



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



# WESTERN AUSTRALIA MINERAL AND PETROLEUM STATISTICS DIGEST

# 2012



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## WESTERN AUSTRALIAN RESOURCES INDUSTRY REACHES TOTAL SALES OF \$97 BILLION IN 2012

The value of Western Australia's mineral and petroleum sector in 2012 reached \$97 billion. This achievement is the industry's second highest, only surpassed in 2011 when the value was a record \$108 billion.

Considering the continuing strength of the Australian dollar, which has maintained an average exchange rate in excess of US\$1 over the past two years and weakening commodity prices, this achievement is remarkable. While traditionally perceived as a commodity currency, the Australian dollar did not decrease in line with falling commodity prices which normally would have helped to shield producers from lower prices.

Global economic conditions remained uncertain in 2012. This resulted in significantly lower prices for almost all commodities in the minerals sector, with the notable exceptions of gold and mineral sands.

The iron ore sector increased output by 12 per cent however it was not enough to counter lower prices resulting in a drop of \$11.7 billion in sales from the 2011 period.

Iron ore and gold together accounted for \$60.4 billion (or 83 per cent) of all mineral sales in 2012.

Iron ore remained the State's highest value commodity, accounting for \$51 billion (or 70 per cent) of total mineral sales in 2012. With strong demand, led by China, the sector achieved record levels of export quantities which resulted in 476 million tonnes exported, an increase of 12 per cent over the previous calendar year. Lower prices, however, resulted in a fall in total sales of 19 per cent.

The gold price continued its upwards momentum in 2012, resulting in total sales of \$9.4 billion. This represented an increase of six per cent over the previous calendar year. Output remained static at 5.8 million ounces.

The petroleum sector, which includes crude oil, condensate, LNG, natural gas and LPG (butane and propane) was valued at a record \$24.4 billion, marginally rising by one per cent in comparison to the 2011 calendar year. Most of this increase came from LNG which was boosted by the Pluto field coming on-stream during 2012.

Notwithstanding continued global economic uncertainty, investment activity in Western Australia remained strong during 2012, with the State's mining industry investing \$51 billion, a 45 per cent increase compared to 2011.

Western Australia remained the nation's leading mining investment destination, attracting 54 per cent of total national mining capital spending valued at \$95 billion. Fuelled by strong demand for resource commodities from Asia, new capital expenditure by the State's mining industry has grown at an annual rate of 27 per cent during the five years to 2012.

Mineral and petroleum exports comprised 87 per cent of the State's total merchandise exports of \$114 billion, representing by far the major contributor to Western Australia's 46 per cent share of the nation's total merchandise exports of \$248 billion.

This dominance is expected to continue given the large number of resource projects, particularly in relation to the iron ore and LNG industries. While the recent falls in commodity prices have caused some mining companies to re-evaluate their investment positions, a review in March–April 2013 showed Western Australia still has an estimated \$177 billion worth of resource projects under construction or in the committed stage of development. A further \$120 billion has been identified as planned or possible projects in coming years.

### Highlights in 2012

**Iron ore** remains the State's most valuable sector of the mining industry, accounting for \$51 billion (70 per cent) of the mineral sector's total sales. Continuing strong demand for iron ore saw the quantity sold in 2012 increased by 12 per cent however this was not enough to offset lower prices and a high Australian dollar which saw total sales fall by 19 per cent.

**Petroleum**, which includes crude oil, condensate, LNG, natural gas and LPG (butane and propane), is the second most valuable sector and was valued at a record \$24.4 billion in total. This represented a slight increase of one per cent on the previous year. The majority of this increase was due to the Pluto field coming on-stream midway through 2012.

**LNG** was the most valuable petroleum product in the State in 2012. Output increased by 14 per cent to a record 18.3 million tonnes with the value of LNG sales rising to \$11.3 billion, up 21 per cent compared to the previous calendar year. LNG remains second only to iron ore in value to the State.

Sales of **crude oil**, the second most valuable petroleum product in 2012, fell by 17 per cent to 63 million barrels, with the total value falling by 16 per cent to \$7.1 billion. Crude oil output is continuing its downward trend due to maturing fields.

The value of **condensate** decreased by six per cent to \$3.9 billion and output fell by five per cent to 38 million barrels.

In 2012 domestic **natural gas** sales increased by a modest two per cent to 9 billion cubic metres whilst the value of sales rose by three per cent to \$1.5 billion. Output of **LPG (butane and propane)** fell by six per cent and the sales value also fell to \$729 million, which was down two per cent on the previous calendar year.

**Gold** was the second most valuable mineral sector, with total sales of \$9.4 billion, representing 13 per cent of the total mineral sales. The gold price continued its upwards momentum in 2012, resulting in an increase of six per cent in the sales value over the previous calendar year. The quantity sold remaining static at 5.8 million ounces in 2012.

**Nickel** and **alumina** maintained their long-held positions as the State's third and fourth most valuable sectors. While prices for both commodities were negatively impacted this calendar year, it was most keenly felt by nickel. Although the quantity of nickel sales increased by 22 per cent, the total value decreased by four per cent, from \$4 billion in 2011 to \$3.8 billion this calendar year. In comparison, the total value of alumina decreased by 12 per cent to \$3.6 billion on a four per cent increase in quantity sold.

The overall value of **base metals** (copper, lead and zinc) increased by three per cent to \$1.4 billion in 2012. Copper represented by far the most significant base metal with total sales of \$1.3 billion. This amounted to an increase of eight per cent on the previous calendar year despite the quantity of sales increasing by 21 per cent to 179 thousand tonnes. Lead output improved by four per cent however weak prices resulted in sales of

\$16 million dollars, a drop of 21 per cent in comparison to 2011. Zinc production levels fell by 23 per cent, with the total value of sales falling 32 per cent from \$153 million in 2011 to \$104 million.

The total value of **mineral sands** sales increased significantly by 59 per cent to \$951 million. Sales revenues benefited from escalating prices for rutile, ilmenite and zircon which have rebounded strongly since the global financial crisis and have compensated for the general decline in volumes.

In 2012, the value of **salt** sales rose by 24 per cent to \$417 million while volumes increased by two per cent to 12.5 million tonnes.

While **diamond** sales volumes rebounded by 29 per cent to almost ten million carats, average prices saw total sales increase by only 19 per cent to \$346 million in comparison to the previous calendar year.

**Coal** production was up by seven per cent to 7.5 million tonnes, resulting in an increase in sales value of 11 per cent to \$315 million.

Output for **cobalt**, as a by-product of nickel mining increased by 53 per cent. However, weaker prices resulted in only a 22 per cent increase to \$156 million for the period.

Western Australia's mineral and petroleum resources, in order of value for 2012, were:

Commodity	\$A Billion
Iron Ore	\$51.0
LNG	\$11.3
Crude Oil and Condensate	\$11.0
Gold	\$9.4
Nickel	\$3.8
Alumina	\$3.6
Others	\$6.8
<b>Total</b>	<b>\$96.9</b>

**TABLE 1. QUICK RESOURCES FACTS**

All data is for the 2012 calendar year unless otherwise stated.

