7. Major Commodities by Value 2012 and 2013 Source: DMP

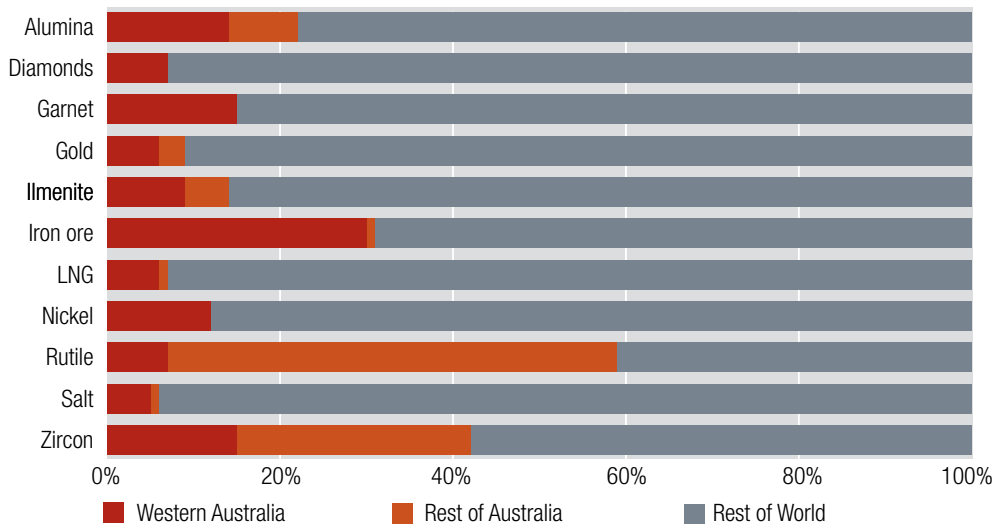


Figure 8. Selected WA Commodities Relative to World Production Ending 2013 by Quantity

Source: DMP, BREE, EnergyQuest and USGS

The latest comparable data show that the Western Australian share (by quantity) of the world's output of the following products was: alumina 14%, garnet 15%, gold 6%, ilmenite 9%, iron ore 30%, LNG (sea-borne trade) 6%, nickel 12%, rutile 7%, salt 5%, zircon 15% and 7% of diamonds (mainly industrial grade)

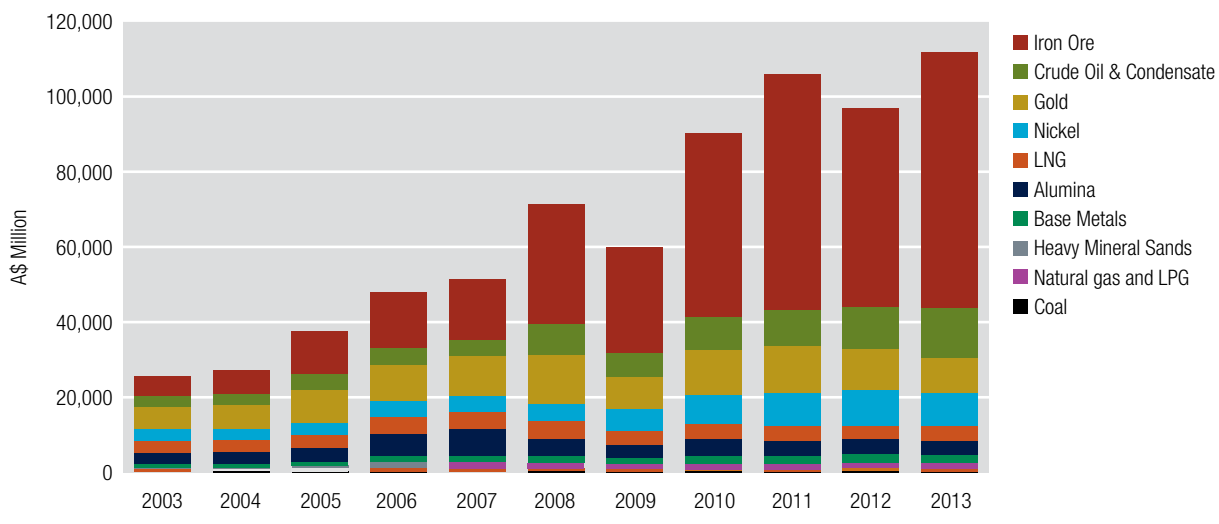


Figure 9. Value of Minerals and Petroleum by Commodity Source DMP

EXCHANGE RATES

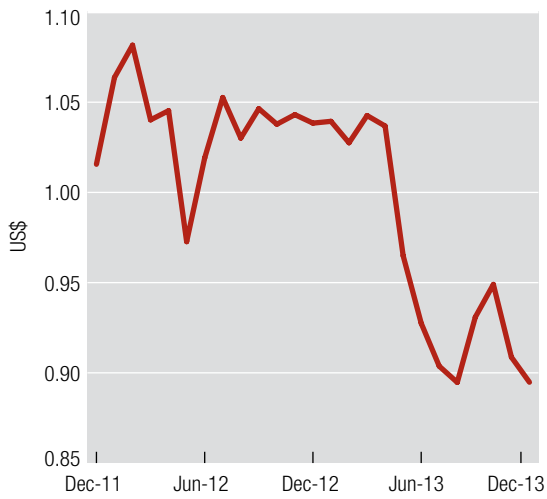


Figure 10. **Exchange Rate US\$/A\$** Source: Reserve Bank of Australia



Figure 11. **Exchange Rate Trade Weighted Index (units of foreign currency per A\$)**

Source: Reserve Bank of Australia
 Definition: "Trade weighted index" is the average value of A\$ in relation to the currencies of Australia's major trading partners.

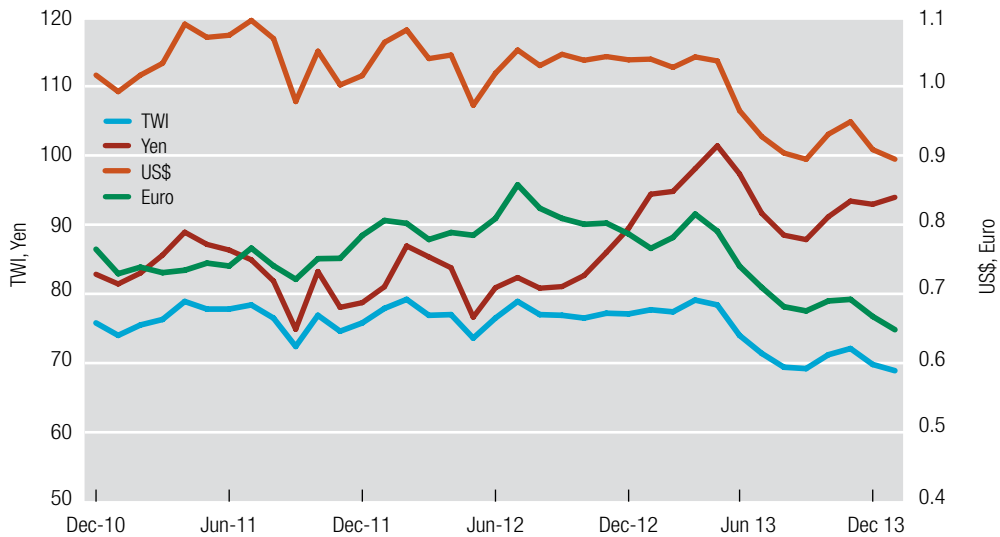


Figure 12. **Australian Dollar Exchange Rate Against Major Currencies (May 1970 = 100)**

Source: Reserve Bank of Australia

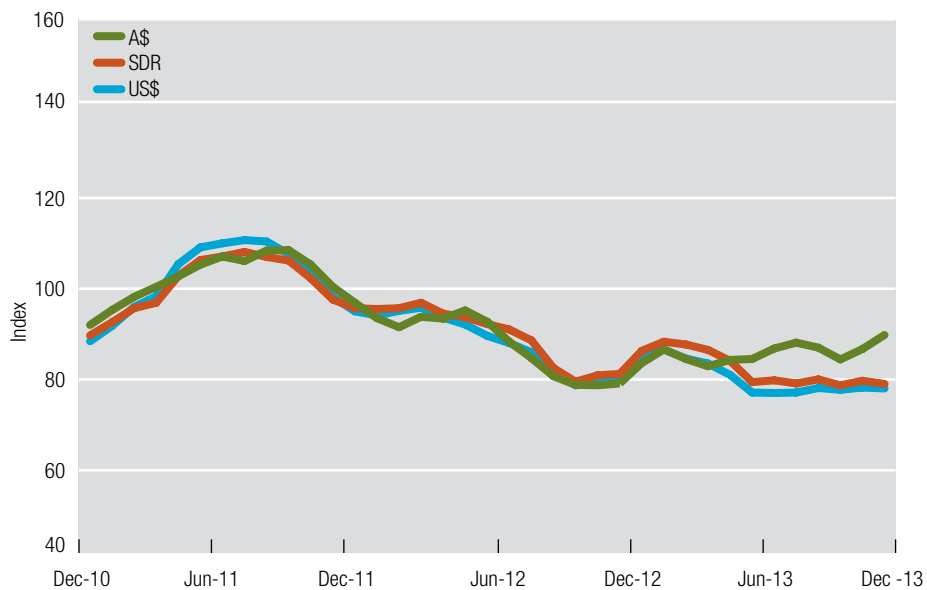


Figure 13. **Non-Rural Commodity Price Index (2011-12 = 100)** Source: Reserve Bank of Australia

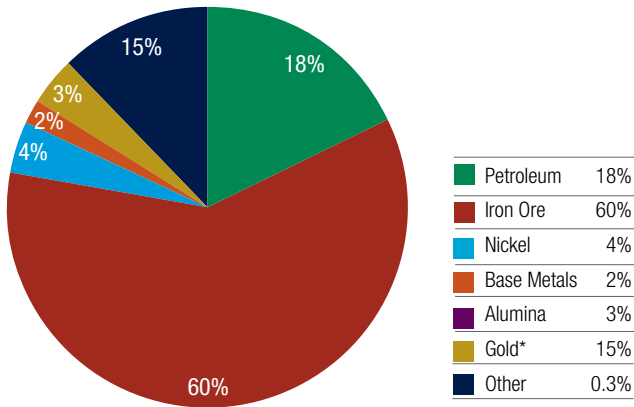


Figure 14. **Western Australian Mineral and Petroleum Exports 2013**

Total Value A\$112.9 billion Source: DMP

* Includes \$4.4 billion of gold and \$195 million of heavy mineral sands refined/processed and exported from Western Australia, but produced from mining operations in other States, Territories and overseas.

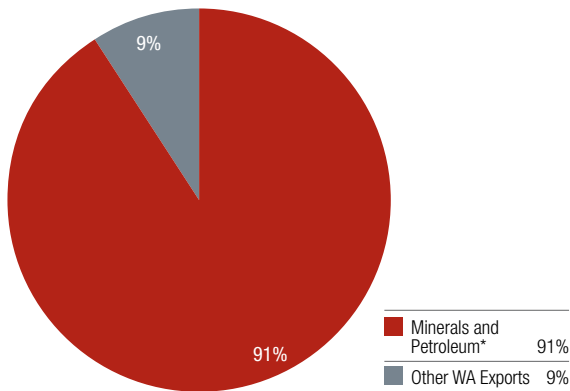


Figure 15. **Western Australian Merchandise Exports 2013**

\$124.7 billion Source: DMP and ABS

Other includes wheat, wool, wood chips, live animals, seafood, meat, pearls and other agricultural and manufactured items.

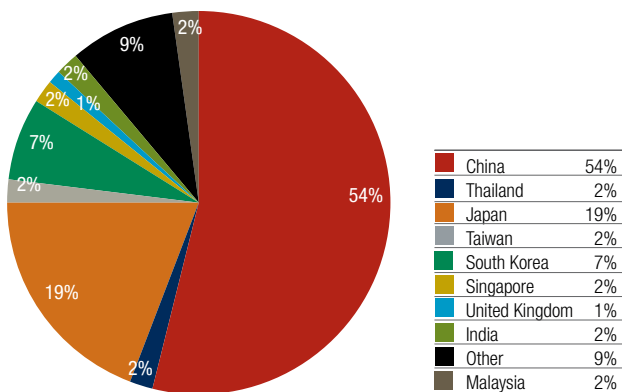


Figure 16. **Western Australian Merchandise Exports by Country 2013**

\$124.7 billion Source: ABS

Gold Export update 2013

The Australia Bureau of Statistics (ABS) release Western Australian export trade data which shows exports of gold that are significantly higher than gold produced in this State. This apparent increase in gold exports from Western Australia is due to a restructuring of Australia's gold refining industry in the late 1990's through to October 2002. Gold export data published by the ABS must therefore be interpreted with some caution.

Gold Corporation, or as it is more commonly known, The Perth Mint, operates Australia's only London Bullion Market Association (LBMA) accredited gold refinery. It refines gold produced in other States and Territories, gold from surrounding countries and also secondary gold, mainly from Asia, which is refined and exported from Western Australia.

This export figure for Western Australia is therefore larger than Western Australia's own level of gold production.

The Victorian refinery still refines silver and jewellery products.

The ABS estimates that gold exports from Western Australia in 2013 amounted to approximately \$13.4 billion. Approximately 65 per cent or \$8.7 billion was gold produced in Western Australia. The remaining 35 per cent (approximately \$4.7 billion) can be attributed to gold refined and exported from Western Australia but produced from mining operations in other States, Territories and overseas.

Overseas imported gold also includes scrap which is refined in Western Australia and exported.

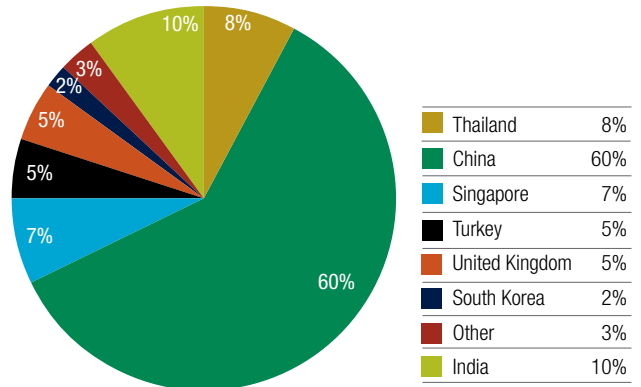


Figure 17. **Gold Exports**

Total Value \$13.4 billion Source: ABS and DMP

Note: Includes gold refined/processed and exported from Western Australia, but produced from mining operations in other States, Territories and overseas.

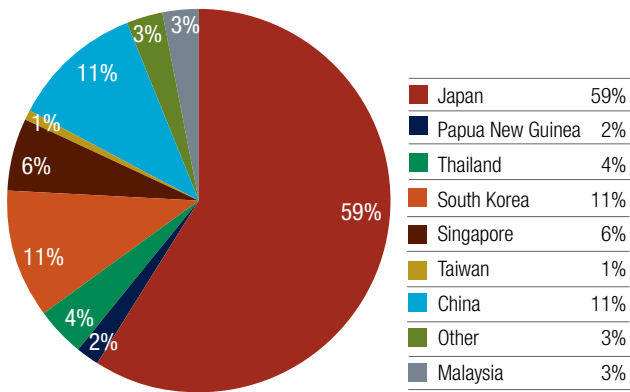


Figure 18. **Petroleum Exports**
Total Value \$20.7 billion Source: DMP and ABS

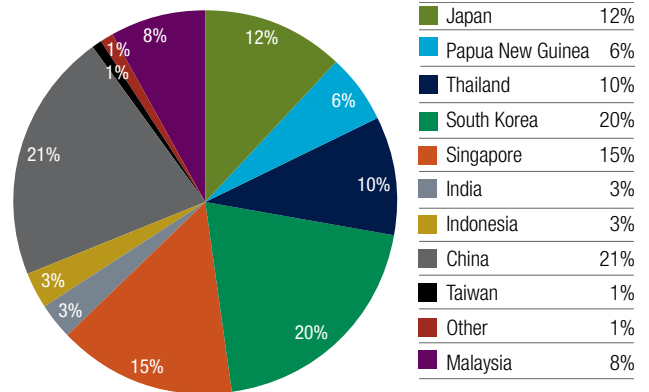


Figure 19. **Crude Oil and Condensate Exports**
Total Value \$8.4 billion Source: DMP and ABS

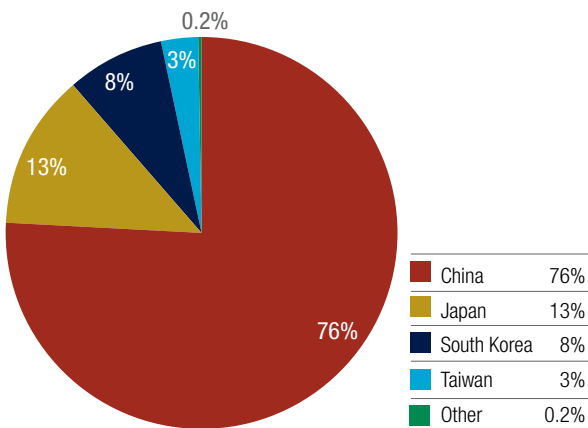


Figure 20. **Iron Ore Exports** Total Value \$68.1 billion Source: DMP

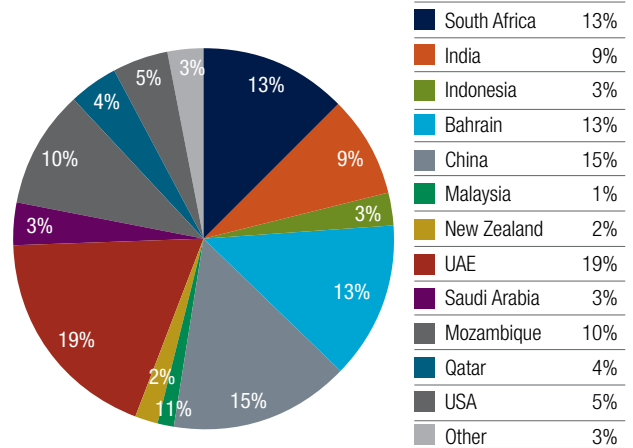


Figure 21. **Alumina Exports** Total Value \$3.3 billion Source: DMP

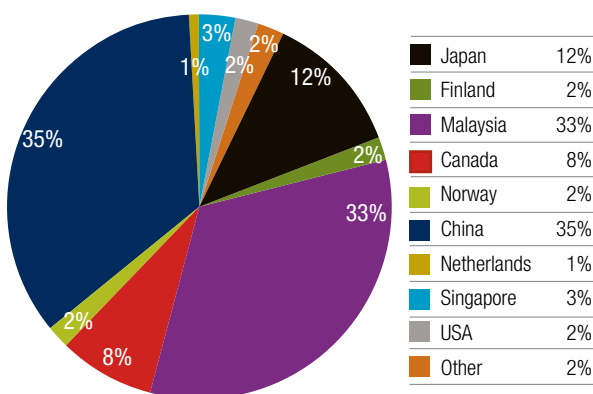


Figure 22. **Nickel Exports** Total Value \$3.4 billion Source: DMP

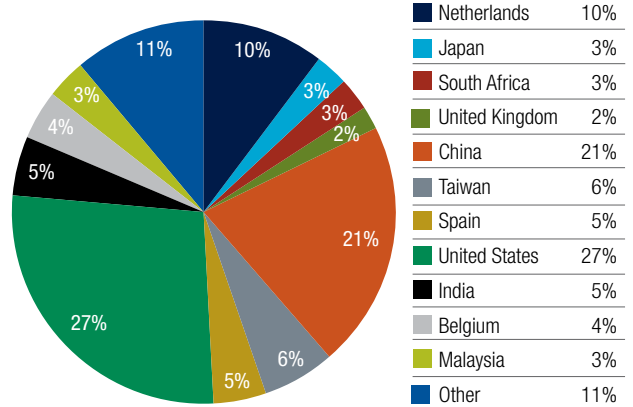


Figure 23. **Heavy Mineral Sands Exports**
Total Value \$813 million Source: DMP
Note: Exports include titanium dioxide and product sourced from private land, overseas and other States and processed in Western Australia