<b>Output of minerals and energy</b>	<b>\$ million</b>
Western Australia	\$96,854
Australia (DMP estimate)	\$185,000
WA minerals	\$72,421
WA petroleum	\$24,433
<b>Major West Australian Commodities</b>	<b>\$ million</b>
Iron Ore	\$51,021
Petroleum	\$24,433
Gold	\$9,352
Alumina	\$3,649
Nickel	\$3,783
<b>Crude Oil and Condensate</b>	<b>Million barrels</b>
Western Australia	103
Australia	138
WA share	75%
<b>Natural Gas (inc. LNG feedstock)</b>	<b>Million cubic metres</b>
Western Australia	36,050
Australia	56,558
WA share	64%
<b>Merchandise Exports</b>	<b>\$ million</b>
Western Australia	\$114,219
Australia	\$248,332
WA share	46%
WA exports of minerals and energy as % share of all State Merchandise exports	87%
<b>Mineral and Energy Exports</b>	<b>\$ million</b>
Western Australia	\$99,611
Australia (DMP estimate)	\$180,000
WA share	55%
<b>Exploration</b>	<b>\$ million</b>
Western Australian mineral	\$2,053
Australian mineral	\$3,656
WA share	56%
Western Australian petroleum	\$2,757
Australian petroleum	\$3,123
WA share	88%
<b>Private New Capital Investment</b>	<b>\$ million</b>
Western Australia	\$61,797
Australia	\$163,757
WA share	38%
Western Australian minerals and energy	\$50,896
Australian minerals and energy	\$95,030
WA share	54%
<b>Economy</b>	<b>\$ million</b>
Australia GDP 2011-12	\$1,474,686
Western Australian GSP 2011-12	\$238,870
Mining component of WA GSP	35%

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

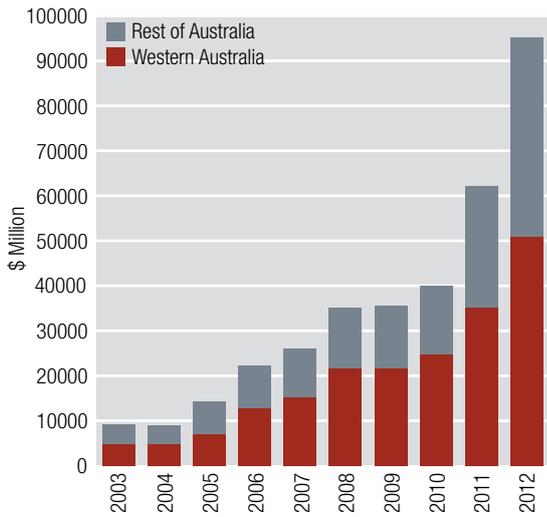


Figure 1. Mining Investment Source: ABS

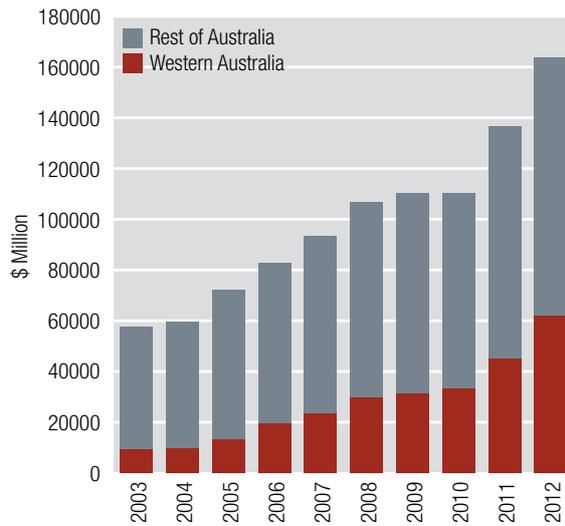


Figure 2. New Capital Investment Source: ABS

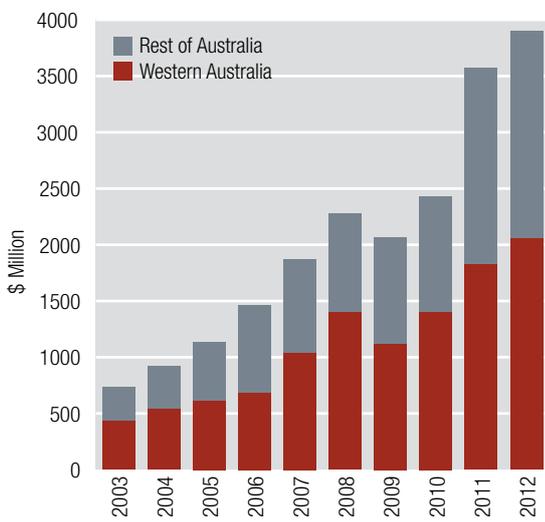


Figure 3. Mineral Exploration Expenditure Source: ABS

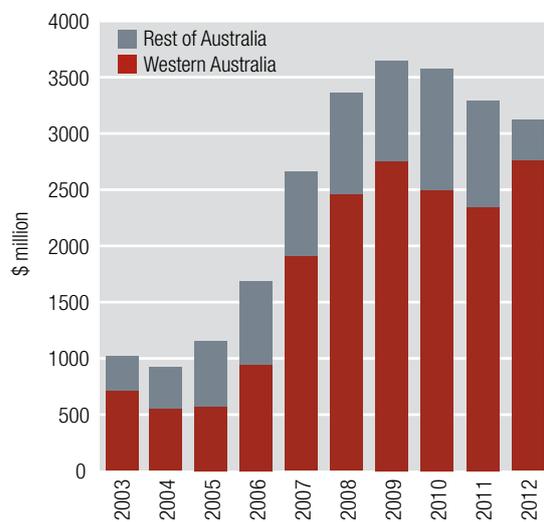


Figure 4. Petroleum Exploration Expenditure Source: ABS

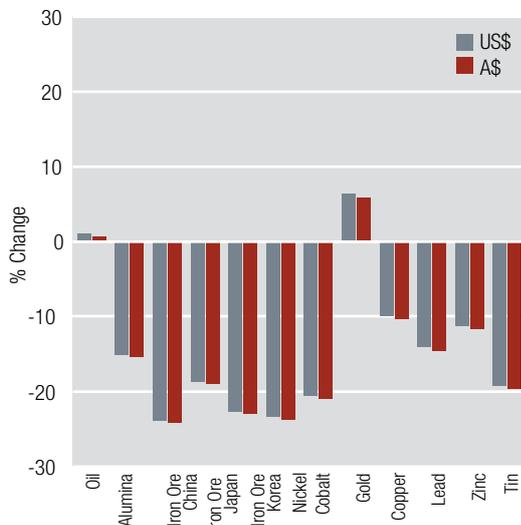


Figure 5. Average Price Comparison 2011 and 2012 Source: LME, Kitco, Metal Prices, WATC and DMP

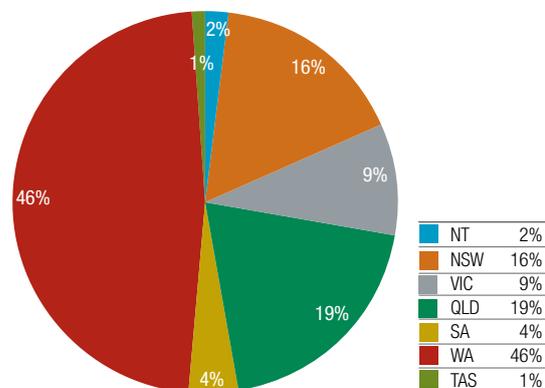


Figure 6. Australian Merchandise Exports 2012 \$248 billion Source: ABS

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.

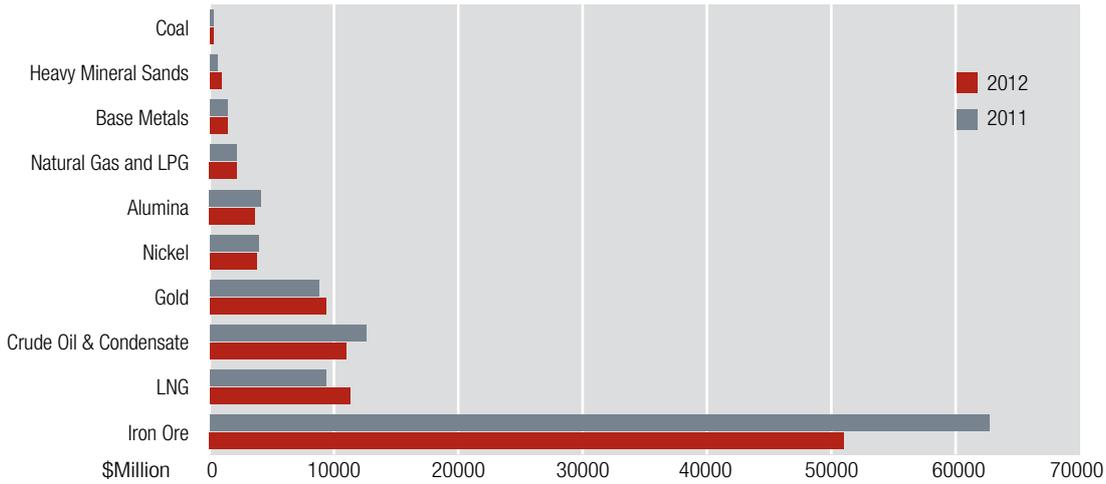


Figure 7. Major Commodities by Value 2011 and 2012 Source: DMP

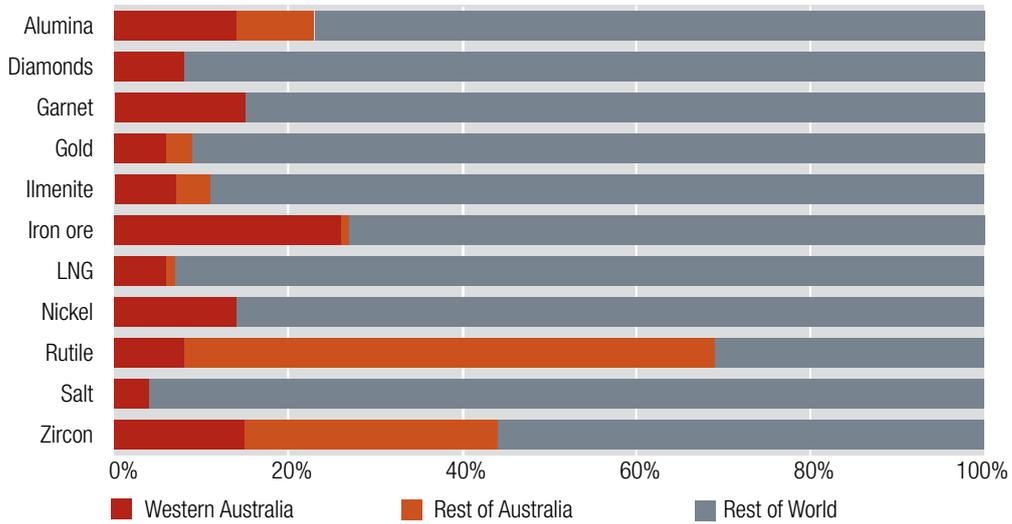


Figure 8. Selected WA Commodities Relative to World Production Ending 2012 by Quantity

Source: DMP, BREE, 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 7%, iron ore 26%, LNG (sea-borne trade) 6%, nickel 14%, rutile 8%, salt 4%, zircon 15% and 8% of diamonds (mainly industrial grade)