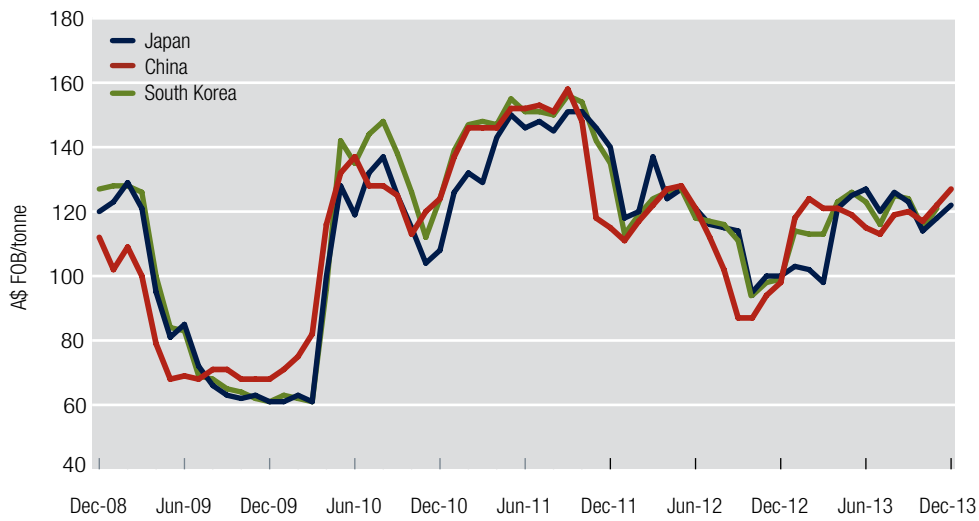


Figure 24. **Average Iron Ore Fines (all grades) Received by Western Australian Producers** Source: DMP



Figure 25. **Gold Price** Source: Perth Mint and London Fix



Figure 26. **Tapis Crude Oil Price US\$/bbl**
Source: WA Treasury Corporation

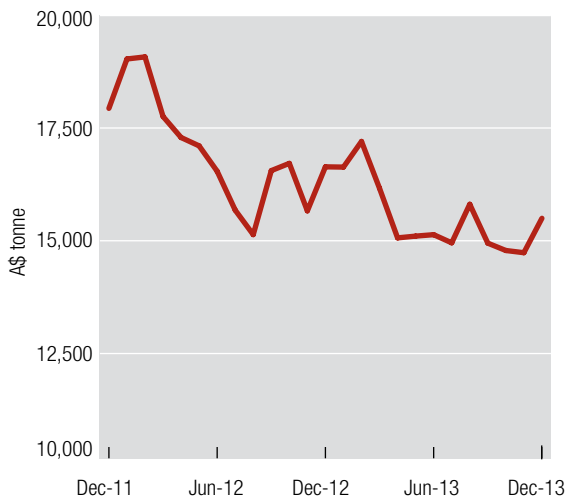


Figure 27. **Nickel Price A\$/tonne**
Source: LME Cash, Monthly Average

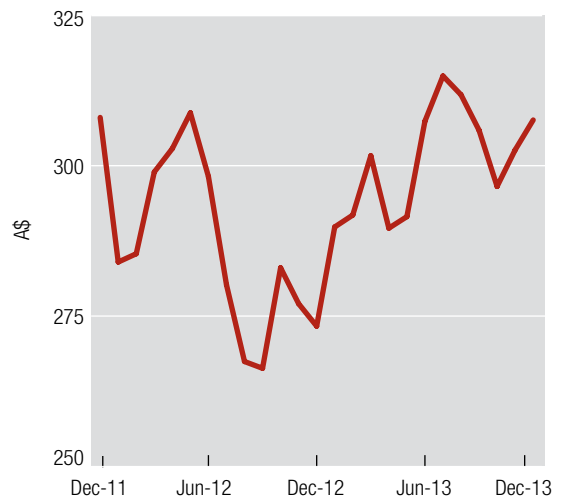


Figure 28. **Alumina Price A\$/tonne** Source: ABS

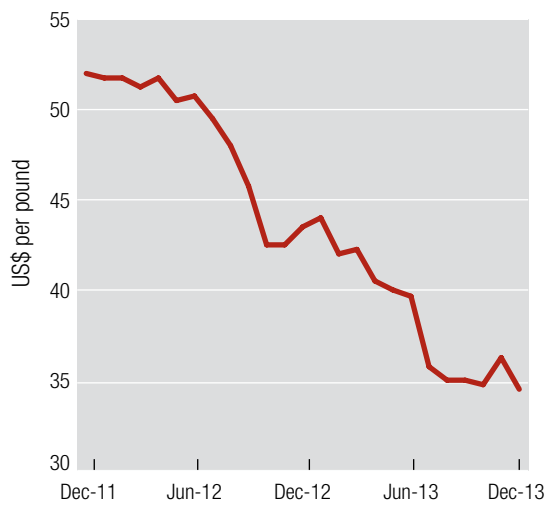


Figure 29. **Monthly Uranium Price**
Source: UX Consulting

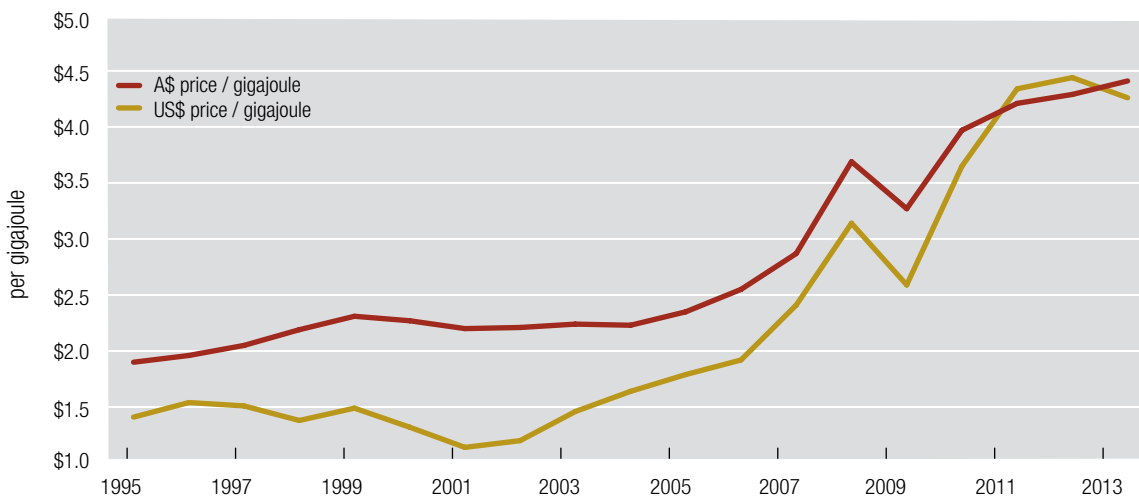


Figure 30. **Western Australian Average Domestic Natural Gas Price**
Source: DMP

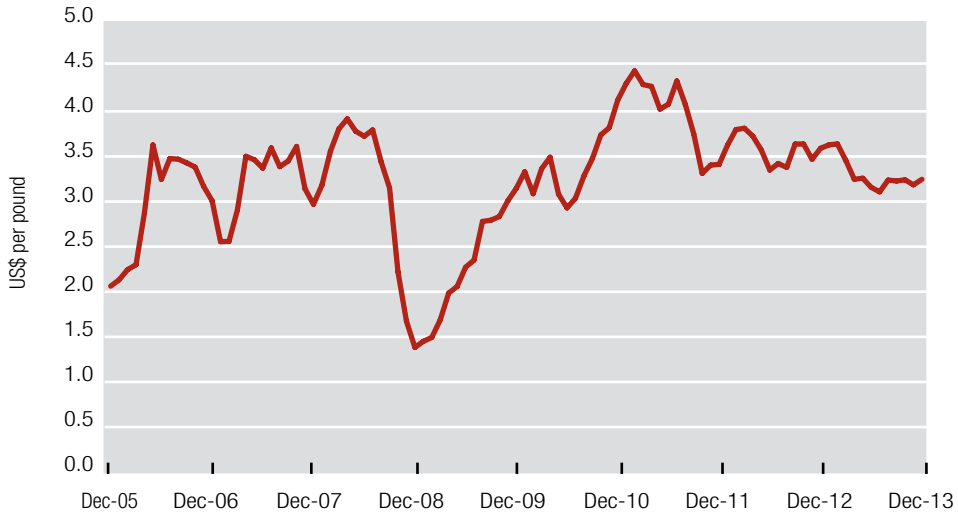


Figure 31. **Copper Price** Source: Metalprices.com



Figure 32. **Lead Price** Source: Metalprices.com

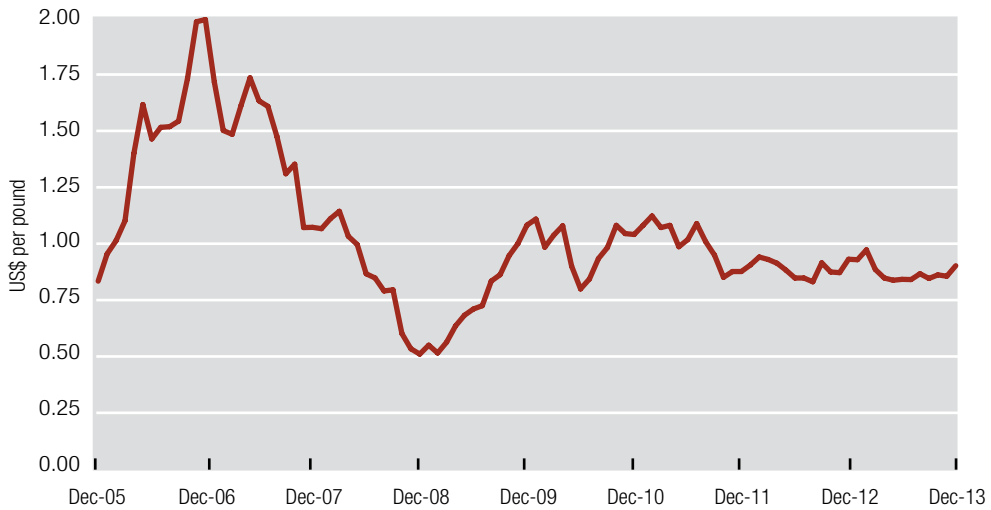


Figure 33. **Zinc Price** Source: Metalprices.com

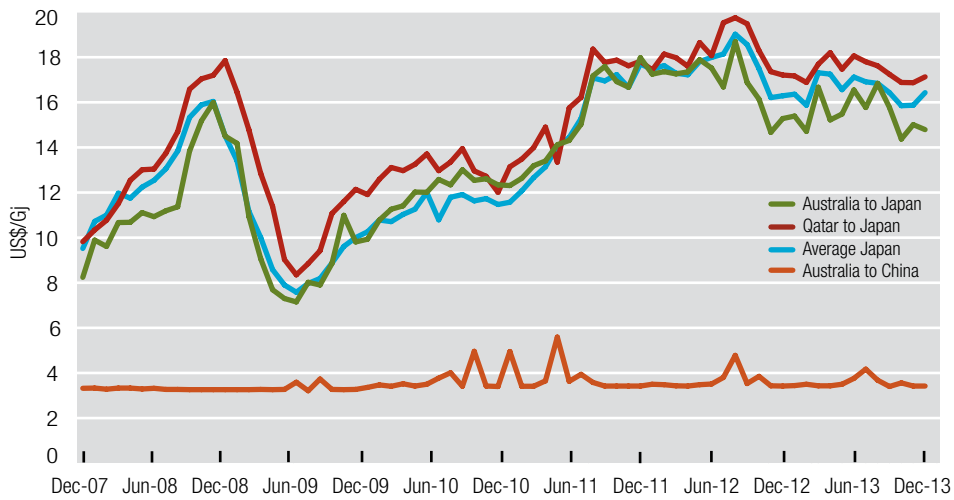


Figure 34. **LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

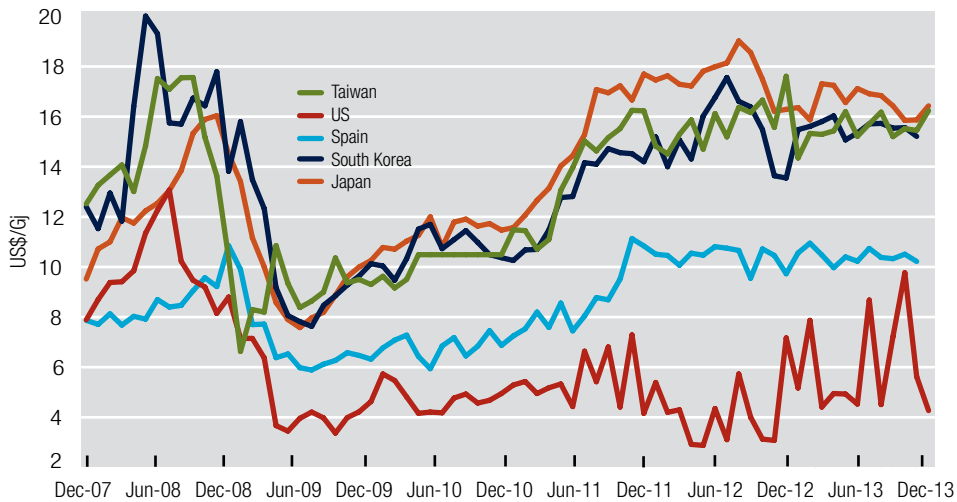


Figure 35. **Average LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

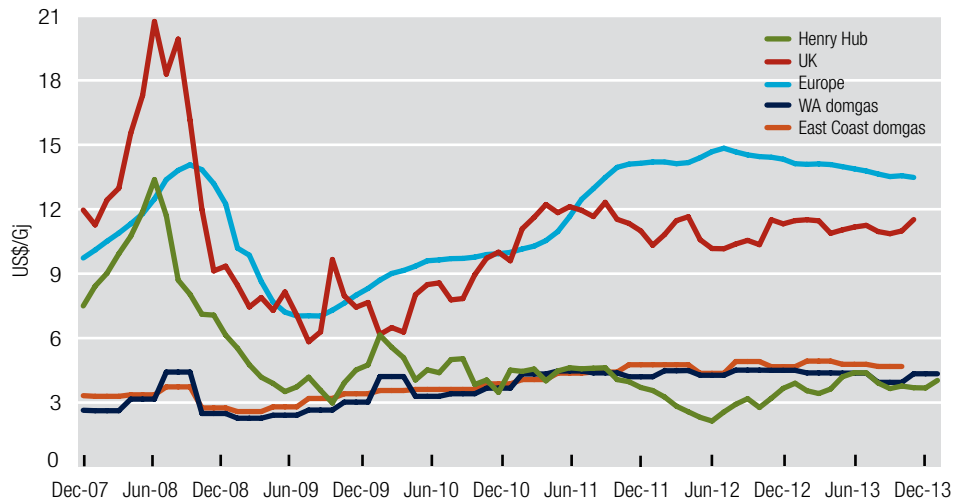


Figure 36. **Average Natural Gas Prices** Source: Argus Monthly LNG, EnergyQuest and DMP

HISTORIC PRICES

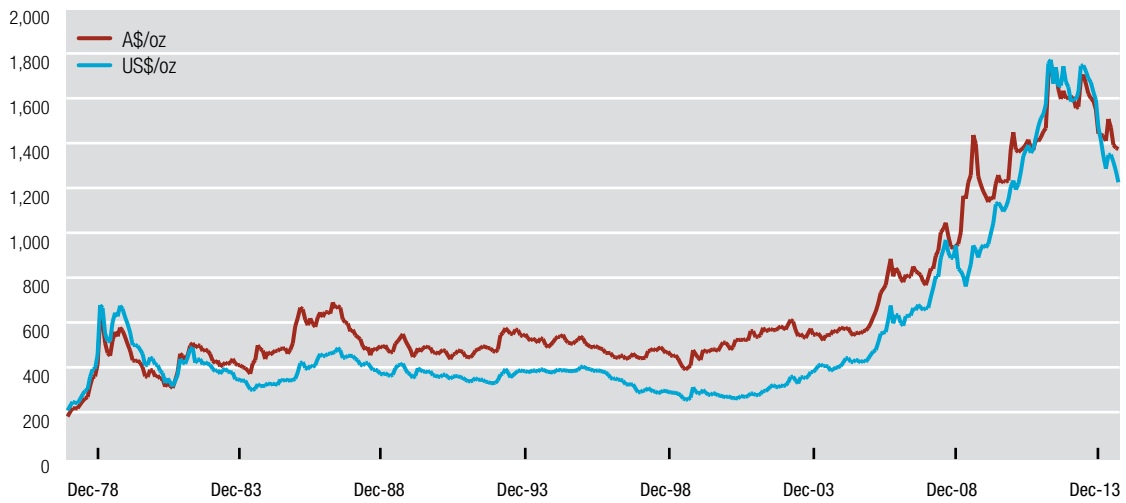


Figure 37. **Historic Gold Prices, US\$/A\$ per ounce** Source: Perth Mint and London PM Fix

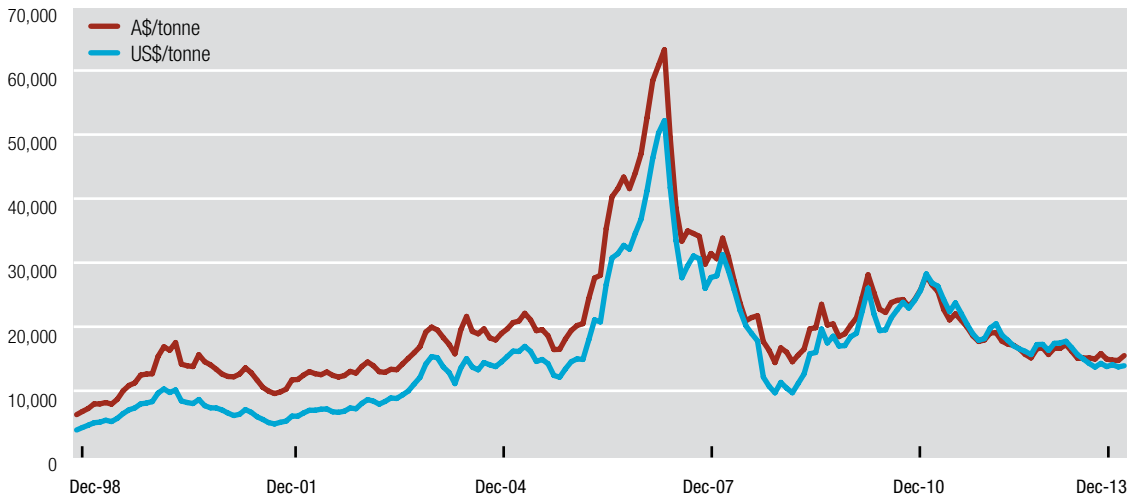


Figure 38. **Historic Nickel Prices** Source: LME

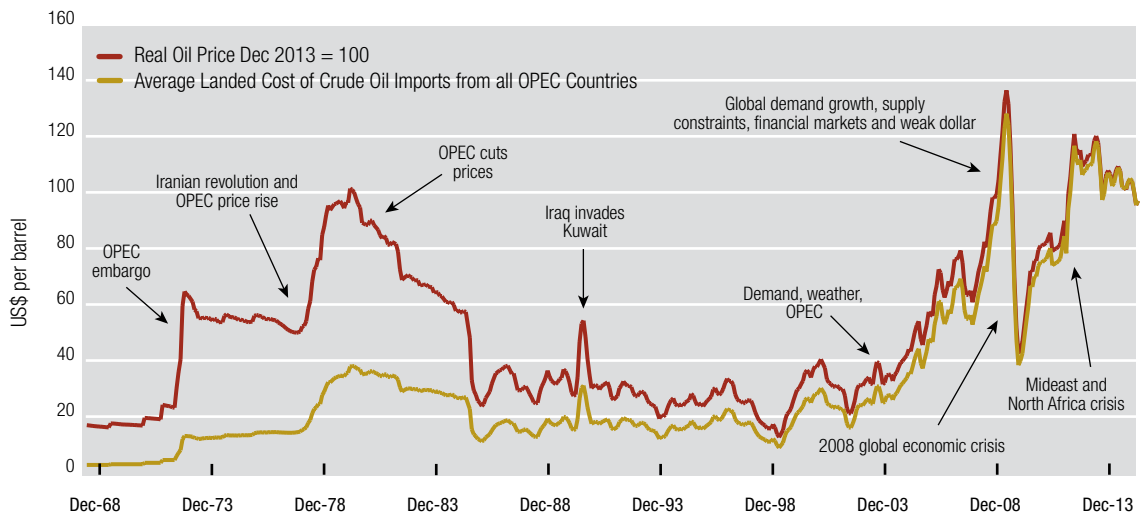


Figure 39. **Historic Oil Prices** Source: Energy Information Administration, US Department of Energy, DMP

HISTORIC PRICES

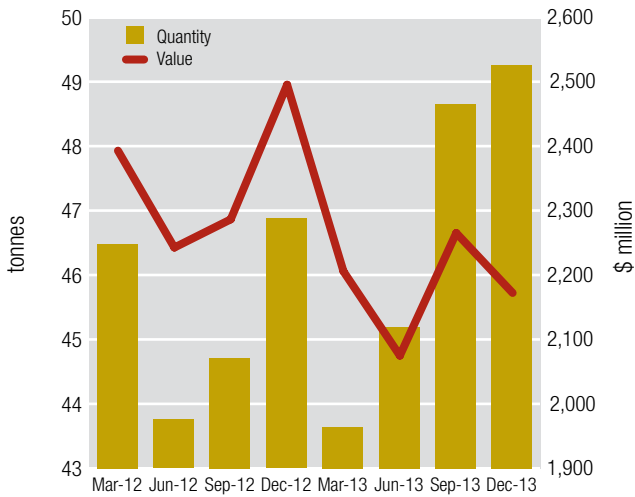


Figure 40. **Gold Quantity and Value by Quarter**
Source: DMP

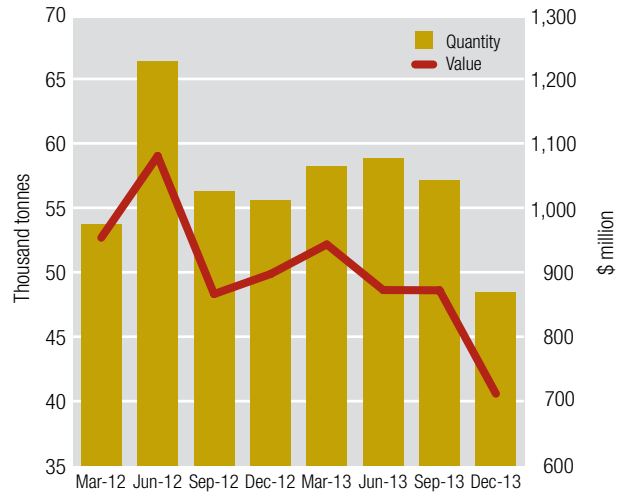


Figure 41. **Nickel Quantity and Value by Quarter**
Source: DMP

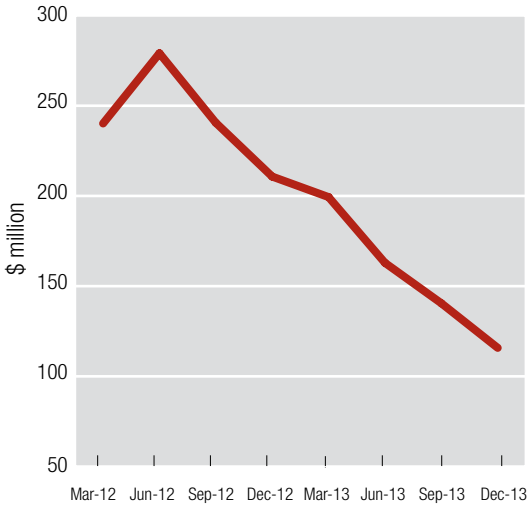


Figure 42. **Heavy Mineral Sands Value by Quarter**
Source: DMP

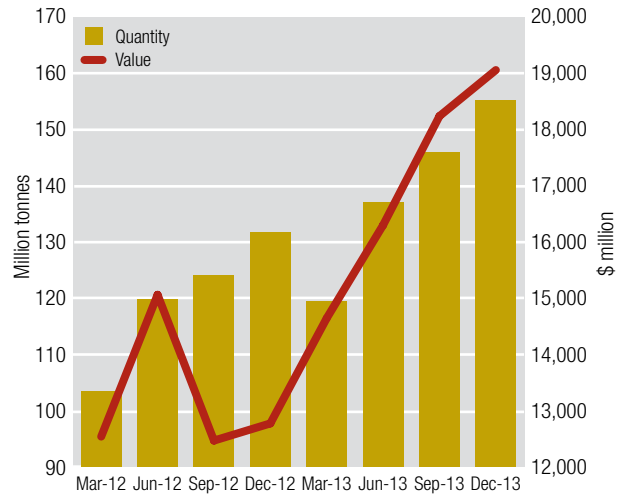


Figure 43. **Iron Ore Quantity and Value by Quarter**
Source: DMP

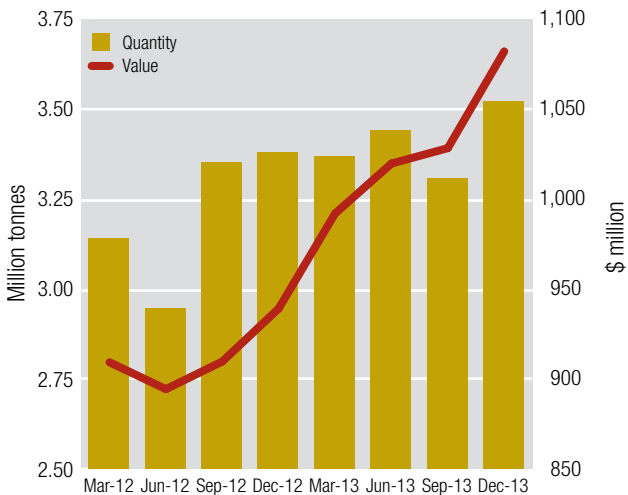


Figure 44. **Alumina Quantity and Value by Quarter**
Source: DMP

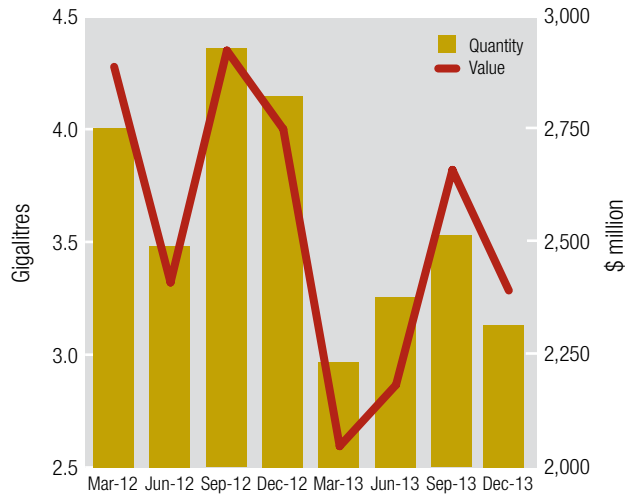


Figure 45. **Crude Oil and Condensate Quantity and Value by Quarter**
Source: DMP

QUANTITY – WESTERN AUSTRALIA VERSUS AUSTRALIA

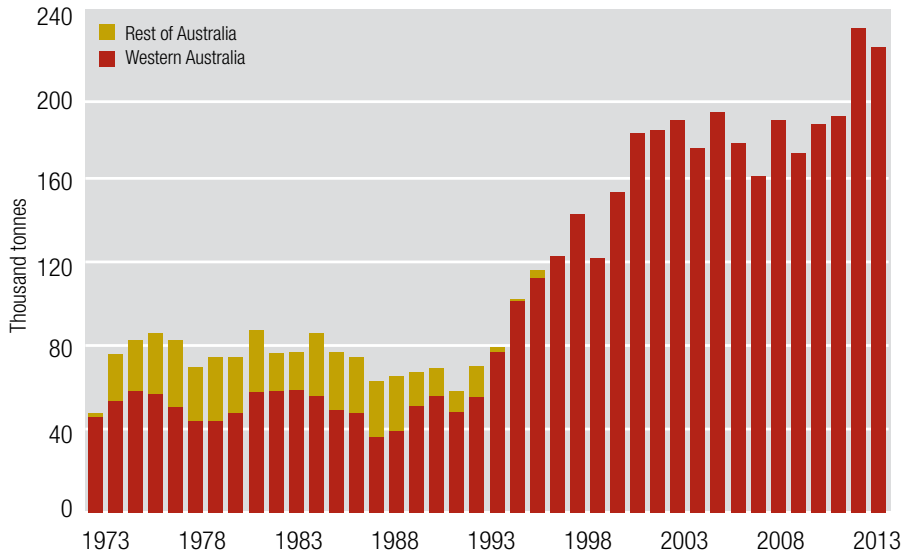


Figure 46. **Nickel Quantity** Source: DMP and BREE

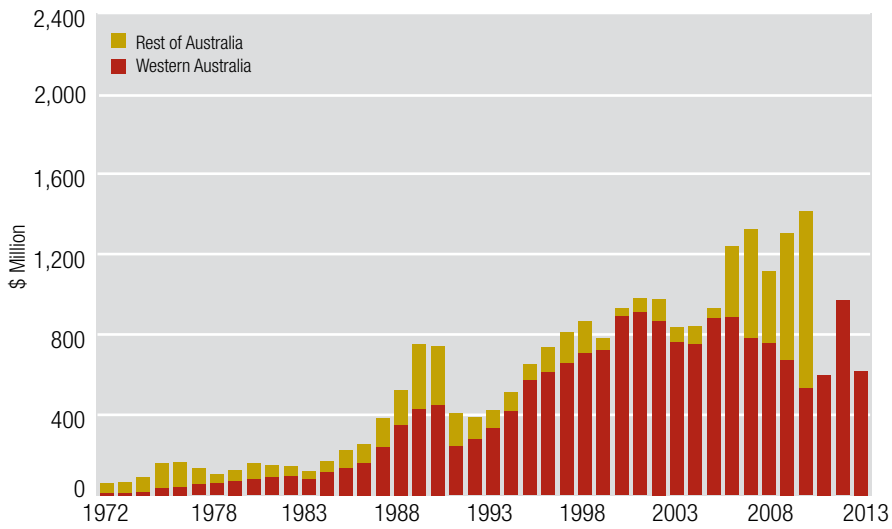


Figure 47. **Heavy Mineral Sands Value of Production**
Includes Ilmenite, Leucoxene, Upgraded Ilmenite, Rutile, Zircon and Monazite
Source: DMP and BREE

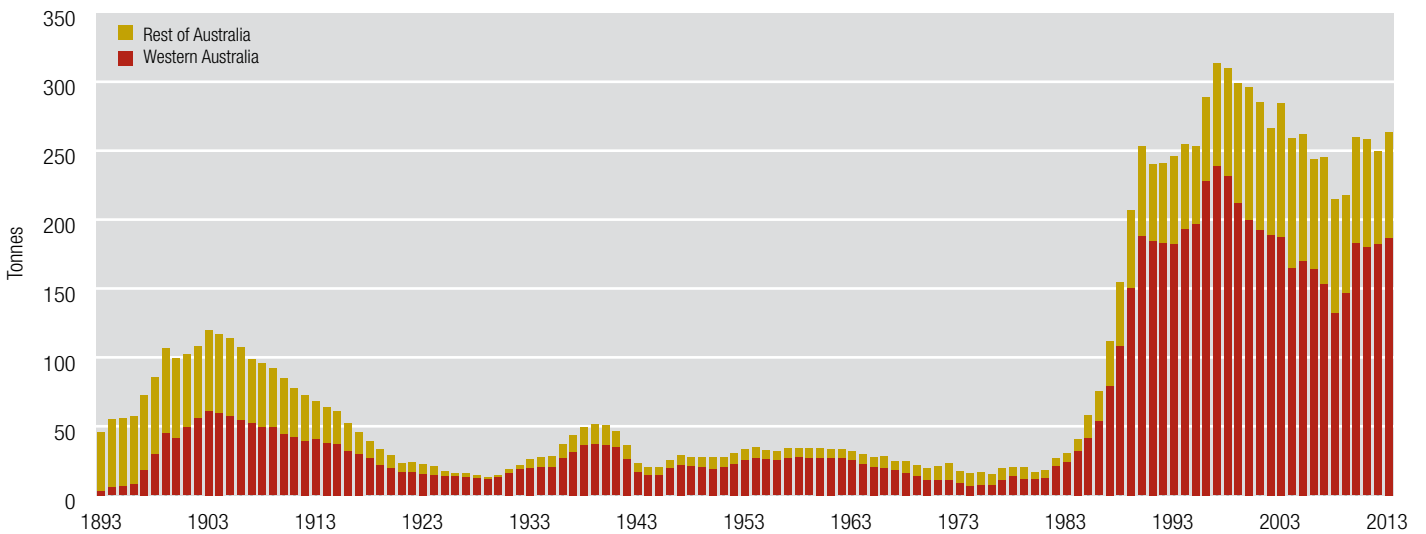


Figure 48. **Gold Production** Source: DMP and BREE

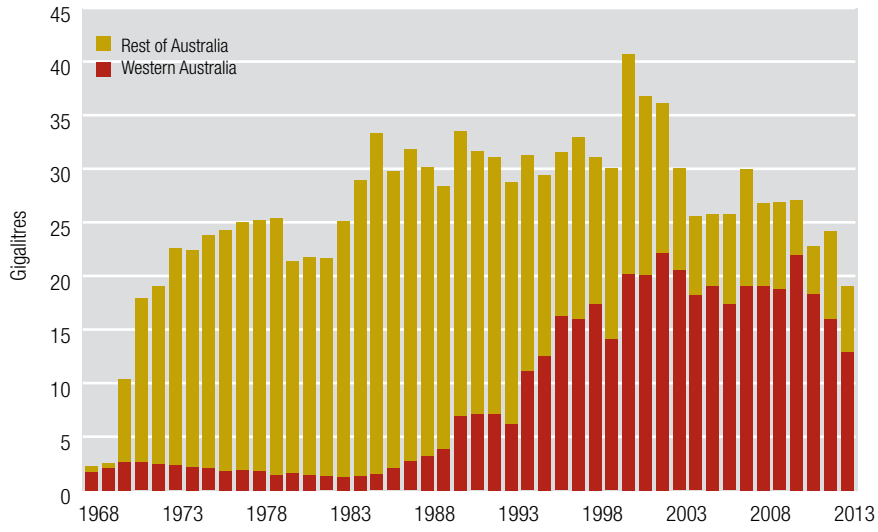


Figure 49. **Crude Oil and Condensate Quantity** Source: DMP, BREE and EnergyQuest

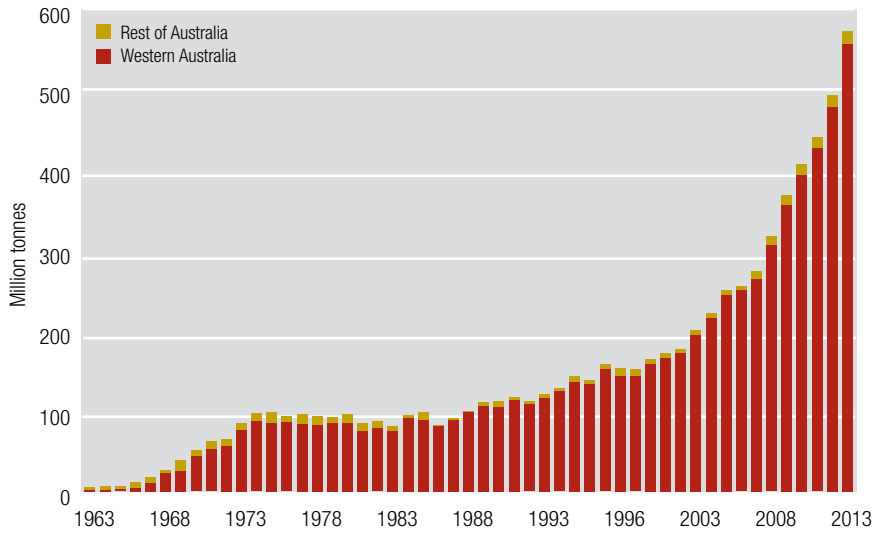


Figure 50. **Iron Ore Quantity** Source: DMP and BREE

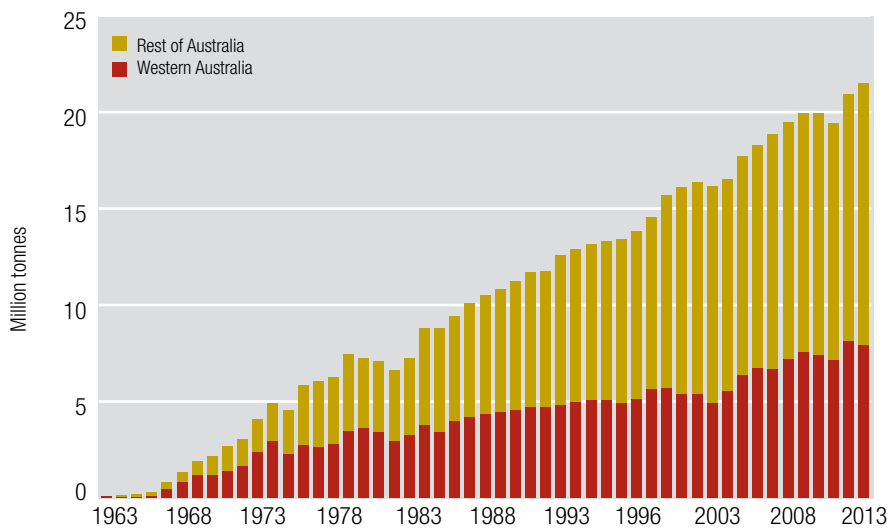


Figure 51. **Alumina Quantity**
Source: DMP and BREE

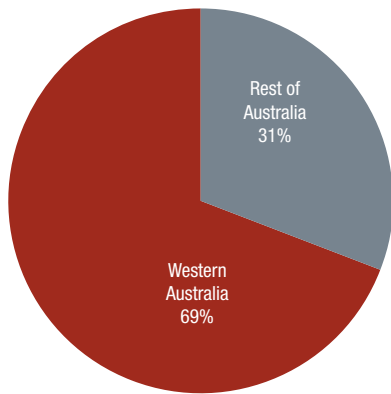


Figure 52. **Crude Oil and Condensate Production 2013** Source: EnergyQuest

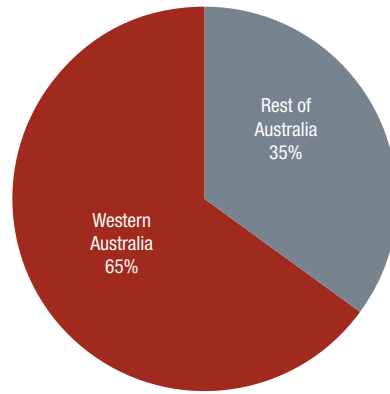


Figure 53. **Natural Gas Production 2013** Source: EnergyQuest (Data includes domestic gas, coal seam gas and LNG feedstock)