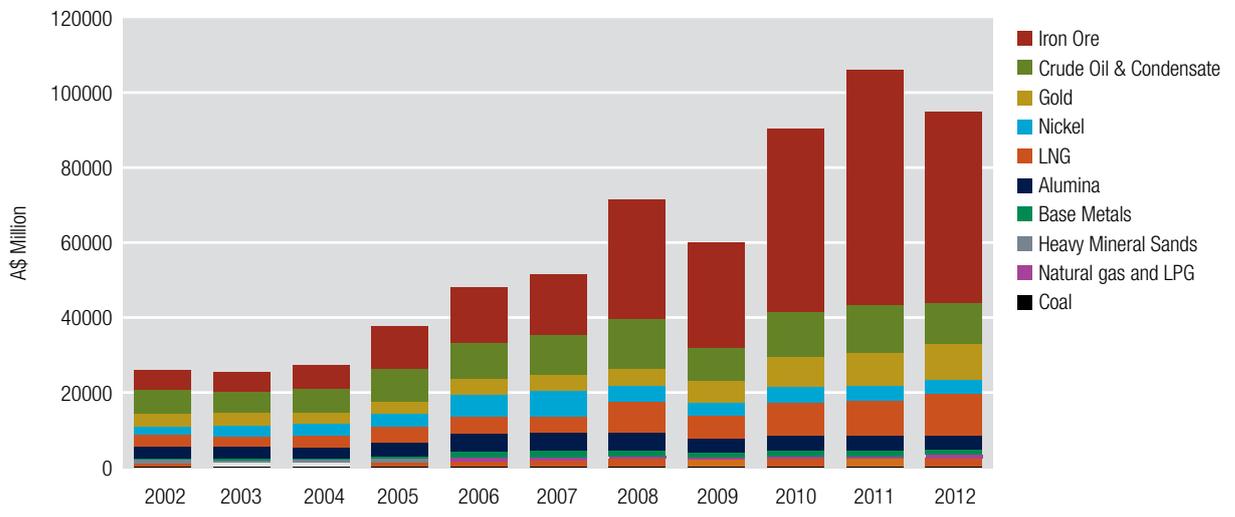


Figure 9. Value of Minerals and Petroleum by Commodity Source: DMP

# EXCHANGE RATES



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

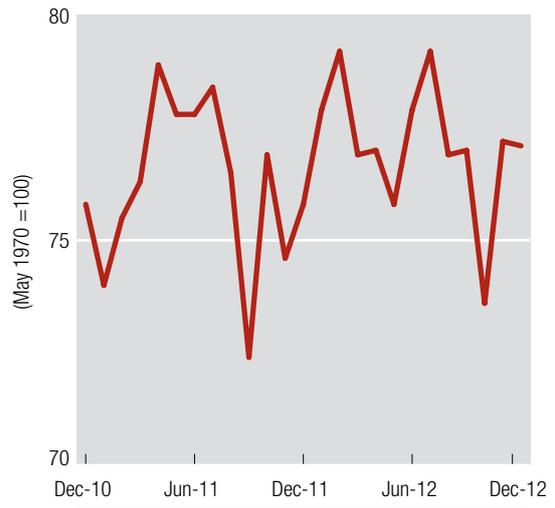


Figure 11. **Exchange Rate Trade Weighted Index (units of foreign currency per A\$)**  
Source: Reserve Bank of Australia  
Definition: "Trade weighted index" is the average value of A\$ in relation to the currencies of Australia's major trading partners.

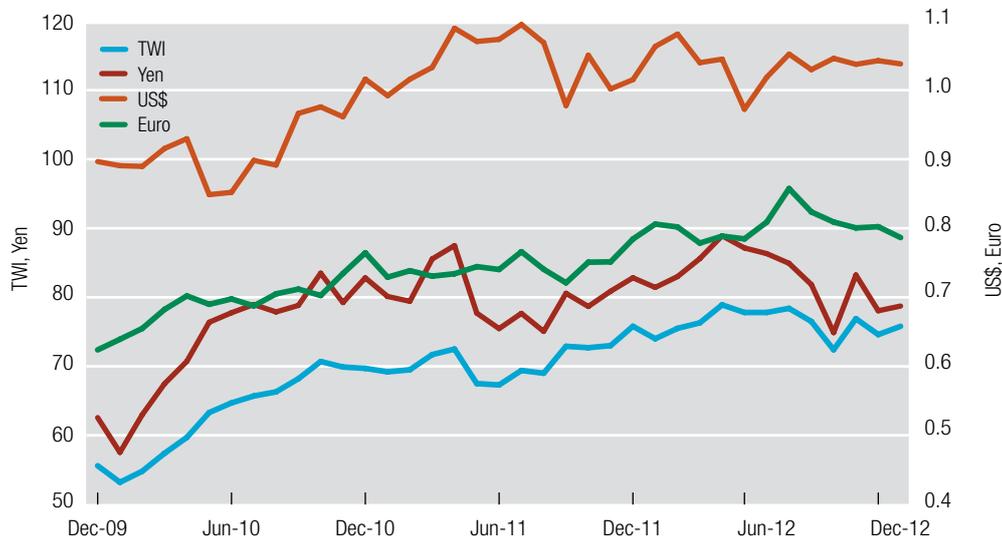


Figure 12. **Australian Dollar Exchange Rate Against Major Currencies (May 1970 = 100)**  
Source: Reserve Bank of Australia

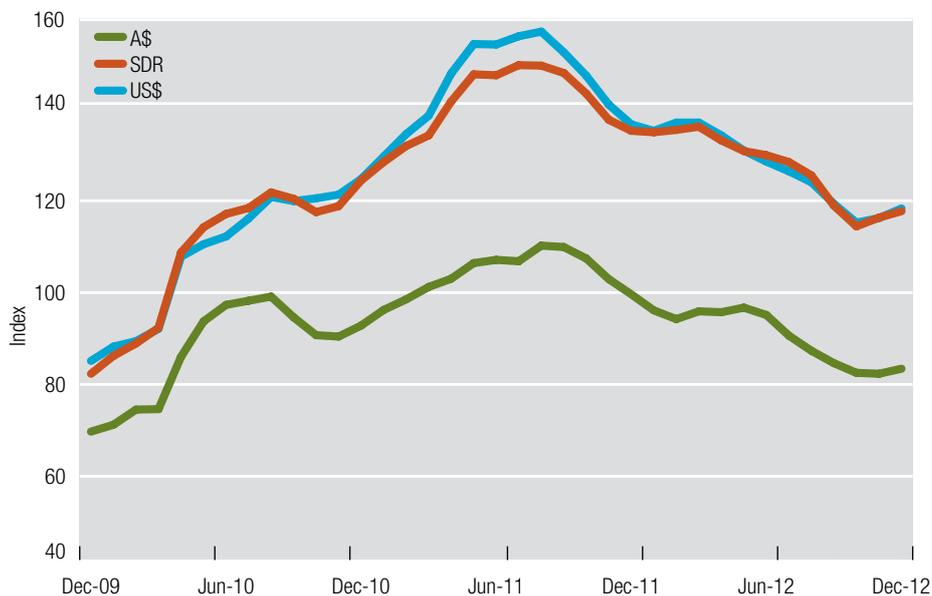


Figure 13. **Non-Rural Commodity Price Index (2008-09 = 100)** Source: Reserve Bank of Australia

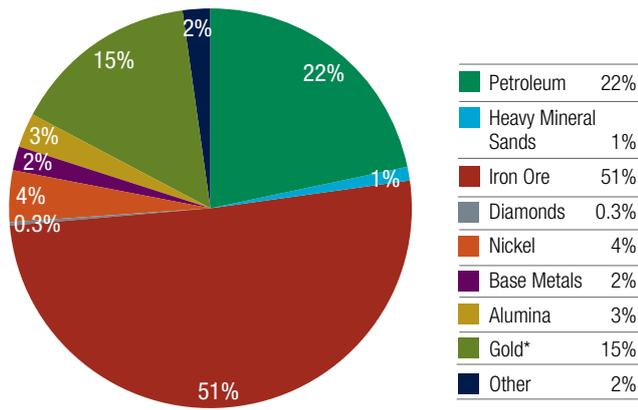


Figure 14. **Western Australian Mineral and Petroleum Exports 2012**

Total Value A\$99.6 billion Source: DMP

\* Includes \$5.8 billion of gold and \$454 million of heavy mineral sands refined/processed and exported from Western Australia, but produced from mining operations in other States, Territories and overseas.