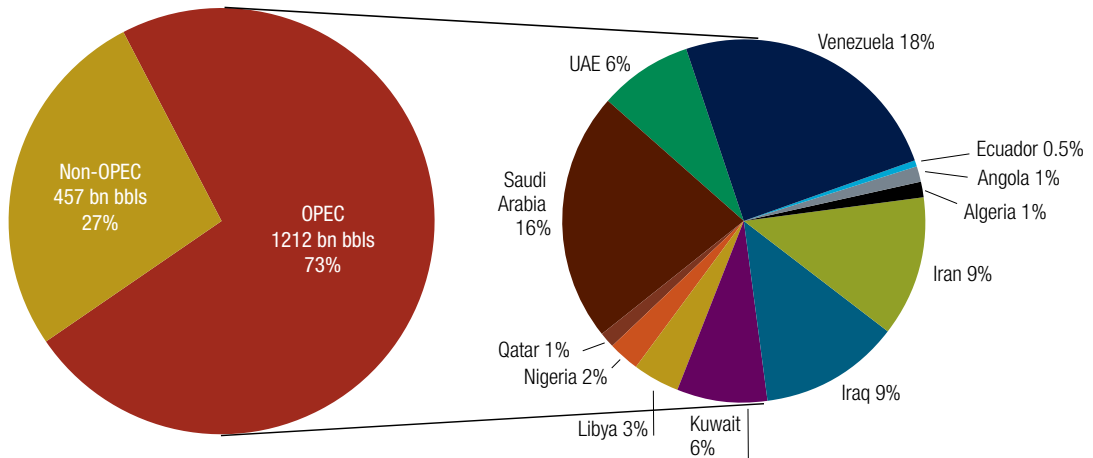


Figure 54. **OPEC Share of World Crude Oil Reserves 2012** Source: BP World Energy Statistics 2013

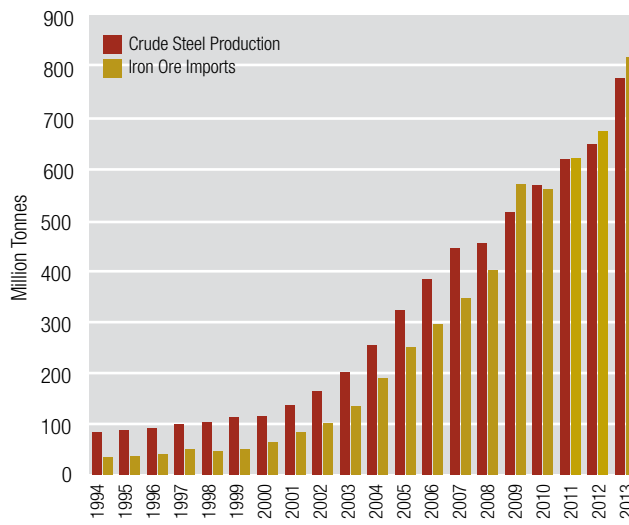


Figure 55. **China's Crude Steel Production and Iron Ore Imports** Source: TEX Report and Interfax China Ltd and Steel Home

TABLE 2. MINERALS TENEMENTS IN FORCE 1978 ACT

	2008–09		2009–10		2010–11		2011–12		2012–13	
	Number	000 ha	Number	000 ha	Number	000 ha	Number	000 ha	Number	000 ha
Prospecting Licences	7,110	913	7,032	890	7,106	897	7,265	910	6,834	851
Exploration Licences	4,959	42,367	5,297	44,123	6,050	52,205	6,969	60,396	6,503	52,895
Mining Leases	5,618	2,065	5,764	2,125	5,845	2,233	5,897	2,285	6,195	2,451
Other	2,512	3,477	2,884	4,541	2,995	4,926	3,157	5,323	3,377	5,486
Mineral Claims & Other 1904 Act	186	21	186	21	186	21	186	21	186	21
Total	20,385	48,843	21,163	51,700	22,182	60,282	23,474	68,935	23,095	61,704

Source: DMP

TABLE 3. PETROLEUM TITLES AREA – BY TITLE TYPE

Legislation	Title Type	Area	Blocks	Number of Titles
Petroleum (Submerged Lands) Act, 1982		5,413.2000 km²	102	45
	Exploration Permit	2,290.1500 km ²	53	5
	Pipeline Licence	614.9500 km		25
	Production Licence	2,041.4300 km ²	29	10
	Retention Lease	1,081.6200 km ²	20	5
Petroleum and Geothermal Energy Resources Act 1967		302,642.2423 km²	3,973	138
	Access Authority to Deviated Well	0.0000 km ²	0	3
	Drilling Reservation	223.1000 km ²	3	1
	Exploration Permit	223,508.1964 km ²	2,866	78
	Geothermal Exploration Permit	55,651.8879 km ²	782	33
	Petroleum Lease	260.1000 km ²	9	1
	Production Licence	3,003.4580 km ²	48	16
	Retention Lease	411.8900 km ²	8	5
	Special Prospecting Authority with Acreage Option	19,583.6100 km ²	257	1
Petroleum Pipelines Act 1969		6,001.5263 km		90
	Pipeline Licence	6,001.5263 km		90
		308,055.4423 km²	4,075	273

TABLE 4. QUANTITY AND VALUE OF MINERALS AND PETROLEUM

COMMODITY	UNIT	CALENDAR YEAR 2012		CALENDAR YEAR 2013	
		QUANTITY	VALUE	QUANTITY	VALUE
ALUMINA	t	12,811,548	3,648,939,277	13,625,707	4,117,178,759
BASE METALS					
Copper Metal	t	179,308 (r)	1,347,615,208 (r)	201,525	1,501,461,351
Lead Metal	t	8,135 (r)	16,534,423 (r)	52,706	117,794,315
Zinc Metal	t	57,113 (r)	107,302,474 (r)	47,858	91,013,102
TOTAL BASE METALS			1,471,452,105 (r)		1,710,268,768
CHROMITE	t	202,483 (r)	n/a	137,646	n/a
CLAYS		61,291	1,446,577	25,434	910,227
COAL	t	7,290,738 (r)	304,593,380 (r)	7,087,325	296,364,772
CONSTRUCTION MATERIALS					
Aggregate	t	3,996,233 (r)	128,795,716 (r)	5,131,947	188,303,830
Gravel	t	448,458 (r)	3,317,758 (r)	391,981	7,811,645
Rock	t	1,019,203 (r)	22,663,023 (r)	1,223,277	20,453,139
Sand	t	5,889,917 (r)	58,176,758 (r)	6,073,787	79,371,260
TOTAL CONSTRUCTION MATERIALS			212,953,255 (r)		295,939,874
DIAMONDS	ct	9,879,876 (r)	346,103,310 (r)	10,694,365	385,260,402
DIMENSION STONE		3,498 (r)	1,513,547	4,956	1,133,213
GEM & SEMI-PRECIOUS STONES	kg	274,928 (r)	344,291 (r)	266,729	437,180
GOLD	kg	181,824 (r)	9,409,674,621 (r)	186,744	8,710,308,182
GYPSUM	t	244,836 (r)	3,990,705 (r)	463,342	8,945,601
HEAVY MINERAL SANDS					
Garnet	t	266,224	n/a	337,028	n/a
Ilmenite	t	279,282 (r)	68,407,301 (r)	198,303	48,803,596
Leucoxene	t	22,027 (r)	26,194,508 (r)	31,928	27,654,321
Zircon	t	175,164 (r)	195,238,759 (r)	211,391	139,442,591
Other	t		680,648,758 (r)		402,657,827
TOTAL HEAVY MINERAL SANDS			970,489,326 (r)		618,558,335
IRON ORE	t	478,380,001 (r)	52,797,996,600 (r)	556,301,404	68,071,496,004
LIMESAND-LIMESTONE-DOLOMITE	t	4,457,341 (r)	37,254,339 (r)	4,702,455	65,406,928
MANGANESE ORE	t	693,655 (r)	n/a	697,441	n/a

COMMODITY	UNIT	CALENDAR YEAR 2012		CALENDAR YEAR 2013	
		QUANTITY	VALUE	QUANTITY	VALUE
NICKEL INDUSTRY					
Cobalt	t	5,870 (r)	155,449,318 (r)	6,398	177,716,380
Nickel	t	232,009 (r)	3,796,035,715 (r)	222,669	3,398,175,956
Palladium and Platinum By-Product	kg	706	15,679,998	786	20,442,434
TOTAL NICKEL INDUSTRY			3,967,165,031 (r)		3,596,334,770
PETROLEUM					
Condensate	kl	5,999,510	3,862,301,115	5,957,271	4,116,922,037
Crude Oil	kl	9,991,681	7,099,593,535	6,925,231	5,154,689,856
LNG	t	18,260,551	11,271,620,675	19,220,443	13,287,960,818
LPG – Butane and Propane	t	809,878	729,155,763	685,934	600,135,301
Natural Gas	'000m ³	9,009,209	1,470,541,897	9,068,256	1,519,079,994
TOTAL PETROLEUM			24,433,212,986		24,678,788,007
SALT	t	12,504,827 (r)	364,509,385 (r)	12,900,726	415,097,951
SILICA-SILICA SAND	t	459,537 (r)	15,289,182 (r)	438,571	15,325,433
SILVER	kg	132,781 (r)	111,873,687 (r)	130,163	96,500,227
TIN-TANTALUM-LITHIUM	t	0	200,728,873 (r)	0	145,955,560
OTHER (Includes Vanadium, Manganese, Rare Earths, Spongolite and Talc)	t		401,906,946 (r)		530,786,068
TOTAL VALUE			98,701,437,424 (r)		113,760,996,261

Note: Quantities used in this table only apply to Minerals and Petroleum covered by the *Mining Act 1978*, the *Petroleum and Geothermal Energy Resources Act 1967*, the *Petroleum (Submerged Lands) Act 1982*, the *Offshore Petroleum Act 2006* and relevant State Agreement Acts.

(r) Revised from previous edition

n/a Breakdown of chromite, garnet, manganese, talc, spodumene, vanadium, rare earths, tin and tantalite not available.

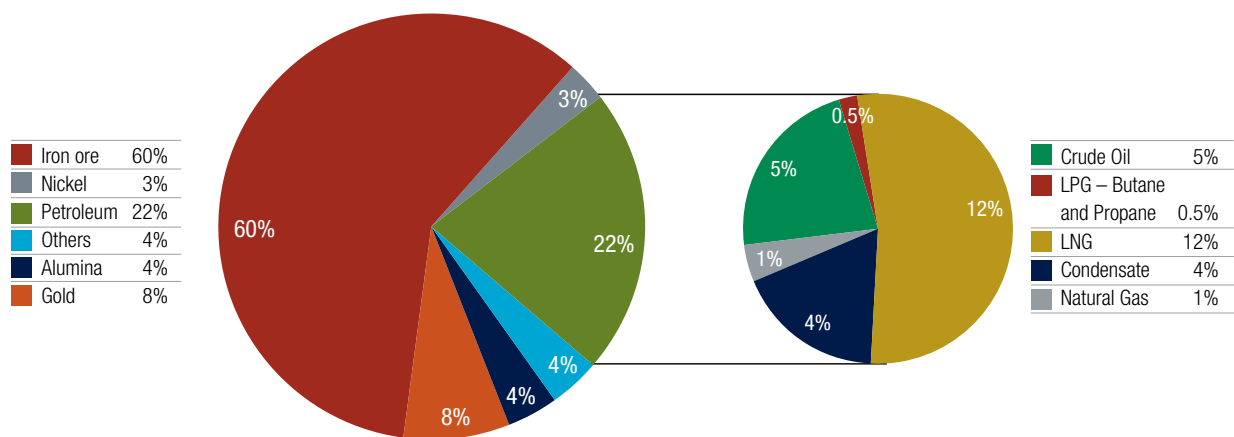


Figure 56. **Sales by Commodity 2013**
Total \$113.8 billion Source: DMP

TABLE 5. QUANTITY AND VALUE OF SELECTED MAJOR COMMODITIES

	Unit	2004		2005		2006		2007	
		Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M
ALUMINA	Mt	10.99	3,178.95	11.35	3,655.84	11.87	4,767.05	12.17	4,704.33
BASE METALS									
Copper Metal	kt	42.68	160.94	83.88	434.71	99.96	917.78	119.41	1,018.75
Lead Metal	kt	1.17	0.31	30.27	41.17	74.85	130.61	42.02	115.57
Zinc Metal	kt	51.78	57.78	63.61	118.91	138.84	607.12	180.73	685.54
TOTAL BASE METALS			219.03		594.79		1,655.50		1,819.86
COAL	Mt	6.31	281.91	6.41	283.26	7.25	317.90	5.81	265.15
COBALT	kt	4.55	262.2	4.59	166.95	5.13	220.4	4.73	343.08
DIAMONDS	M ct	24.23	414.81	34.31	740.15	17.07	446.90	23.54	555.02
GOLD	t	164.42	2,940.98	169.83	3,146.54	163.84	4,234.61	152.69	4,073.29
HEAVY MINERAL SANDS									
Ilmenite	Mt	0.76	87.94	0.67	74.00	0.74	84.44	0.73	79.80
Rutile	kt	112.93	69.02	100.45	63.79	102.21	64.39	92.92	56.30
Zircon	kt	414.07	265.07	416.92	329.80	370.18	358.82	289.88	263.93
Other HMS			327.05		412.78		376.01		380.25
TOTAL HEAVY MINERAL SANDS			749.08		880.37		883.67		780.28
IRON ORE	Mt	215.85	6,173.16	244.64	11,308.57	250.40	14,751.69	264.45	16,165.25
MANGANESE ORE	kt	593.68	106.48	785.01	184.39	906.68	195.25	430.45	185.71
NICKEL METAL	kt	174.70	3,261.21	191.71	3,484.39	175.18	5,844.17	161.01	6,958.08
PETROLEUM									
Condensate	Gl	5.94	2,011.14	5.88	2,576.86	5.61	2,940.19	5.86	3,236.76
Crude oil	Gl	12.25	4,211.56	13.18	6,168.82	11.95	6,602.75	13.20	7,384.29
LNG	Mt	8.73	3,150.81	11.03	4,320.27	11.96	4,550.76	12.38	4,448.58
LPG – Butane **	kt	398.84	189.28	870.73	544.22	862.23	613.83	893.91	686.64
LPG – Propane	kt	322.85	151.13						
Natural Gas	Gm ³	7.71	655.46	7.41	661.61	8.36	816.67	9.17	1,002.47
TOTAL PETROLEUM			10,369.39		14,397.85		15,524.20		16,758.73
SALT	Mt	10.40	185.08	11.48	213.78	10.72	241.64	10.39	229.60
OTHER			353.17		579.55		605.10		638.27
TOTAL			28,495.43		39,452.04		49,492.86		53,290.94

** LPG Butane and Propane combined from 2005 onwards and expressed in thousand tonnes

2008		2009		2010		2011		2012		2013	
Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M
12.25	4,901.12	12.42	3,593.46	12.56	3,984.50	12.29	4,127.28	12.81	3,648.94	13.63	4,117.18
129.53	1,041.60	149.04	992.51	153.86	1,286.70	148.59	1,222.89	179.31	1,347.62	201.53	1,501.46
13.78	32.61	22.76	46.32	52.63	120.36	8.34	19.60	8.14	16.53	52.71	117.79
156.01	329.13	101.65	213.80	81.52	191.88	74.40	153.04	57.11	107.30	47.86	91.01
	1,403.34		1,252.62		1,598.94		1,395.53		1,471.45		1,710.27
6.73	305.50	6.56	308.16	7.00	319.12	6.98	283.50	7.29	304.59	7.09	296.36
4.78	378.7	4.34	182.76	3.85	168.9	3.85	127.59	5.87	155.4	6.40	177.72
21.24	490.71	11.90	231.80	14.42	345.54	7.63	291.18	9.88	346.10	10.69	385.26
131.82	4,391.32	146.43	5,814.75	182.85	7,846.34	179.54	8,789.00	181.82	9,409.67	186.74	8,710.31
0.60	76.95	0.46	63.50	0.50	66.69	0.38	56.85	0.28	68.41	0.20	48.80
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
356.39	309.50	253.50	214.49	333.47	229.84	217.30	210.01	175.16	195.24	211.39	139.44
	411.44		394.39		233.11		332.03		706.84		430.31
	797.89		672.37		529.64		598.90		970.49		618.56
305.72	31,896.03	356.07	28,149.03	393.85	48,758.75	426.53	62,720.52	478.38	52,798.00	556.30	68,071.50
270.71	n/a	630.32	282.39	579.30	421.52	839.15	n/a	693.66	n/a	697.44	n/a
187.79	4,059.16	171.18	3,373.73	185.74	4,294.25	190.02	3,947.38	232.01	3,796.04	222.67	3,398.18
5.73	3,512.42	7.49	3,232.73	7.22	3,705.43	6.28	4,093.92	6.00	3,862.30	5.96	4,116.92
13.32	9,737.62	11.25	5,505.45	14.73	8,247.31	12.05	8,485.94	9.99	7,099.59	6.93	5,154.69
12.38	8,157.48	15.25	6,320.74	16.53	8,754.68	16.03	9,344.02	18.26	11,271.62	19.22	13,287.96
764.67	731.50	950.52	612.78	988.72	763.33	861.48	745.88	809.88	729.16	685.93	600.14
8.50	1,191.44	9.31	1,156.24	9.23	1,391.17	8.87	1,421.13	9.01	1,470.54	9.07	1,519.08
	23,330.46		16,827.94		22,861.92		24,090.89		24,433.21		24,678.79
11.49	276.72	10.06	447.59	11.54	386.67	12.25	335.77	12.50	364.51	12.90	415.10
	833.74		397.41		395.36		945.74		1,002.98		1,181.78
	73,064.70		61,533.99		91,911.50		107,653.27		98,701.44		113,761.00

TABLE 6. VALUE OF MINERALS AND PETROLEUM BY REGION BY COMMODITY

PILBARA REGION	2013 Value
Iron Ore	64,647,253,126
Gold and Silver	1,034,961,927
Manganese and Salt	649,842,784
Copper	504,227,143
Other	248,128,320
TOTAL	67,084,413,300

OFFSHORE PETROLEUM	
Crude Oil and Condensate	9,260,839,602
Liquefied Natural Gas	13,287,960,818
Natural Gas	1,469,772,131
LPG Butane and Propane	600,135,301
Total	24,618,707,852

GOLDFIELDS-ESPERANCE REGION	
Gold	5,628,307,627
Nickel, Platinum and Palladium	2,913,629,475
Cobalt	161,902,924
Copper and Zinc	114,819,558
Silver and Rare Earths	107,351,468
Gypsum and Limesand	14,750,168
Construction Materials	6,511,054
Other	7,979,233
TOTAL	8,955,251,507

PEEL REGION	
Alumina	4,117,178,759
Gold, Silver and Copper	1,267,854,895
TOTAL	5,385,033,654

MID WEST REGION	
Iron ore	1,119,527,752
Gold	912,882,612
Copper, Lead and Zinc	806,545,537
Heavy Mineral Sands and Talc	169,084,737
Nickel, Chromite and Vanadium	145,348,908
Natural Gas	43,349,171
Silver and Cobalt	30,173,018
Gypsum and Limesand	4,054,357
Crude Oil and Condensate	959,354
Other	1,022,775
TOTAL	3,232,948,221

WHEATBELT REGION	2013 Value
Iron ore	1,756,264,189
Gypsum and Heavy Mineral Sands	395,892,744
Nickel, Copper and Salt	320,306,844
Gold, Silver Condensate and Natural Gas	123,628,707
Other	17,306,696
TOTAL	2,613,399,180

KIMBERLEY REGION	
Iron Ore	548,450,937
Diamonds and Crude Oil	391,560,849
Nickel, Copper, Cobalt, Gold and Silver	182,184,625
Construction Materials	11,579,034
TOTAL	1,133,775,445

SOUTH WEST REGION	
Coal	296,364,772
Clay, Limesand/Limestone and Spodumene	144,410,825
Heavy Mineral Sands	79,741,367
TOTAL	520,516,964

GASCOYNE REGION	
Salt and Gems	131,118,714
Gypsum and Limesand-Limestone	3,259,911
Construction Materials	336,097
TOTAL	134,714,722

PERTH METROPOLITAN REGION	
Construction Materials, Silica Sand and Limesand-Limestone	77,694,681

GREAT SOUTHERN REGION	
Spongolite, Silica Sand and Limesand	4,540,737

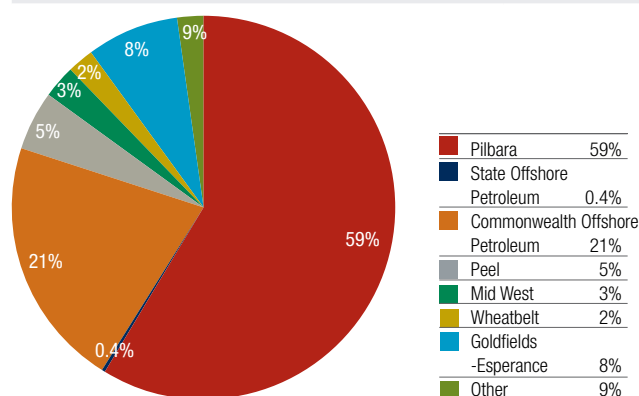


Figure 57. **Value of Minerals and Petroleum by Region 2013**
\$113.8 billion Source: DMP

TABLE 7. VALUE OF MINERALS AND PETROLEUM BY REGION BY LOCAL GOVERNMENT AREA

PILBARA REGION		2013 Value	
East Pilbara		35,916,374,129	
Ashburton		29,917,819,372	
Port Hedland and Marble Bar		1,059,804,444	
Roebourne and Karratha		190,415,355	
TOTAL		67,084,413,300	
OFFSHORE PETROLEUM		24,618,707,852	
GOLDFIELDS-ESPERANCE REGION			
Coolgardie		2,737,506,128	
Kalgoorlie-Boulder		2,083,321,190	
Leonora		1,594,666,656	
Laverton		1,585,960,516	
Ravensthorpe		670,676,356	
Menzies and Esperance		207,190,032	
Dundas		75,930,629	
TOTAL		8,955,251,507	
PEEL REGION			
Warooka		2,781,724,474	
Boddington		2,603,309,180	
TOTAL		5,385,033,654	
MID WEST REGION			
Meekatharra and Morawa		907,543,905	
Wiluna and Three Springs		653,246,272	
Yalgoo and Carnamah		695,293,047	
Mullewa and Mt Magnet		381,966,992	
Cue, Coorow and Geraldton		469,413,744	
Northampton and Perenjori		78,270,640	
Irwin		47,213,620	
TOTAL		3,232,948,221	
WHEATBELT REGION		2013 Value	
Yilgarn		1,766,050,439	
Dalwallinu and Kondinin		321,907,085	
Dandaragan		393,554,848	
Lake Grace and Westonia		114,485,512	
Gingin and Koorda		11,325,727	
Moora and Wyalkatchem		5,637,279	
Northam and Kellerberrin		438,290	
TOTAL		2,613,399,180	
KIMBERLEY REGION			
Derby-West Kimberley		490,912,254	
Wyndham-East Kimberley		453,412,857	
Halls Creek		182,184,625	
Broome		7,265,709	
TOTAL		1,133,775,445	
SOUTH WEST REGION			
Bridgetown-Greenbushes, Capel and Collie		475,520,341	
Bunbury, Dardanup, Manjimup, Donnybrook		449,966,623	
TOTAL		520,516,964	
GASCOYNE REGION			
Carnarvon		98,164,187	
Exmouth, Shark Bay and Upper Gascoyne		36,550,535	
TOTAL		134,714,722	
Perth Metropolitan Region			
Kalamunda, Swan and Wanneroo		36,596,918	
Cockburn, Kwinana and Rockingham		41,097,763	
TOTAL		77,694,681	
GREAT SOUTHERN REGION			
Albany, Denmark and Plantagenet		4,540,737	

TABLE 8. ROYALTY RECEIPTS AND NORTH WEST SHELF GRANTS 2012 AND 2013

COMMODITY	2012	2013	2013 Growth	
	Total A\$	Total A\$	A\$	%
ALUMINA	65,293,682	66,744,770	1,451,088	2%
DIAMONDS	16,194,434	18,137,585	1,943,151	12%
GOLD	218,918,291	222,800,476	3,882,185	2%
HEAVY MINERAL SANDS	25,124,566	20,032,661	-5,091,905	-20%
IRON ORE	3,535,417,771	4,344,015,779	808,598,008	23%
NICKEL	94532050	84,413,621	-10,118,429	-11%
PETROLEUM *	17,220,539	14,427,177	-2,793,362	-16%
OTHER	136,911,982	142,803,504	5,891,522	4%
TOTAL ROYALTY RECEIPTS	4,109,613,315	4,913,375,573	803,762,258	20%
NORTH WEST SHELF GRANTS	985,832,277	1,039,190,307	53,358,030	5%
TOTAL REVENUE	5,095,445,592	5,952,565,880	857,120,288	17%

Note: All royalty revenue shown above is paid into the State's Consolidated Revenue Fund. Added to the table, shown separately, is the State's share of the North West Shelf project royalty payments to the Commonwealth (which are provided as a grant from the Commonwealth to the State).

* Includes the Commonwealth's share of royalties collected under the Western Australian Petroleum Submerged Land Act (PSLA).

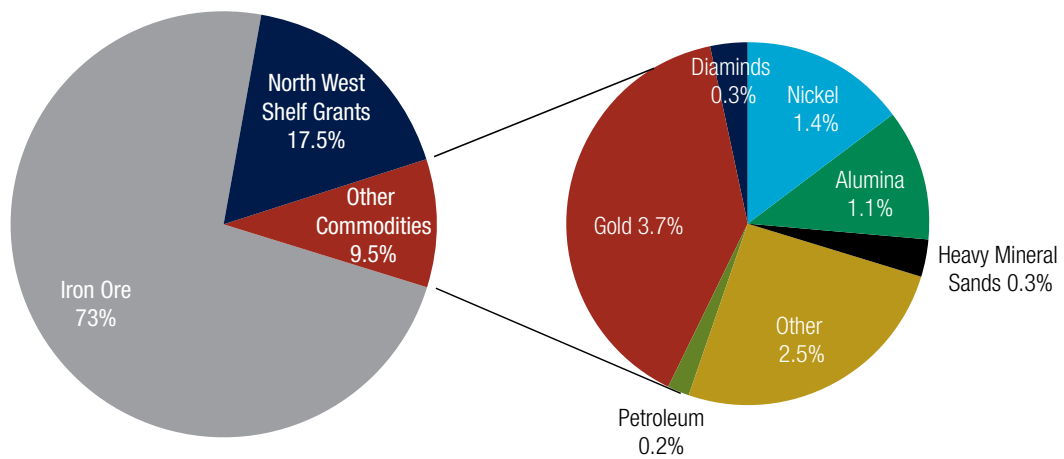


Figure 58. **Royalty Receipts 2013 and North West Shelf Grants \$5.95 Billion** Source: DMP and WA Treasury

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY
MINING EMPLOYMENT DATA SOURCES

The Department of Mines and Petroleum (DMP) collects mining employment data from monthly accident reports which are required to be submitted by all operating mines and companies carrying out exploration on mineral and mining leases under the *Mines Safety and Inspection Act 1994*. The Resources Safety Division's AXTAT reporting system identifies the number of direct employees and contractors (including exploration personnel) working on operating mining leases. In March 2008 legislation was introduced to capture exploration personnel working on greenfield sites.

This employment data includes sites under State Agreement Acts.

Employment data collected and published by the Australian Bureau of Statistics (ABS) is classified using reference to the Australian and New Zealand Standard Industrial Classification (ANZSIC). This data is therefore not directly comparable with that collected by DMP.

Under ANZSIC guidelines not all mining employment is reflected in ABS's Mining industry classification.

For example:

- Catering personnel working on mine sites are reflected in the Accommodation and Food Services classification and transport personnel (truck and train drivers) working on mine sites are reflected in the Postal and Warehousing industries.
- Contractors employed in site preparation and removing overburden at a mine site on a contract or fee basis are listed under Site Preparation Services.
- Employees engaged in liquefying natural gas, production of pig iron, hot briquetted iron, alumina, the smelting and refining of metals are included in Manufacturing.
- Employees providing geophysical surveying services on a contract or fee basis are included in Surveying and Mapping Services.

MINERAL/Company	Operating Site	2012	2013
BAUXITE – ALUMINA			
Doral Fused Materials Pty Ltd	Rockingham Fused Alumina Plant	91	80
Alcoa World Alumina Australia	Huntly	890	958
	Kwinana Alumina Refinery	1,345	1,288
	Pinjarra Refinery	1,610	1,298
	Wagerup Alumina Refinery	1,052	1,015
	Willowdale	325	325
Worsley Alumina Pty Ltd	Boddington Bauxite	369	352
	Worsley Refinery	2,668	1,835
TOTAL BAUXITE – ALUMINA		8,350	7,151
BASE METALS			
Aditya Birla Minerals Ltd	Nifty	735	758
Jabiru Metals Ltd	Jaguar	351	350
Lennard Shelf Pty Ltd	Pillara	2	0
Minerals and Metals Group	Golden Grove	1132	911
Rosslyn Hill Mining Pty Ltd	Magellan	34	136
Sandfire Resources NL	DeGrussa Mine	766	640
Venturex Pilbara Pty Ltd	Whim Creek	21	10
TOTAL BASE METALS		3,041	2,805
COAL			
Griffin Coal Mining Co. Pty Ltd	Muja Open Cut	257	234
Premier Coal Ltd	Premier	201	209
TOTAL COAL		458	443
DIAMONDS			
Argyle Diamond Mines Pty Ltd	Argyle Diamond Mine	2166	1621
Kimberley Diamond Company NL	Ellendale/Kimberley Diamonds	328	288
Merlin Diamonds Ltd	Wangarra Laboratory	3	3
TOTAL DIAMONDS		2,497	1,912

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
GOLD			
Agnew Gold Mining Company Pty Limited	Agnew-Emu	542	450
Andy Well Mining Pty Ltd	Andy Well	5	65
AngloGold Ashanti Australia Ltd	Sunrise Dam	1,088	953
	Tropicana	375	646
Apex Gold Pty Ltd	Wiluna Group	234	97
Avoca Resources Ltd	Higginsville Gold Project	597	590
Barrick Gold of Australia Ltd	Darlot	484	437
	Granny Smith	961	649
	Kalgoorlie West / Barrick Kanowna	881	619
	Lawlers	481	473
	Plutonic	638	532
Blue Tiger Mines Pty Ltd	Gunga West Open Pit	0	11
Bullabulling Operations Pty Ltd	Bullabulling	10	7
Central Norseman Gold Corporation Ltd	Central Norseman Group	228	129
Dacian Gold Ltd	Mt Morgans Gold Mine	4	25
Evolution Mining Ltd	Edna May Gold Project	184	190
Focus Minerals Ltd	Laverton Gold Project	213	73
	The Mount	66	30
	Three Mile Hill	150	74
	Tindals	135	62
FMR Investments Pty Ltd	Burbanks	2	1
	Greenfields-Higginsville Plant	58	54
	Gordon Sirdar Project	19	20
GMK Exploration Pty Ltd	Meekatharra Gold Operations – Bluebird	43	104
GSM Mining Co Pty Ltd	Granny Smith Group	0	209
Hanking Gold Mining Pty Ltd	Marvel Loch – Southern Cross Group	0	16
Haoma Mining NL	Bamboo Creek	12	13
HBJ Minerals Pty Ltd	South Kal Operations	287	214
Integra Mining Ltd	Randalls	187	0
Jinka Minerals Ltd	Burnakura	90	0
Kalgoorlie Consolidated Gold Mines	Golden Mile – Super Pit	1,870	1,808
Kalgoorlie Mining Company (Bullant) Pty Ltd	Bullant Mine	24	6
Kalnorth Gold Mines Ltd	Lindsays – Eastern	0	19
Kentor Minerals (WA) Pty Ltd	Burnakura	42	49
La Mancha Resources Australia Pty Ltd	Frogs Leg Group	252	262
	White Foil	0	131
Millennium Minerals Ltd	Nullagine Gold Operations	126	211
Minjar Gold Pty Ltd	Minjar Gold Project	11	124
Mt Magnet Gold Pty Ltd	Hill 50 – Mt Magnet	187	152
	Western Queen South	0	34
Mt Magnet South NL	Kirkalocka	7	3
Navigator (Bronzewing) Pty Ltd	Bronzewing	248	66
Newcrest Australia Ltd	Telfer	2,686	2,424
Newmont Boddington Gold Pty Ltd	Boddington	3,182	3,012
Newmont Yandal Operations Ltd	Jundee	622	539
Nex Metals Explorations Ltd	Orient Well	31	4

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
GOLD continued			
Northern Star Resources Ltd	Paulsens	279	301
Northwest Nonferrous Australia	Indee Group	4	7
Northwest Resources Ltd	Blue Spec – Golden Spec Mine	6	5
Paddington Gold Pty Ltd	Paddington Gold	498	634
	Binduli	181	90
Phoenix Gold Ltd	Blue Funnel Open Pit	0	8
Ramelius Milling Services Pty Ltd	Burbanks Treatment Plant	19	50
Ramelius Resources Ltd	Wattle Dam	51	0
	Coogee	0	22
Reed Resources Ltd	Sand Queen	1	1
Regis Resources Ltd	Moolart Well – Duketon Group	149	143
	Garden Well	326	568
	Rosemont Gold	0	12
Saracen Gold Mines Pty Ltd	Carosue Dam	307	237
Silver Lake Resources Ltd	Daisy-Milano	235	189
	Lakewood – Fimtails Plant	54	48
	Murchison Operations	182	232
	Randalls	0	162
St Barbara Mines Ltd	Southern Cross – Marvel Loch	334	9
	Leonora Operations – Sons of Gwalia	563	581
	King of the Hills Underground	178	195
St Ives Gold Mining Company Pty Ltd	Kambalda/St Ives	1,955	1,234
Stone Resources Aust Ltd	Brightstar-Mikado	14	7
Swan Gold Mining Ltd	Davyhurst	3	9
	Mt Ida Group	3	3
Tanami Gold NL	Coyote Group	206	87
The Perth Mint	Perth Mint	98	102
Troy Resources Ltd	Sandstone Group	3	0
Other	Various	9	18
TOTAL GOLD		22,920	20,541
HEAVY MINERAL SANDS			
BHP Titanium Minerals Pty Ltd	Beenup	7	7
Cristal Mining Aust	Bunbury	164	164
Doral Mineral Sands Pty Ltd	Dardanup	308	550
Mintech Chemical Industries Pty Ltd	Rockingham Zirconia Plant	64	72
GMA Garnet Pty Ltd	Narngulu Garnet Plant	37	71
	Port Gregory	34	56
Iluka Resources Limited	Capel	636	374
	Eneabba	204	85
	Narngulu Synthetic Rutile Plants	244	229
	Gingin/Iluka	16	9
Tronox Management Pty Ltd	Chandala-Muchea	351	361
	Cooljarloo	193	409
	Bunbury Port	10	12
TOTAL HEAVY MINERAL SANDS		2,268	2,399

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
IRON ORE			
Atlas Iron Ltd	Abydos DSO Project	19	171
	Mt Dove	28	56
	Mt Webber Mine – Fender	0	50
	Pardoo	78	71
	Wodgina	155	199
BC Iron Limited	Nullagine	365	470
BHP Billiton Iron Ore Pty Ltd	Boodarie HBI Plant	18	24
	Eastern Ridge Operation	836	990
	Jimblebar Construction Site	82	1,502
	Jimblebar Hub	137	806
	Mining Area C	1,966	2,427
	Mt Whaleback	2,038	2,814
	Nelson Point	1,208	2,650
	RGP4/5 Port Hedland Pace Project	1,879	1,094
	Yandi – Marillana Creek Group	1,480	2,244
	Yarnima Power Station	52	466
Calibre Projects Pty Ltd	Yarrie Group	0	405
	Western Turner Syncline	288	660
	Brockman 4 – Phase 2	292	75
Citic Pacific Mining Management Pty Ltd	Orebody 24 Rail	0	61
	Sino Iron Project	934	2,422
	Koolyanobbing	1,184	1,353
Cliffs Natural Resources Pty Ltd	Cuddingwarra	14	0
	Geraldton Port Storage Facility	11	0
	Jack Hills	27	6
Downer EDI Works Pty Ltd	Warramboos Project	63	0
Fast JV (Fluor and SKM team)	Eastern Ridge Orebody 24 Construction	0	404
Ferro Metals Australia Pty Ltd	Balla Balla Group	1	0
Forge Resources Ltd	Balla Balla Group	2	0
Fortescue Metals Group Ltd	Anderson Point Port Facility	1,045	1,311
	AP5 Expansion	0	12
	Christmas Creek	3,718	3,738
	Cloudbreak	3,867	4,248
	Rail Ballast Quarry	19	6
	Solomon – Kings Project	1,673	1,328
GHD Pty Ltd	Jimblebar Non Process Infrastructure	432	487
Hamersley HMS Pty Ltd	Hope Downs 1-3 Group	1,268	888
	Hope Downs 4 Operations	130	718
Hamersley Iron Pty Ltd	Brockman 2 – Detritals Group	669	877
	Brockman 4 – Resources Safety Group	607	1,359
	Dampier Port Operations	2,339	2,109
	Dampier Power Plant	0	3
	Marandoo	459	677
	Nammuldi Below Water Table	0	387
	Paraburdoo/Channar/Eastern Range	1,624	1,656
	Tom Price	1,951	1,913