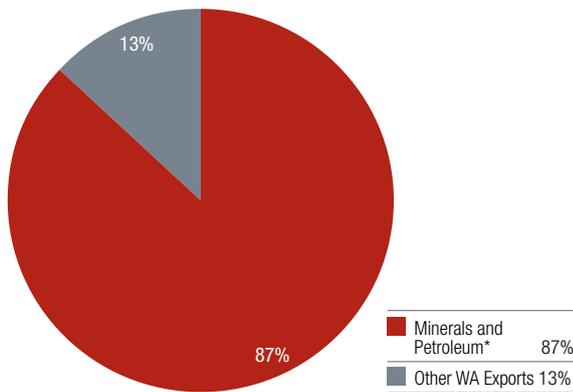


Figure 15. **Western Australian Merchandise Exports 2012**

\$114.2 billion Source: DMP and ABS

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

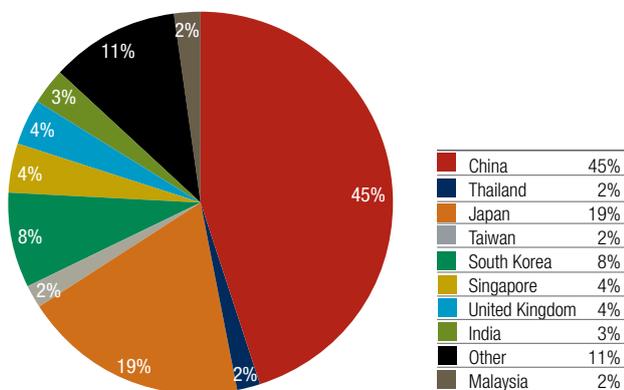


Figure 16. **Western Australian Merchandise Exports by Country 2012**

\$114.2 billion Source: ABS

**Gold Export update 2012**

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 2012 amounted to approximately \$15.2 billion. Approximately 62 per cent or \$9.4 billion was gold produced in Western Australia. The remaining 38 per cent (approximately \$5.8 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.

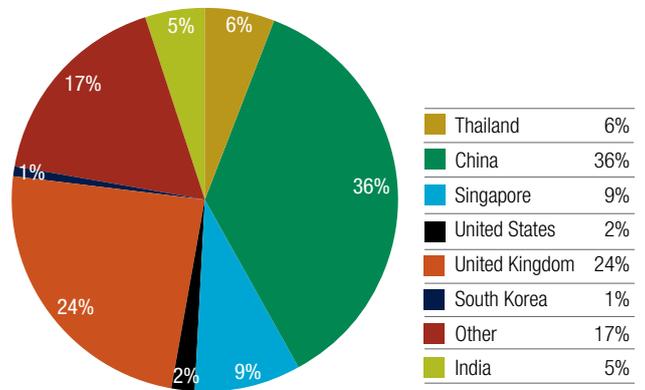


Figure 17. **Gold Exports**

Total Value \$15.2 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.

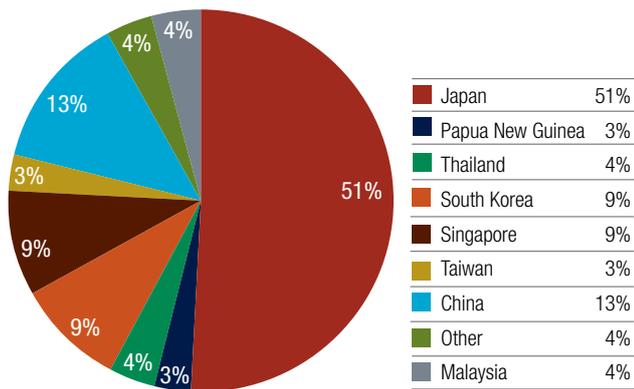


Figure 18. **Petroleum Exports**  
Total Value \$22.7 billion Source: DMP and ABS

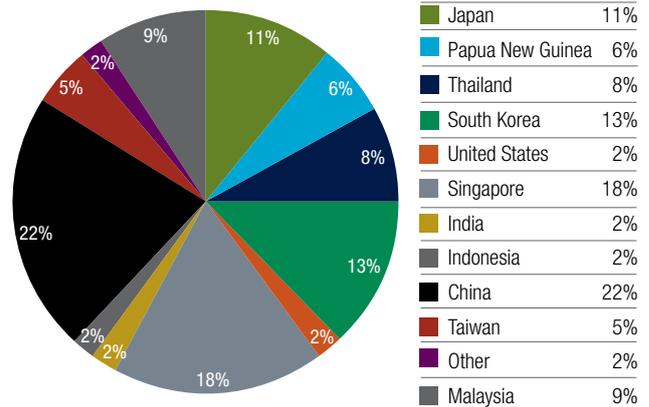


Figure 19. **Crude Oil and Condensate Exports**  
Total Value \$10.7 billion Source: DMP and ABS