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
IRON ORE continued			
	Yandicoogina	1,212	1,233
HWE Cockatoo Pty Ltd	Cockatoo Island – Homer (and Seawall)	146	0
Hismelt (Operations) Pty Ltd	Hismelt Iron Ore Smelting	51	95
IB Operations Pty Ltd	North Star Magnetite	0	8
Karara Mining Limited	Karara – Blue Hills Group	407	984
	Karara Export Terminal – Gindalbie	18	48
Kellogg Brown & Root Pty Ltd	West Angelas Fuel Hub	0	123
	Parker Point Fuel Farm	0	60
Kimberley Metals Group Pty Ltd	Ridges Iron Ore	125	155
Leighton Contractors Pty Ltd	Solomon Operations – Central Admin	506	1,811
Lycopodium Minerals Pty Ltd	Marandoo Phase 2 – Construction	287	480
MacMahon Holdings Pty Ltd	Orebody 18 – Wheelarra	445	434
Mt Gibson Mining Limited	Extension Hill – Hematite	126	72
	Geraldton Port Storage Facility	25	41
	Koolan Island	608	523
	Perenjori Siding	92	108
	Ruvidini Rail Terminal	66	90
	Tallering Peak	318	196
Ngarda Civil and Mining Pty Ltd.	Yarrie Nimingarra	426	0
Pluton Resources Ltd	Cockatoo Island – Homer (and Seawall)	25	84
Polaris Metals Pty Ltd	Carina Iron Ore Mine	227	195
Process Minerals International Pty Ltd	Boodarie RSI	23	0
	Phils Creek	0	63
	Poondano Iron Ore Project	87	49
Rio Tinto Iron Ore Pty Ltd	Brockman 4 – Resources Safety Group	589	0
	Cape Lambert Power Station	40	3
	Cape Lambert Expansion	82	728
	Dampier Fuel Wharf	94	0
	Kangaroo Hill Village	38	32
	West Angelas Power Plant	35	128
	West Pilbara Village	0	66
Robe River Mining Co. Pty Ltd	Cape Lambert Port Operations	1,198	1,452
	Pannawonica	678	770
	West Angelas Plant	1,700	1,588
Roy Hill Iron Ore Pty Ltd	Roy Hill	260	506
Rutila Resources	Balla Balla Group	0	6
Sinosteel Midwest Corporation Ltd	Koolanooka	116	19
	Blue Hills Iron Ore Project	0	31
Top Iron Pty Ltd	Mummaloo Central	0	5
TOTAL IRON ORE		43,008	55,323
MANGANESE			
Auvex Resources Limited	Ant and Sunday Hill		
Pilbara Manganese Pty Ltd	Woodie Woodie	691	531
	Woodie Woodie Tailings Treatment Plant	25	35
TOTAL MANGANESE		716	566

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
NICKEL			
BHP Billiton (Nickel West)	Cliffs	230	219
	Kalgoorlie Nickel Smelter	695	457
	Kambalda	138	118
	Kwinana Refinery	492	329
	Leinster	905	929
	Mt Keith	1,036	807
	Beta-Hunt Nickel Group	5	5
Consolidated Nickel Pty Ltd	Beta-Hunt Nickel Group	5	5
First Quantum Minerals (Australia) Pty Limited	Ravensthorpe	999	1,026
Focus Minerals Ltd	Nepean	1	1
Fox Radio Hill Pty Ltd	Radio Hill	27	19
Lake Johnston Ltd	Emily Ann	257	113
Lightning Nickel Pty Ltd	Long Shaft	211	184
Mincor Operations Pty Ltd	Carnilya Hill	2	0
	Mincor Operations	124	166
	Otter Juan	92	54
	Murrin Murrin	1,433	1,375
Murrin Murrin Operations Pty Ltd	Murrin Murrin	1,433	1,375
	Avalon-Bulong Plant	10	7
	Black Swan	16	11
	Cawse	14	12
	Waterloo	11	7
Panoramic Resources Limited	Lanfranchi	282	249
	Savannah Group	365	332
Poseidon Nickel Ltd	Windarra Group	24	22
Xstrata Nickel Australasia Operations Pty Ltd	Cosmos	173	10
	Sinclair	97	40
Salt Lake Mining Pty Ltd	Beta-Hunt Kambalda	0	2
Southern Cross Energy	Southern Cross Energy Power Group	101	0
Western Areas NL	Forrestania	511	492
TOTAL NICKEL		8,251	6,986
SALT			
Dampier Salt Ltd	Dampier	344	271
	Lake MacLeod	225	224
	Port Hedland	218	218
WA Salt Supply Koolyanobbing Pty Ltd	Lake Deborah	10	11
Onslow Salt Pty Ltd	Onslow	193	357
Shark Bay Salt JV	Useless Loop	128	83
Western Salt Refinery Pty Ltd	Pink Lake	1	1
TOTAL SALT		1,119	1,165
TIN, TANTALUM AND LITHIUM			
Galaxy Resources Ltd	Mt Catlin (Spodumene)	122	25
Global Advanced Metals Greenbushes Pty Ltd	Greenbushes	13	11
	Wodgina	92	53
Nagrom and Co.	Kelmscott	94	89
Talison Lithium Aust Pty Ltd	Greenbushes	252	212
TOTAL TIN, TANTALUM AND LITHIUM		573	390
TOTAL CHROMITE		87	54

TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS INDUSTRY

MINERAL/Company	Operating Site	2012	2013
TOTAL CLAYS		105	114
TOTAL CONSTRUCTION MATERIALS		957	918
TOTAL DIMENSION STONE		111	106
TOTAL GYPSUM		14	29
TOTAL INDUSTRIAL PEGMATITE MINERALS		21	19
TOTAL LIMESTONE – LIMESAND		219	221
TOTAL MINERAL EXPLORATION		2,779	2,469
TOTAL PHOSPHATE		172	176
TOTAL RARE EARTHS		177	151
TOTAL SILICA – SILICA SAND		583	554
TOTAL SILVER		63	46
TOTAL TALC		34	45
TOTAL TUNGSTEN AND MOLYBDENUM		95	107
TOTAL VANADIUM		240	150
TOTAL VARIOUS PORTS		690	1,027
ALL OTHER MATERIALS		3	107
TOTAL MINERALS		99,551	105,974

SOURCE: AXTAT Reporting System, Resources Safety Division, Department of Mines and Petroleum monthly status reports. Figures include employees as well as contractors.

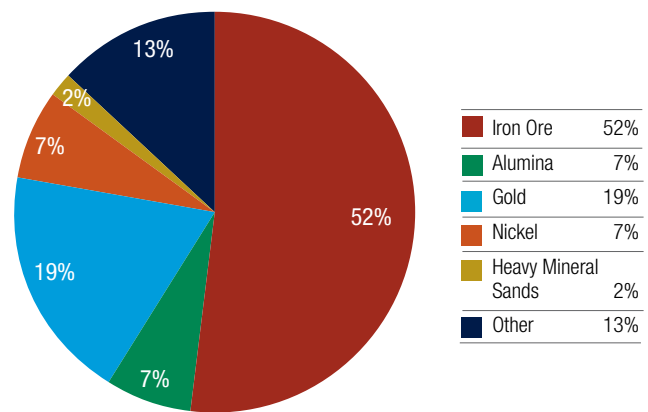


Figure 59. **Western Australian Mining Employment 2013**
Total Value A\$105,974 Source: DMP

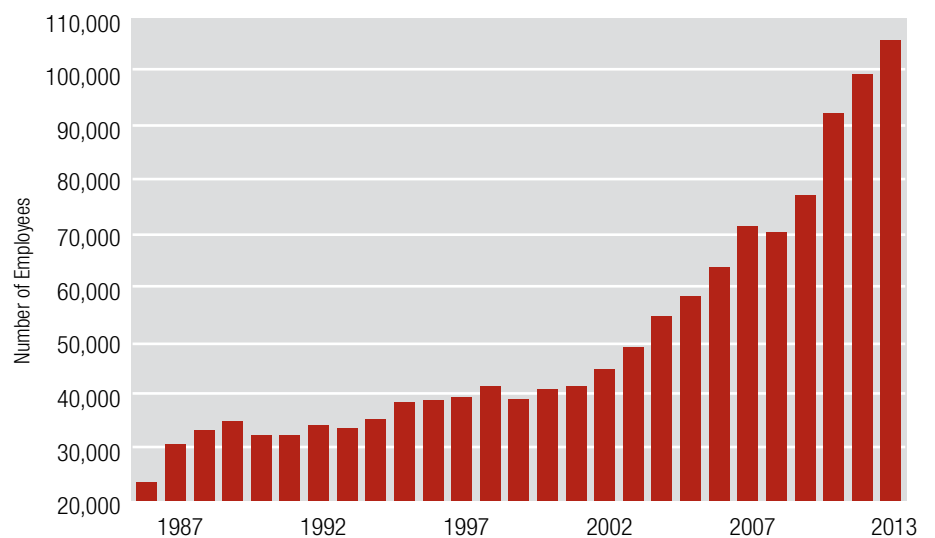


Figure 60. **Western Australian Mining Employment**
Source: DMP Resources Safety Division AXTAT Reporting System
Petroleum employment data discontinued in above graph

TABLE 10. PETROLEUM EMPLOYMENT – STATE LEGISLATION
PETROLEUM EMPLOYMENT

On 1 January 2012, the administrative responsibility for compliance and operations support for petroleum activities in Commonwealth waters, (previously carried out by the Department of Mines and Petroleum), transferred to the National Offshore Petroleum Titles Administrator (NOPTA).

Also from 1 January 2012, the responsibility for administering safety regulation for coastal waters under the *Petroleum (Submerged Lands) Act 1982* reverted back to the Department of Mines and Petroleum. This service had previously been provided by the National Offshore Petroleum Safety Authority (NOPSA) which is now known as the National Offshore Petroleum Safety

and Environment Management Authority (NOPSEMA). NOPSEMA is also responsible for administering safety regulation in Commonwealth waters.

Employment data shown in the Statistics Digest for the Western Australia petroleum industry therefore only encompasses operations subject to State petroleum legislation. For these areas under State jurisdiction, petroleum employment data is provided in petroleum operators' monthly safety reports submitted to the Department of Mines and Petroleum. This is for Western Australian petroleum facilities and pipelines both onshore and in coastal waters. It does not cover LNG and land based service facilities.

MINERAL/Company	Operating Site	2013
PETROLEUM (onshore facilities and pipelines covered under <i>Petroleum Pipelines Act 1969</i> , <i>Petroleum (Submerged Lands) Act 1982</i> and <i>Petroleum Geothermal Energy Resources Act 1967</i>)		
APA Group	various laterals and pipelines	179
Apache Energy Ltd	Devil Creek, Varanus and Burrup Fertilisers Lateral	149
APT Parmelia Pty Ltd	Mondarra Gas Storage Facility	61
ARC Energy Ltd	Dongara and Hovea Production Facilities, Mt Horner, Woodada and Well Intervention Activities	22
Barrick Gold	Plutonic Lateral	7
BHP Billiton Petroleum	Macedon Gas Project	307
Buru Energy	includes Ungani, Blina and Ensign Fields	52
Calenergy Resources (Aust) Ltd	Whicher Range-4 ST1	8
Chevron (Aust) Pty Ltd	Gorgon, WA Oil Asset and Drilling and Wheatstone	752
DBNGP (WA) Transmission Pty Ltd	Dampier-Bunbury Natural Gas Pipeline	209
Empire Oil Company (WA) Ltd	Red Gully Pipeline and Processing Facility	24
Goldfields Gas Transmission Pty Ltd	Goldfields Gas Pipeline	151
Midwest Joint Venture	Mid West Pipeline	10
New Standard Onshore Pty Ltd	MB Century Rig-14	7
Newgen Neerabup Partnership	Neerabup Pipeline-PL75	13
Newmont Yandal Operations Pty Ltd	Jundee Lateral	5
Norilsk	Cawse Lateral	4
Norwest Energy NL	P00084	4
Origin Energy	Cockburn Lateral, Jingemia and Beharra Springs	20
Pilbara Iron	Cape Lambert and Paraburdoo Gas Laterals	11
Redback Pipeline Pty Ltd	Magellan Lateral	7
Roc Oil	Arrowsmith Stabilisation Facility	15
Southern Cross Pipelines Aust Pty Ltd	Mt Keith, Parkeston, Kambalda and Leinster Laterals	22
Other	various laterals and pipelines	29
TOTAL WA ONSHORE AND COASTAL WATERS		2,065

SOURCE: AXTAT Reporting System, Resources Safety Division, Department of Mines and Petroleum monthly status reports submitted to the department for Western Australia onshore petroleum facilities and pipelines data. Figures include employees as well as contractors.

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013

BASE METALS

Copper–Lead–Zinc

Aditya Birla Minerals Ltd,
Level 3, 256 Adelaide Terrace,
Perth WA 6000,
(08) 9366 8800,
Nifty.
[www.adityabirlaminerals.com.au/
aboutusoverview.asp](http://www.adityabirlaminerals.com.au/aboutusoverview.asp)

BHP Billiton (Nickel West),
191 Great Eastern Highway,
Belmont WA 6104,
(08) 6272 3000,
Kambalda.
www.bhpbilliton.com

MMG Golden Grove Pty Ltd,
Level 23,
28 Freshwater Place,
Southbank Vic 3001,
(03) 9288 0413,
Golden Grove.
www.mmg.com

Independence Group NL,
Level 5, South Shore Centre,
85 South Perth Esplanade,
South Perth WA 6151,
(08) 9238 8300,
Teutonic Bore – Jaguar.
www.igo.com.au

Newcrest Mining Ltd,
193 Great Eastern Highway,
Belmont WA 6104,
(08) 9270 7070,
Telfer.
www.newcrest.com.au

Newmont Boddington Pty Ltd,
388 Hay Street,
Subiaco WA 6008,
(08) 9423 6580,
Boddington Gold
www.newmont.com

Rosslyn Hill Mining Pty Ltd,
Suite 1D, 21 Teddington Road,
Burswood WA 6100,
(08) 9267 7000,
Paroo Station Lead.
<http://rosslynhillmining.com.au/>

Sandfire Resources NL,
Level 1, 31 Ventnor Avenue,
West Perth WA 6005,
(08) 6430 3800,
DeGrussa–Dulgunna.
www.sandfire.com.au/

BAUXITE–ALUMINA

Alumina

Alcoa of Australia Limited,
181–205 Davy Street,
Booragoon WA 6154,
(08) 9316 5111,
Willowdale, Huntly–Del Park.
www.alcoa.com/australia

Worsley Alumina Pty Ltd,
PO Box 344,
Collie WA 6225,
(08) 9734 8311,
Worsley.
www.bhpbilliton.com.au

CHROMITE

Consolidated Minerals,
Level 1, 28 Ventnor Avenue,
West Perth WA 6005,
(08) 9460 7000,
Coobina.
www.consminerals.com.au

CLAY

Attapulgitite
Hudson Resources Ltd,
2 Kemp Street, Narngulu,
Geraldton WA 6530,
(08) 9923 3604,
Lake Nerramyne.
www.hudsonresources.com

Clay Shale

Wesfarmers Premier Coal Ltd,
Premier Road,
Collie WA 6225,
(08) 9780 2222,
Collie.
www.wesfarmers.com.au

Saponite

Watheroo Minerals Pty Ltd,
PO Box 353,
Dunsborough WA 6281,
(08) 9756 6121,
Watheroo Clays.
www.bentonitewa.com.au

COAL

**Griffin Coal Mining Company
Pty Limited,**
1sr Floor, 677 Murray Street,
West Perth WA 6005,
(08) 6188 2200,
Collie.
www.griffincoal.com.au

Premier Coal Limited,
Premier Road,
Collie WA 6225,
(08) 9780 2222,
Collie.
www.wesfarmers.com.au

CONSTRUCTION MATERIALS

Aggregate

Boral Resources (WA) Ltd,
63–69 Abernethy Road,
Belmont WA 6104,
(08) 9333 3400,
Various.
www.boral.com.au

Hanson Construction Materials,
123 Burswood Road,
Burswood WA 6100,
(08) 9311 8811,
Turner River.
www.hanson.com.au

Holcim (Australia) Pty Ltd,
Technology Park,
18–20 Brodie–Hall Drive,
Bentley WA 6102,
(08) 9212 2000,
Burrup–Dampier, Newman,
Turner River.
www.holcim.com.au

Northwest Quarries Pty Ltd,
PO Box 828,
Karratha WA 6714,
0419 873 357,
Pippingarra.
<http://northwestquarries.com.au/>

Gravel

Hanson Construction Materials,
123 Burswood Road,
Burswood WA 6100,
(08) 9311 8811,
Turner River.
www.hanson.com.au

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013

NTC Contracting,

Lot 550 Onslow Road,
Onslow WA 6710,
(08) 9184 6025
Onslow.
www.ntc.net.au

WA Limestone Co.,

41 Spearwood Avenue,
Bibra Lake WA 6163,
(08) 9434 2299,
Pickering Brook.
www.walimestone.com

Sand

Boral Resources (WA) Ltd,

63–69 Abernethy Road,
Belmont WA 6104,
(08) 9333 3400,
Gnangara, Gosmont.
www.boral.com.au

Rocla Quarry Products,

130 Fauntleroy Avenue,
Redcliffe WA 6104,
(08) 9475 2500,
Various sites.
www.rocla.com.au

Holcim (Australia) Pty Ltd,

Technology Park,
18–20 Brodie–Hall Drive,
Bentley WA 6102,
(08) 9212 2000,
Various sites.
www.holcim.com.au

Tuma Holdings Pty Ltd,

Unit 16, 32 Jubilee Street,
South Perth WA 6152,
Mobile: 0408 923 801,
Chidlow.

DIAMONDS

Argyle Diamonds Ltd,

1 William Street,
Perth WA 6000,
(08) 9482 1166,
Argyle.
www.argylediamonds.com.au

Kimberley Diamonds Ltd,

Level 38 Australia Square Tower,
264–278 George Street,
Sydney NSW 2000,
(02) 8243 7500,
Ellendale.
www.kdc.com.au

**DIMENSION STONE
Granite**

Fraser Range Granite NL,

Eyre Highway,
Norseman WA 6443,
(08) 9039 3442,
Fraser Range Granite

GOLD

Agnew Gold Mining Co Pty Ltd,

PMB 10,
Leinster WA 6437,
(08) 9088 3822,
Agnew.
www.goldfields.co.za

AngloGold Ashanti

Australia Limited,

Level 13, St Martins Tower,
44 St Georges Terrace,
Perth WA 6000,
(08) 9425 4602,
Sunrise Dam.
www.anglogoldashanti.com

Alacer Gold Corp,

Level 3, 18 Parliament Place,
West Perth WA 6005,
(08) 9226 0625,
Higginsville, South Kal Mines.
www.alacergold.com.

Barrick

(Australia Pacific) Limited,

Level 10, 2 Mill Street,
Perth WA 6000,
(08) 9212 5777,
Darlot, Lawlers, Plutonic,
Granny Smith, Kanowna Belle,
East Kumdana, Kalgoorlie.
www.barrick.com

Evolution Mining Limited,

Level 3, 1 Altona Street,
West Perth WA 6005,
(08) 6216 9700,
Edna May.
www.evolutionmining.com.au

**Kalgoorlie Consolidated Gold Mines
Pty Ltd,**

Private Mail Bag 27,
Kalgoorlie WA 6433,
(08) 9022 1100,
Golden Mile Fimiston Super Pit.
www.superpit.com.au

La Mancha Resources Inc.,

Level 1, 12 St Georges Terrace,
Perth WA 6000,
(08) 9268 4000,
Mungari East, Frogs Leg, White Foil.
www.lamancha.ca/en/home

Northern Star Resources Limited,

Level 1, 1 Puccini Court,
Stirling WA 6021,
(08) 6188 2100,
Paulsens.
www.nsr ltd.com

Newcrest Mining Limited,

193 Great Eastern Highway,
Belmont WA 6104,
(08) 9270 7070,
Telfer.
www.newcrest.com.au

Newmont Mining Corporation,

Level 1, 388 Hay Street,
Subiaco WA 6008,
(08) 9423 6100,
Boddington, Jundee, Kalgoorlie.
www.newmont.com

Paddington Gold Pty Ltd,

PO Box 1653,
Kalgoorlie WA 6430,
(08) 9080 6800,
Paddington, Navajo–Chief.
www.nortongoldfields.com.au

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013

Ramelius Resources Limited,
Level 1, 130 Royal Street,
East Perth WA 6004,
(08) 9202 1127,
Mt Magnet, Wattle Dam.
www.rameliusresources.com.au

Regis Resources Limited,
Level 1, 1 Alvan Street,
Subiaco WA 6008,
(08) 9442 2200,
Moolart, Garden Well.
www.regisresources.com.au

Sandfire Resources NL,
Level 1, 31 Ventnor Avenue,
West Perth WA 6005,
(08) 6430 3800,
DeGrussa–Dulgunna.
<http://www.sandfire.com.au/>

Saracen Mineral Holdings Limited,
Level 4, 89 St Georges Terrace,
Perth WA 6000,
(08) 9229 9100,
Porphyry.
www.saracen.com.au

Silver Lake Resources Limited,
Suite 4, Level 3,
85 South Perth Esplanade,
South Perth WA 6151,
(08) 6313 3800,
Mt Monger, Murchison, Randalls.
www.silverlakeresources.com.au

St Barbara Limited,
1205 Hay Street,
West Perth WA 6005,
(08) 9476 5555,
Marve Loch – Southern Cross,
King of the Hills, Sons of Gwalia.
www.stbarbara.com.au

St Ives Gold Mining Co Pty Ltd,
PO Box 359,
Kambalda WA 6442,
(08) 9088 1111,
Kambalda–St Ives.
www.goldfields.co.za

Tanami Gold NL,
Level 2, 56 Ord Street,
West Perth WA 6005,
(08) 9212 5999,
Tanami Coyote.
www.tanami.com.au

GYPSUM
Dampier Salt Pty Ltd,
37 Belmont Avenue,
Belmont WA 6104,
(08) 9270 9270,
Lake MacLeod.
www.dampiersalt.com.au

Gypsum Industries,
Suite 1, 110 Robinson Avenue,
Belmont WA 6104,
1800 644 951,
Lake Cowcowing.
www.aglime.com.au

Lake Hillman Mining Pty Ltd,
PO Box 1,
Kalannie WA 6468,
(08) 9666 2045,
Lake Hillman.

Wandhill Gypsum,
626 Beckworth Road,
Esperance WA 6450,
(08) 9072 0055,
Scaddan.

Whitfield Minerals Pty Ltd,
PO Box 1363,
Mandurah WA 6210,
(08) 9535 9299,
Lake Cowan.

HEAVY MINERAL SANDS
Garnet Sand
GMA Garnet Pty Ltd,
Lot 122 Goulds Road,
Narngulu,
Geraldton WA 6532,
(08) 9923 6000,
Port Gregory.
www.garnetsales.com

Ilmenite, Leucoxene, Rutile and Zircon
Cristal Mining Australia Limited,
Koombana Drive, North Shore,
Bunbury WA 6230,
(08) 9721 0200,
Gwindinup Mine, Kemerton Plant.
www.bemax.com.au

Doral Mineral Sands Pty Ltd,
Lot 7, 1 Harris Road,
Picton WA 6229,
(08) 9725 5444,
Dardanup.
www.doral.com.au

Iluka Resources Ltd,
Level 23, 140 St Georges Terrace,
Perth WA 6000,
(08) 9360 4700.
Capel.
www.iluka.com

TiWest Pty Ltd,
Technology Park,
1 Brodie–Hall Drive,
Bentley WA 6102,
(08) 9365 1333,
Cooljarloo.
www.tiwest.com.au

IRON ORE
Atlas Iron Ltd,
Raine Square,
Level 18, 300 Murray Street,
Perth WA 6000.
(08) 6228 8000,
Abydos, Mt Dove, Pardoo, Wodgina.
www.atlasiron.com.au

BC Iron Limited,
Level 1, 15 Rheola Street,
West Perth WA 6005,
(08) 6311 3400,
Nullagine.
www.bcion.com.au

BHP Billiton Iron Ore (Goldsworthy) Ltd,
125 St Georges Terrace,
Perth WA 6000,
(08) 6224 4444,
Mining Area C.
www.bhpbilliton.com

BHP Billiton Iron Ore Pty Ltd,
125 St Georges Terrace,
Perth WA 6000,
(08) 6224 4444,
Jimblebar, Mt Whaleback,
Newman, Yandicoogina.
www.bhpbilliton.com

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013

Channar Mining Pty Ltd,

152 St Georges Terrace,
Perth WA 6000,
(08) 9327 2000,
Channar.

Cliffs Natural Resources Pty Ltd,

Level 12, 1 William Street,
Perth WA 6000,
(08) 9426 3333,
Koolyanobbing.
www.cliffsnaturalresources.com

Fortescue Metals Limited,

Level 2, 87 Adelaide Terrace,
East Perth WA 6004,
(08) 6218 8888,
Cloud Break, Christmas Creek,
Firetail, Nullagine.
www.fmgil.com.au

Gindalbie Metals Ltd,

Level 9, London House,
216 St Georges Terrace,
Perth WA 6000,
(08) 9480 8700,
Karara–Blue Hills.
www.gindalbie.com.au

Hamersley Iron Pty Ltd,

152 St Georges Terrace,
Perth WA 6000,
(08) 9327 2000,
Brockman, Namuldi,
Mesa J, Channar,
Eastern Range, Hope Downs, Marandoo,
Paraburdoo,
Tom Price, West Angelas,
Yandicoogina.
www.hamersleyiron.com

Hope Downs Management Services Pty Ltd,

152 St Georges Terrace,
Perth WA 6000,
(08) 9327 2000,
Hope Downs.
www.riotintoironore.com

Kimberley Metals Group,

Suite 4, 610 Murray Street,
West Perth WA 6005,
(08) 9225 3100,
Ridges.
www.kmetgroup.com

Mineral Resources Limited,

1 Sleat Road,
Applecross WA 6153,
(08) 9329 3600,
Poondano, Carina, Phils Creek.
www.mineralresources.com.au

Moly Mines Limited,

46-50 Kings Park Road,
West Perth WA 6005,
(08) 9429 3300,
Spinifex Ridge.
www.molymines.com

Mt Gibson Iron Limited,

Level 1, 2 Kings Park Road,
West Perth WA 6005,
(08) 9426 7500,
Mt Gibson Iron,
Koolan Island, Talling Peak.
www.mtgibsoniron.com.au

Pluton Resources Limited,

Level 1, 5 Ord Street,
West Perth WA 6005,
(08) 6145 1800,
Cockatoo Island.
www.plutonresources.com

Robe River Iron Associates,

Level 22, Central Park,
152–158 St Georges Terrace,
Perth WA 6000,
(08) 9327 2000,
Pannawonica, West Angelas.
www.riotinto.com

Sinosteel Midwest Corporation Limited,

7 Rheola Street,
West Perth WA 6005,
(08) 9429 4888,
Koolanooka.
www.smcl.com.au

LIMESAND–LIMESTONE

Cockburn Cement Ltd,

Lot 242, Russell Road,
Munster WA 6163,
(08) 9411 1000,
Various sites.
www.cockburncement.com.au

Gypsum Industries of Australia,

Suite 1, 110 Robinson Avenue,
Belmont WA 6104,
1800 644 951,
Dongara–Denison,
Lancelin, Jurien.
www.aglime.com.au/

Limestone Resources Australia Pty Ltd,

25-29 Frobisher Street,
Osborne Park WA 6017,
(08) 9340 0011,
Wanneroo, Moore River, Carabooda.
www.limestone-resources.com.au

WA Limestone Co.,

401 Spearwood Avenue,
Bibra Lake WA 6163,
(08) 9434 7777,
Various sites throughout State.
www.walimestone.com/

MANGANESE

Pilbara Manganese Pty Ltd,

Lot 2524 North West Coastal Highway,
South Hedland WA 6722,
(08) 9172 0900,
Woodie Woodie.
www.consminerals.com.au

Process Minerals International Pty Ltd,

1 Sleat Road,
Applecross WA 6153,
(08) 9329 3600,
Woodie Woodie.
www.processminerals.com.au

NICKEL

BHP Billiton (Nickel West),

125 St George's Terrace,
Perth WA 6845,
(08) 6321 0000,
Kambalda, Leinster, Mt Keith,
Kalgoorlie, Kwinana.
www.bhpbilliton.com

First Quantum Minerals (Australia) Pty Ltd,

Level 1, 24 Outram Street,
West Perth WA 6005,
(08) 9346 0100,
Ravensthorpe.
www.first-quantum.com

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013

Independence Group NL,

Suite 4, Level 5,
South Shore Centre,
85 South Perth Esplanade,
South Perth WA 6151
(08) 9238 8300,
Long Nickel.
www.igo.com.au

Minara Resources Limited,

Level 10, 58 Mounts Bay Road,
Perth WA 6000,
(08) 9212 8400,
Murrin Murrin.
www.minara.com.au

Mincor Resources NL,

Level 1, 56 Ord Street,
West Perth WA 6005,
(08) 9476 7200,
McMahon, Mariners,
Miitel, Otter Juan.
www.mincor.com.au

Norilsk Nickel Australia Pty Ltd,

Level 1, 88 Colin Street,
West Perth WA 6005,
(08) 9426 0100,
Lake Johnson.
www.nornik.ru/en

Panoramic Resources Ltd,

Level 9, 553 Hay Street,
Perth WA 6000,
(08) 6266 8600,
Savannah, Lanfranchi Tramways.
www.panoramicresources.com

Western Areas Limited,

Level 2, Kings Park Road,
West Perth WA 6005,
(08) 9334 7777,
Forrestania, Flying Fox,
Lounge Lizard, Spotted Quoll.
www.westernareas.com.au

PALLADIUM

BHP Billiton (Nickel West),

125 St George's Terrace,
Perth WA 6845,
(08) 6321 0000,
Kambalda.
www.bhpbilliton.com

PETROLEUM

Apache Energy Ltd,

Level 9, 100 St Georges Terrace,
Perth WA 6000,
(08) 6218 7100,
Various sites covering
16 production licenses.
www.apachecorp.com

AWE Ltd,

679 Murray Street,
West Perth WA 6005,
(08) 9480 1300,
Corbyas, Dongara.
www.awexp.com.au/irm/content/home.html

Buru Energy Limited,

Level 2, 88 William Street,
Perth WA 6000,
Freecall: 1800 337 330,
Blina, Lloyd, Ungani.
www.buruenergy.com.au

BHP Billiton Petroleum Pty Ltd,

Brookfield Place,
125 St Georges Terrace,
Perth WA 6000,
(08) 6321 0000,
Pyrenees, Stybarrow.
www.bhpbilliton.com

Empire Oil & Gas NL,

229 Stirling Highway,
Claremont WA 6010,
(08) 9284 6422,
Red Gully.
www.empireoil.com.au

Chevron Australia Pty Ltd,

Level 24, QV1 Building,
250 St Georges Terrace,
Perth WA 6000,
(08) 9216 4000,
Barrow Island, Crest,
Roller-Skate, Saladin.
www.chevron.com

ENI Australia Limited,

ENI House
266 Adelaide Terrace,
Perth WA 6000,
(08) 9320 1111,
Blacktip.

Origin Energy Resources Ltd,

34 Colin Street,
West Perth WA 6005,
(08) 9324 6111,
Beharra Springs.
www.originenergy.com.au

Roc Oil Company Limited,

Level 2, 201 Adelaide Tce,
East Perth WA 6004,
(08) 9219 7111,
Cliff Head.
www.rocoil.com.au

Santos Limited,

Level 1, 40 The Esplanade,
Perth WA 6000,
(08) 9333 9500,
Mutineer-Exeter.
www.santos.com.au

Vermilion Oil and Gas Australia Pty Ltd,

Level 5, 30 The Esplanade,
Perth WA 6000,
(08) 9215 0300,
Wandoo.
www.vermilionenergy.com/

Woodside Energy Ltd,

240 St Georges Terrace,
Perth WA 6000,
(08) 9348 4000,
Angel, Athena, Cossack, Goodwyn,
Hermes, Pluto, North Rankin,
Wanaea, Vincent, Enfield.
www.woodside.com.au

PLATINUM

BHP Billiton (Nickel West),

125 St George's Terrace,
Perth WA 6845,
(08) 6321 0000,
Kambalda.
www.bhpbilliton.com

RARE EARTHS

Lynas Corporation,

Level 1, 7 Tully Road,
East Perth WA 6004,
(08) 6241 3800,
Mount Weld.
www.lynascorp.com

SALT

Dampier Salt Ltd,

37 Belmont Avenue,
Belmont WA 6104,
(08) 9270 9270,
Dampier, Lake MacLeod,
Port Hedland.
www.dampiersalt.com.au

TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE SEPTEMBER 2013**Onslow Salt Pty Ltd,**

Level 16, 2 The Esplanade,
Perth WA 6000,
(08) 9265 8000,
Onslow Salt.

Shark Bay Salt Joint Venture,

Level 16, 2 The Esplanade,
Perth WA 6000,
(08) 9265 8000,
Useless Loop.
[www.mitsui.com/au/en/
group/1197874_3954.html](http://www.mitsui.com/au/en/group/1197874_3954.html)

WA Salt Supply Ltd,

Lot 102–103 Cockburn Road,
North Coogee WA 6163,
(08) 9431 9431,
Lake Deborah East.
www.wasalt.com.au

SILICA – SILICA SAND**Silica****Simcoa Operations Pty Ltd,**

973 Marriott Road,
Wellesley WA 6233,
(08) 9780 6666,
Dalaroo, Kemerton.
www.simcoa.com.au

Silica Sand**Austsand Mining,**

570 Mindijup Road,
Manypeaks WA 6328,
(08) 9846 1222,
Mindijup.

Kemerton Silica Sand Pty Ltd,

Suite 5, 363-367 Albany Highway,
Victoria Park WA 6100,
(08) 9355 0266,
www.ksspl.com.au.

Rocla Quarry Products,

3 Casella Place,
Kewdale WA 6105,
(08) 9353 9800,
Gnangara.
www.rocla.com.au

SPONGOLITE**Opalbase Nominees Pty Ltd,**

Red Gum Pass,
Kendenup WA 6323,
(08) 9841 7549,
Red Gum Spongolite.

TALC**Luzenac Australia Pty Ltd,**

Perenjori Road,
Three Springs WA 6519,
(08) 9954 3000,
Three Springs.
www.luzenac.com.au

IMI FABI (Australia) Pty Ltd,

9 Cleaver Street,
West Perth WA 6005,
(08) 9228 0255,
Mt Seabrook.

TIN–TANTALUM–LITHIUM**Spodumene****Talison Minerals Ltd,**

Level 4, 37 St Georges Terrace,
Perth WA 6000,
(08) 9263 5555,
Greenbushes.
www.talison.com.au

Galaxy Resources Ltd,

Level 2, 16 Ord Street,
West Perth WA 6005,
(08) 9215 1700,
Mt Cattlin.
www.galaxyresources.com.au

Tantalum**Galaxy Resources Ltd,**

Level 2, 16 Ord Street,
West Perth WA 6005,
(08) 9215 1700,
Mt Cattlin.
www.galaxyresources.com.au

Global Advanced Metals Pty Ltd,

Ground Floor,
76 Kings Park Road,
West Perth WA 6005,
(08) 6217 2500,
Greenbushes, Wodgina.
www.globaladvancedmetals.com

Tin**Global Advanced Metals Pty Ltd,**

Ground Floor,
76 Kings Park Road,
West Perth WA 6005,
(08) 6217 2500,
Greenbushes, Wodgina.
www.globaladvancedmetals.com

VANADIUM**Atlantic Ltd,**

Bankwest Tower,
108 St Georges Terrace,
Perth WA 6000,
(08) 6141 7100,
Windimurra.
www.atlanticltd.com.au/

DATA SOURCES

Quantities and values for minerals and petroleum in this publication are collected from a variety of sources including:

The Department's royalty returns, various company annual reports and quarterly Australian Stock Exchange reports, State port authority statistics, the ABS, BREE, NOPTA and EnergyQuest.

Quantities specified relate to either mine production or sales as listed below for each commodity.