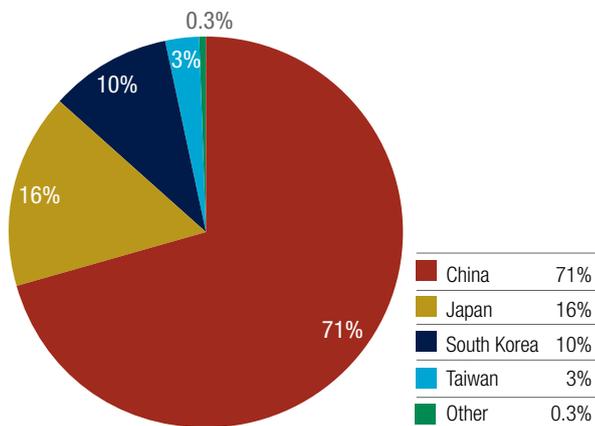


Figure 20. **Iron Ore Exports** Total Value \$51 billion Source: DMP

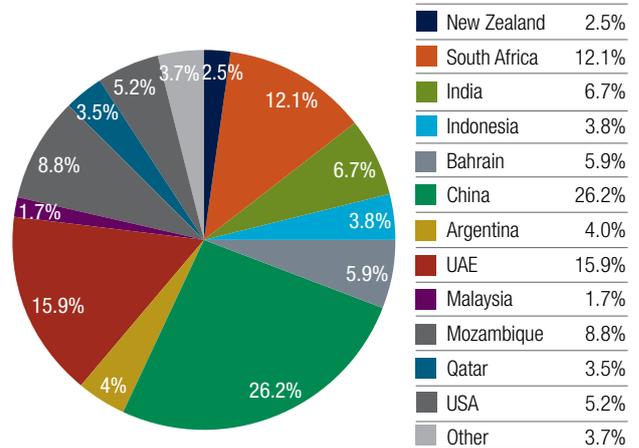


Figure 21. **Alumina Exports** Total Value \$2.95 billion Source: DMP

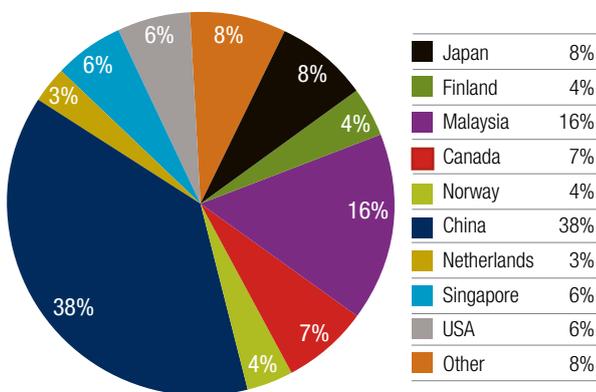


Figure 22. **Nickel Exports** Total Value \$3.79 billion Source: DMP

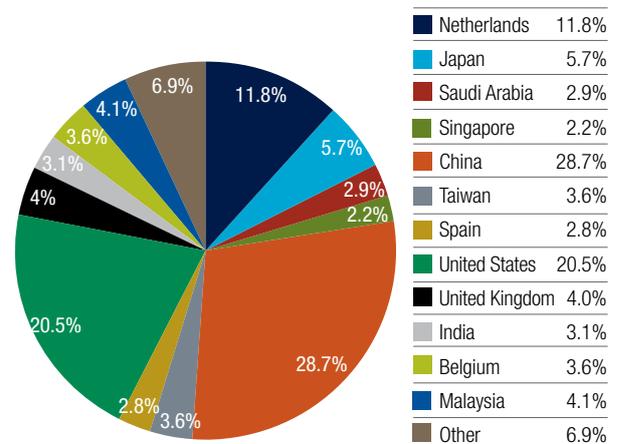


Figure 23. **Heavy Mineral Sands Exports**  
Total Value \$1.2 billion Source: DMP  
Note: Exports include titanium dioxide and product sourced from private land, overseas and other States and processed in Western Australia



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

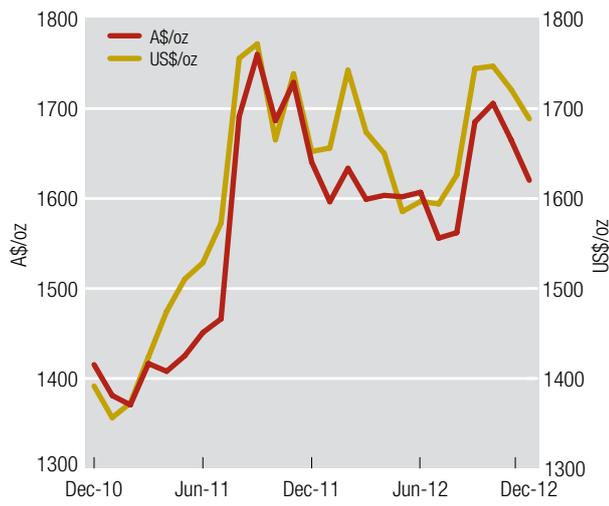


Figure 25. **Gold Price** Source: Perth Mint and London Fix

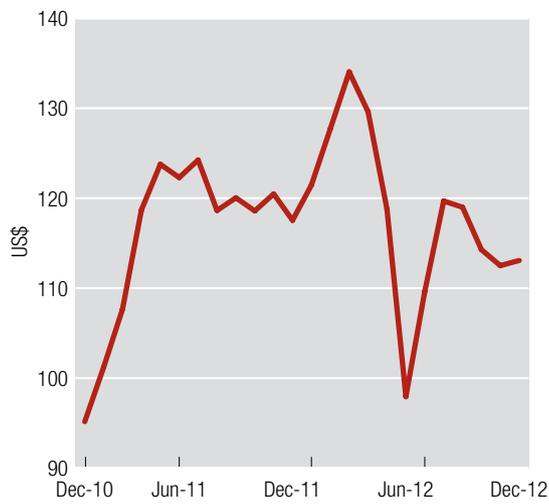


Figure 26. **Tapis Crude Oil Price US\$/bbl**  
Source: WA Treasury Corporation

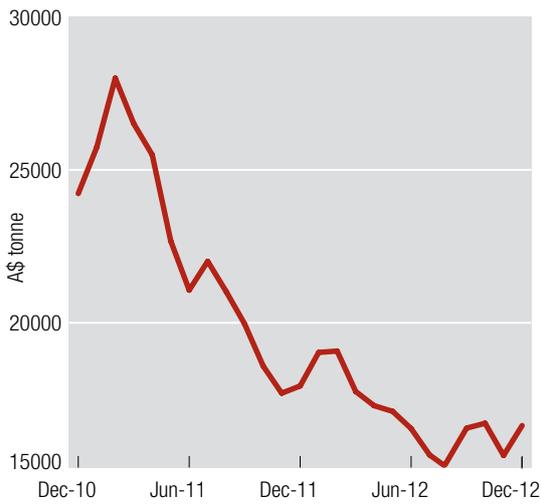


Figure 27. **Nickel Price A\$/tonne**  
Source: LME Cash, Monthly Average

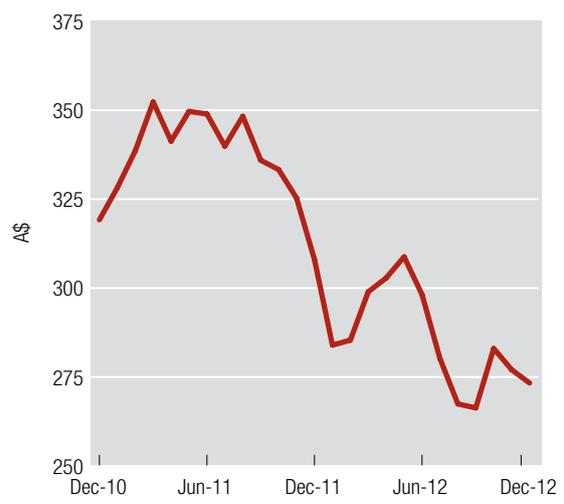


Figure 28. **Alumina Price A\$/tonne** Source: ABS

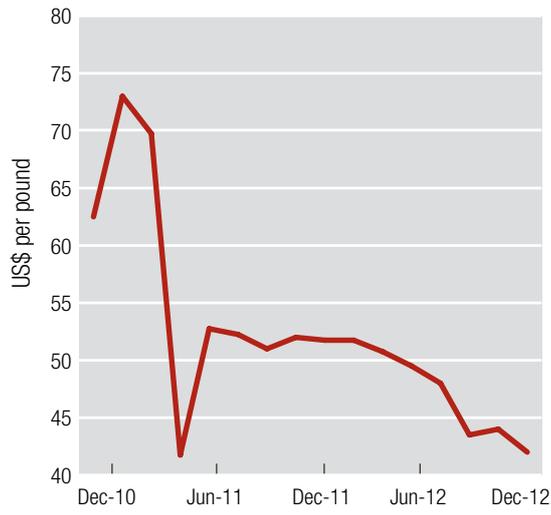


Figure 29. **Uranium Price**  
Source: UX Consulting

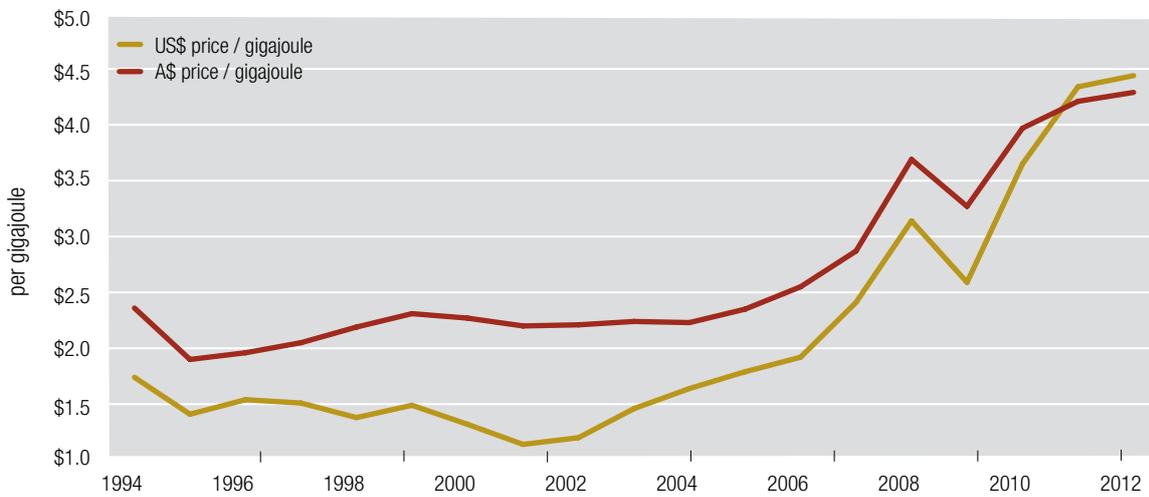


Figure 30. **Western Australian Average Domestic Natural Gas Price**  
Source: DMP