Mine Production
Clays
Coal
Construction Materials
Dimension Stone
Gold
Gypsum
Limesand–Limestone–Dolomite
Silica – Silica Sand
Talc
Sales
Alumina
Base Metals (Copper, Lead and Zinc)
Chromite
Diamonds
Gem and Semi-Precious Stones
Heavy Mineral Sands
Industrial Pegmatite Minerals
Iron Ore
Manganese
Nickel Industry (Nickel, Cobalt, Platinum and Palladium)
Petroleum
Rare Earths
Salt
Silver
Spongolite
Tin–Tantalum–Lithium
Vanadium

ABBREVIATIONS

A\$	Australian dollar	Mboe	millions of barrels of oil equivalent
ABS	Australian Bureau of Statistics	Mtoe	million tonnes of oil equivalent
bbl	barrels of oil	Mt/a	million tonnes per annum
Bcm	billion cubic metres	Mct	million carats
BREE	Bureau of Resources and Energy Economics	Moz	million ounces
Btu	British Thermal Units	Mt	million tonnes
ct	carat	oz	ounce
GDP	Gross Domestic Product	oz/a	ounce per annum
GJ	Gigajoule	OPEC	Organization of Petroleum Exporting Countries
Gm ³	billion cubic metres	RBA	Reserve Bank of Australia
ha	hectares	t/a	tonnes per annum
km	kilometres	Tcf	trillion cubic feet
km ²	square kilometres	TJ/d	terajoules per day
kt	thousand tonnes	US\$	United States dollar
LME	London Metal Exchange		

WEIGHTS AND MEASURES

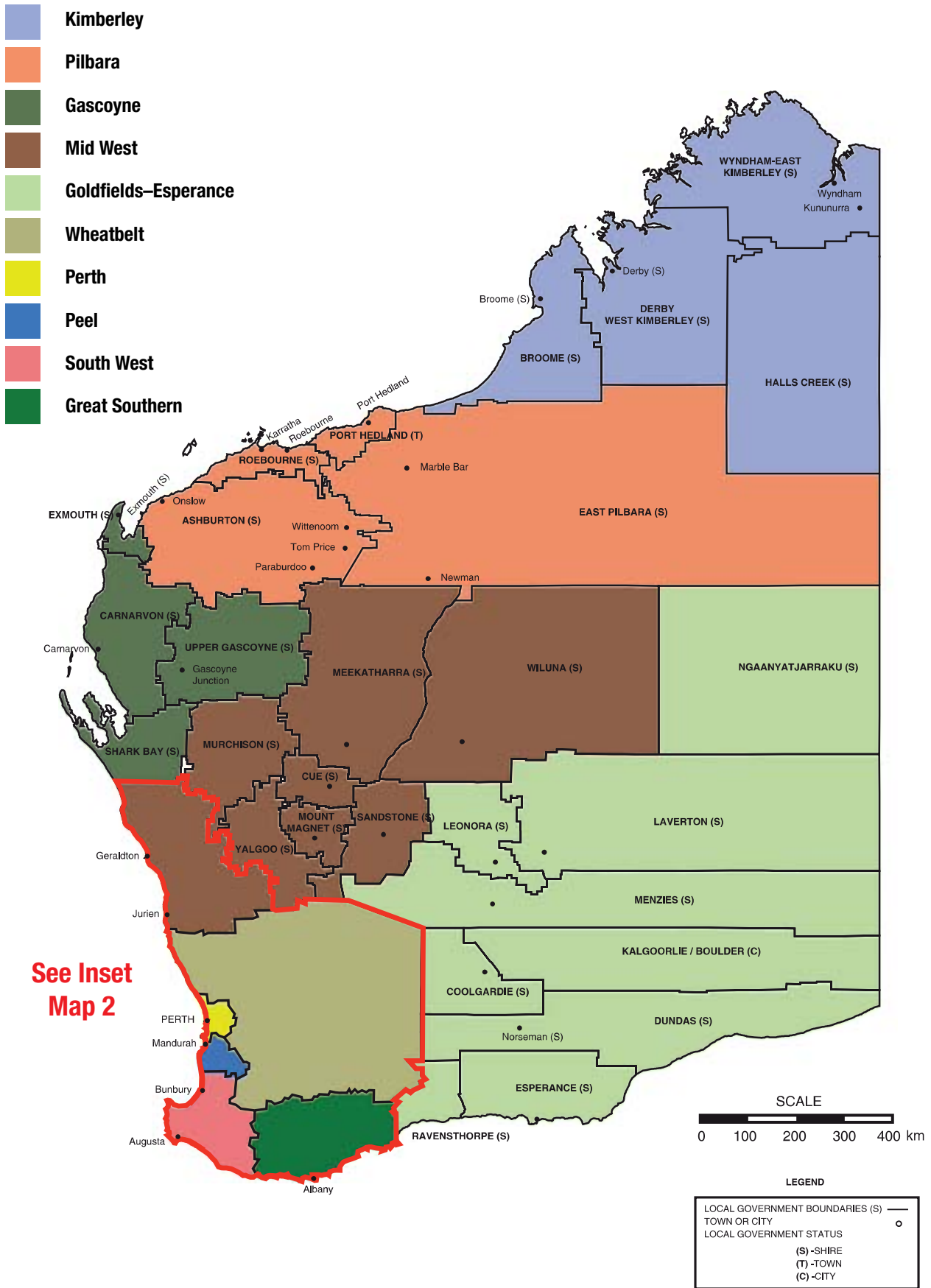
kilo	10 ³	1,000
mega	10 ⁶	1,000,000
giga	10 ⁹	1,000,000,000
tera	10 ¹²	1,000,000,000,000
peta	10 ¹⁵	1,000,000,000,000,000
exa	10 ¹⁸	1,000,000,000,000,000,000
zetta	10 ²¹	1,000,000,000,000,000,000,000
yotta	10 ²⁴	1,000,000,000,000,000,000,000,000

UNITS AND CONVERSION FACTORS

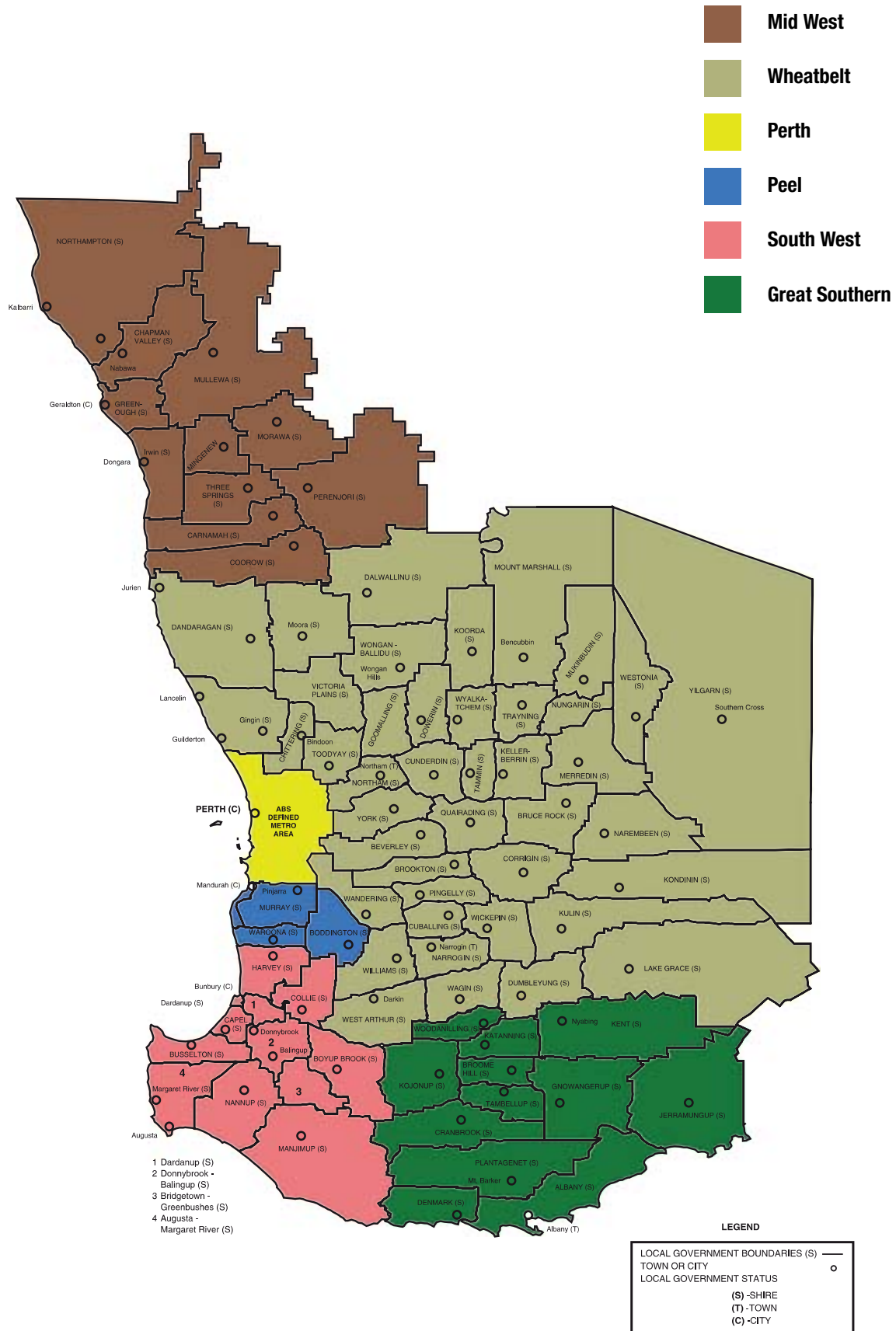
	Metric Unit	Symbol	Imperial Unit
Mass	1 gram	g	= 0.032151 troy (fine) ounce (oz)
	1 kilogram	kg	= 2.204624 pounds (lb)
	1 tonne	t	= 1.10231 United States short ton [1 US short ton = 2,000 lb]
	1 tonne	t	= 0.98421 United Kingdom long ton [1 UK long ton = 2,240 lb]
	1 tonne LNG	t	= 52,000,000 British Thermal Units (Btu)
Volume	1 kilolitre	kl	= 6.28981 barrels (bbl)
	1 cubic metre	m ³	= 35.3147 cubic feet (ft ³) [1 kilolitre (kl) = 1 cubic metre (m ³)]
Energy	1 kilojoule	kJ	= 0.94781 British Thermal Units (Btu)

	Energy Content	Prefix
Coal	19.7 GJ/t	kilo (k) 10 ³
Condensate	32.0 MJ/L	mega (M) 10 ⁶
Crude oil	37.0 MJ/L	giga (G) 10 ⁹
LNG	25.0 MJ/L	tera (T) 10 ¹²
Natural gas	38.2 MJ/m ³	peta (P) 10 ¹⁵
LPG-butane	28.7 MJ/L (1tonne LPG-butane = 1,720 litres)	
LPG-propane	25.4 MJ/L (1tonne LPG-propane = 1,960 litres)	

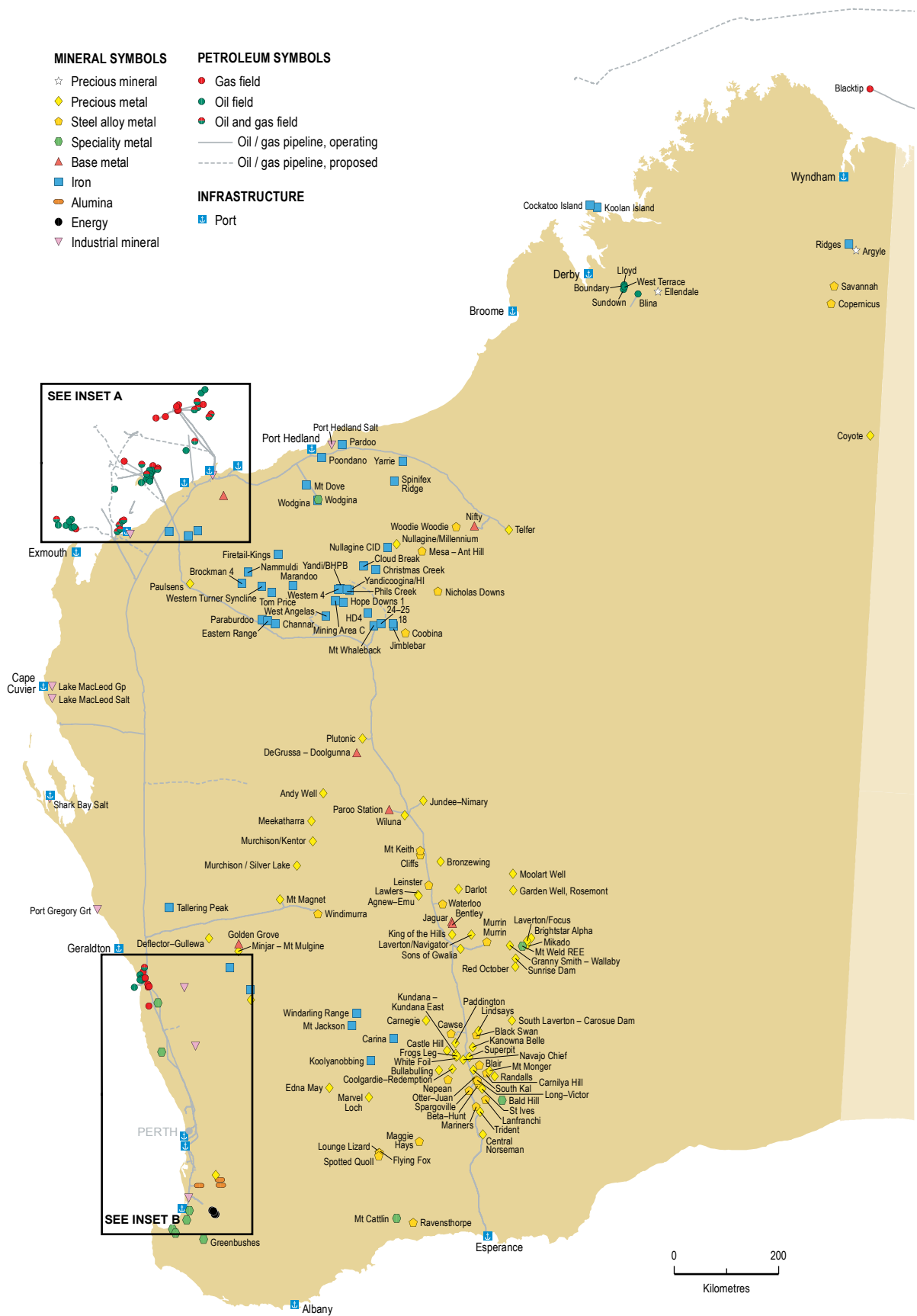
MAP 1. LOCAL GOVERNMENT BOUNDARIES



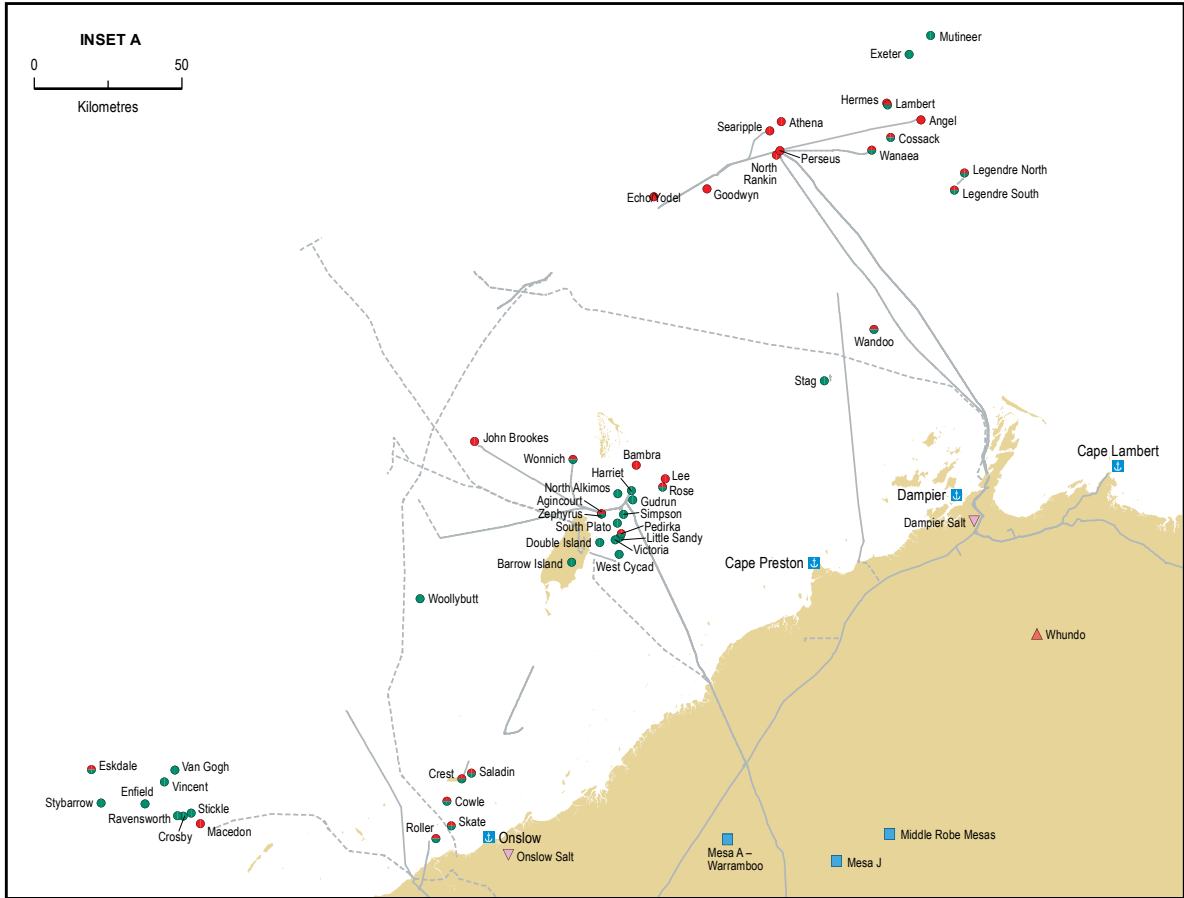
MAP 2. LOCAL GOVERNMENT BOUNDARIES – INSET 2



MAP 3. MAJOR MINERAL AND PETROLEUM PROJECTS IN WESTERN AUSTRALIA



MAP 4. MAJOR MINERAL AND PETROLEUM PROJECTS IN WESTERN AUSTRALIA – INSET A & B



MINERAL SYMBOLS

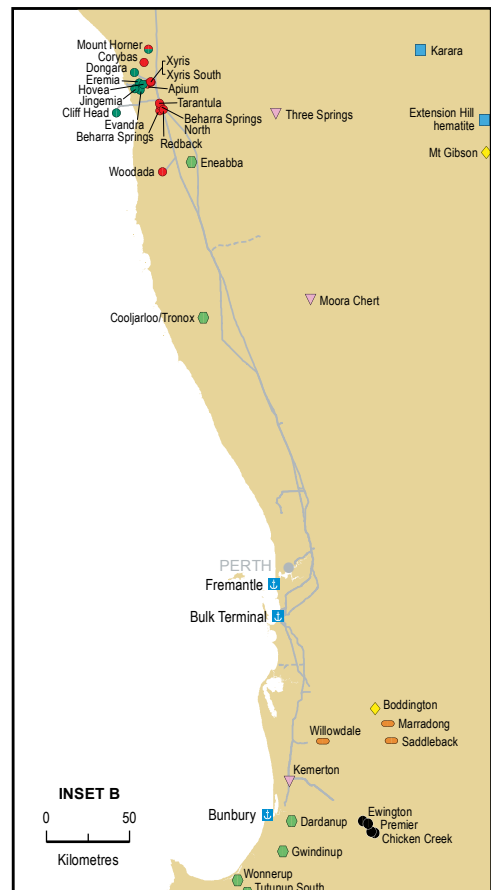
- ◆ Precious metal
- Speciality metal
- Iron
- Alumina
- Energy
- ▽ Industrial mineral

PETROLEUM SYMBOLS

- Gas field
- Oil field
- Oil and gas field
- Oil / gas pipeline, operating
- - - Oil / gas pipeline, proposed

INFRASTRUCTURE

- Port



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