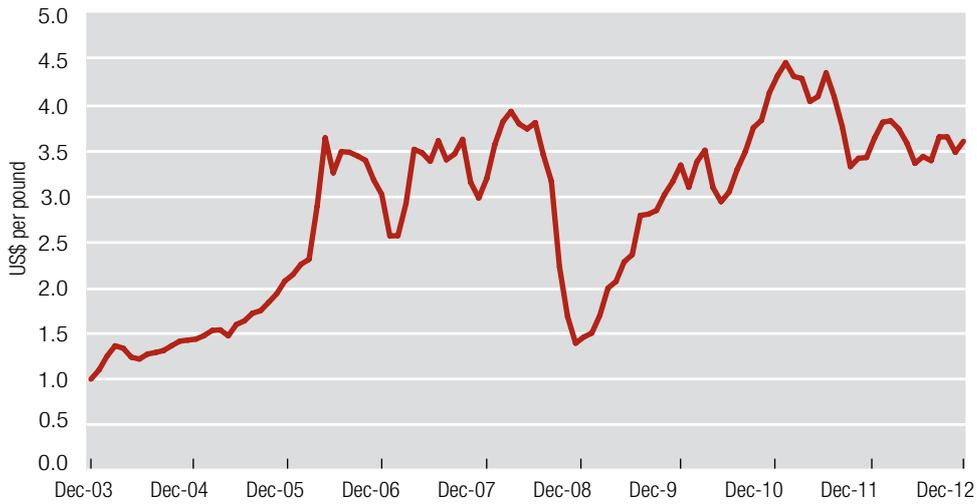


Figure 31. **Copper Price** Source: Metalprices.com



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

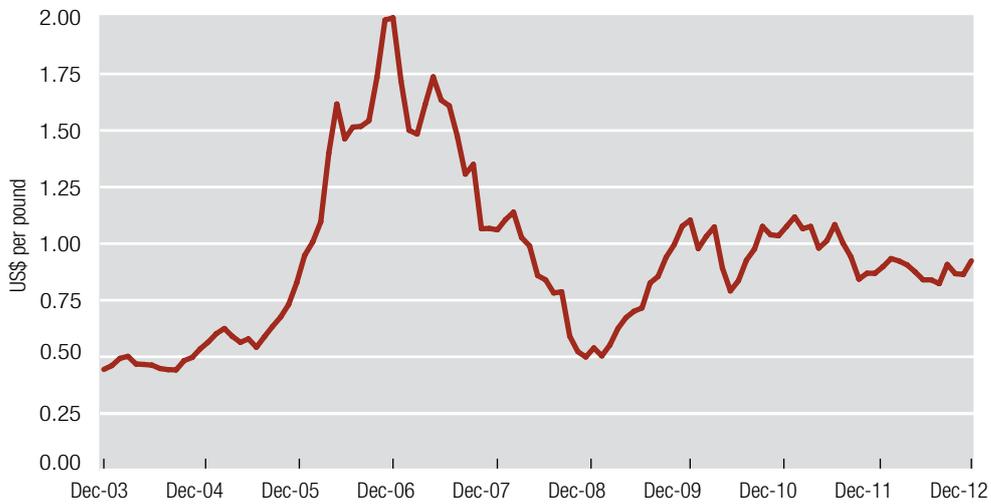


Figure 33. **Zinc Price** Source: Metalprices.com

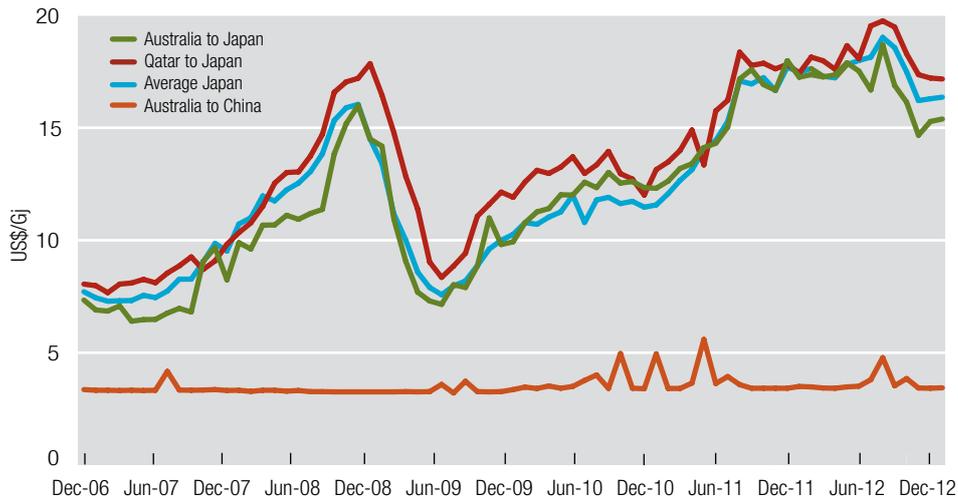


Figure 34. **LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

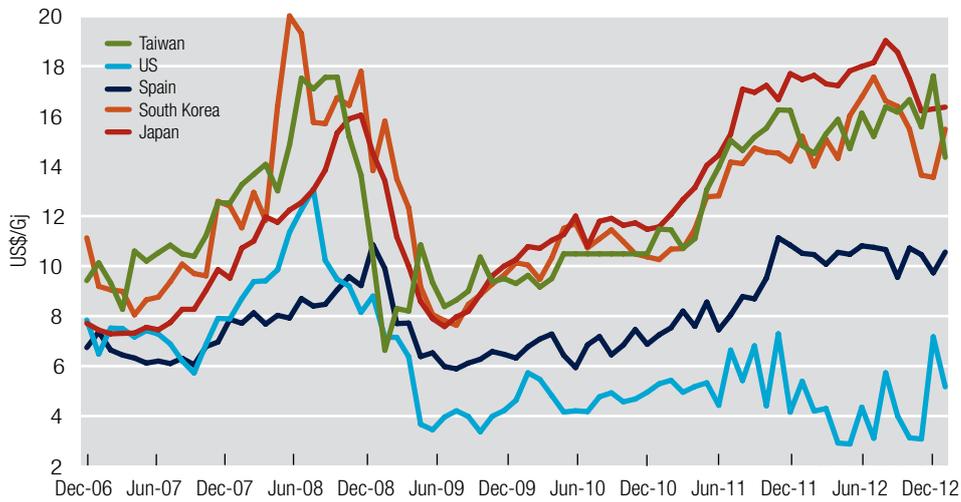


Figure 35. **Average LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

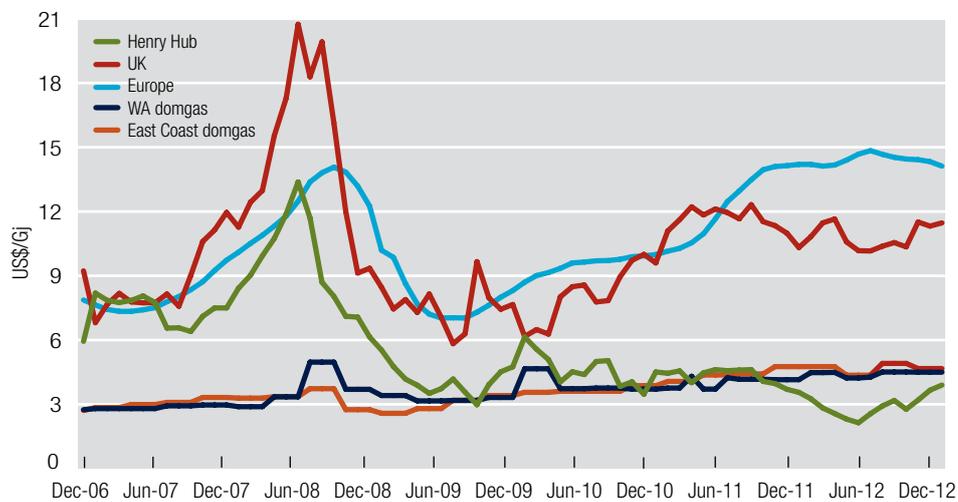


Figure 36. **Average Natural Gas Prices** Source: Argus Monthly LNG, EnergyQuest and DMP

# HISTORIC PRICES

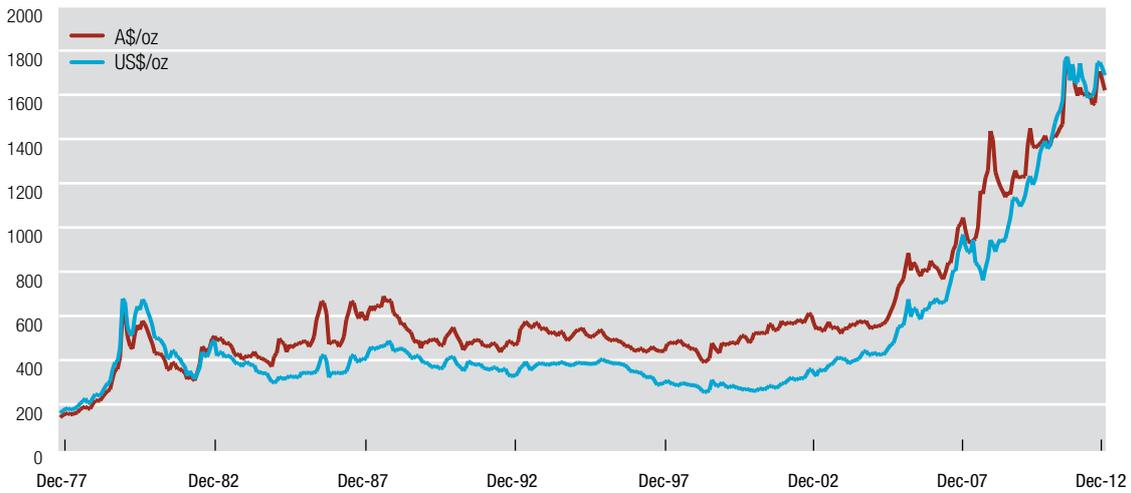


Figure 37. **Historic Gold Prices, US\$/A\$ per ounce** Source: Perth Mint and London PM Fix

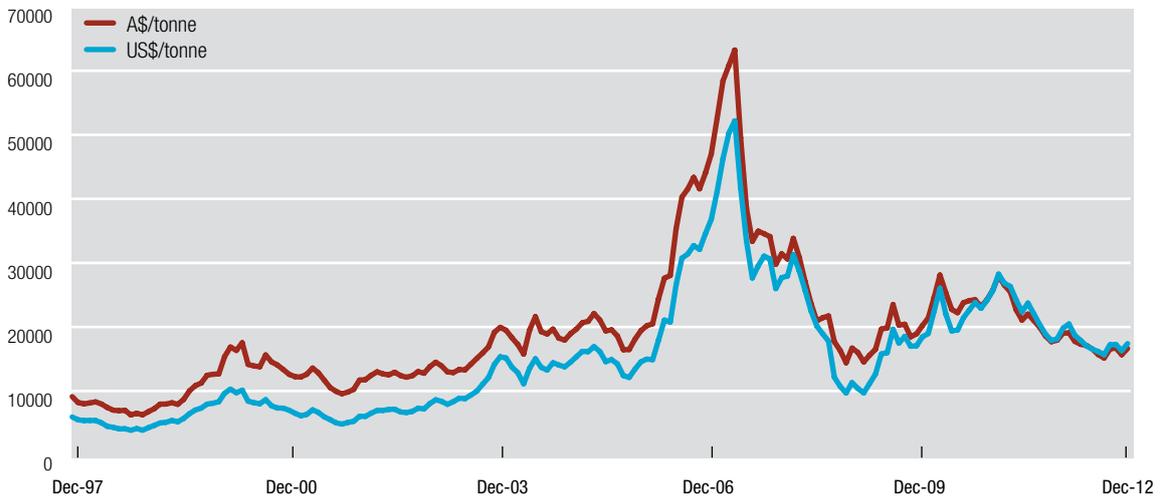


Figure 38. **Historic Nickel Prices** Source: LME

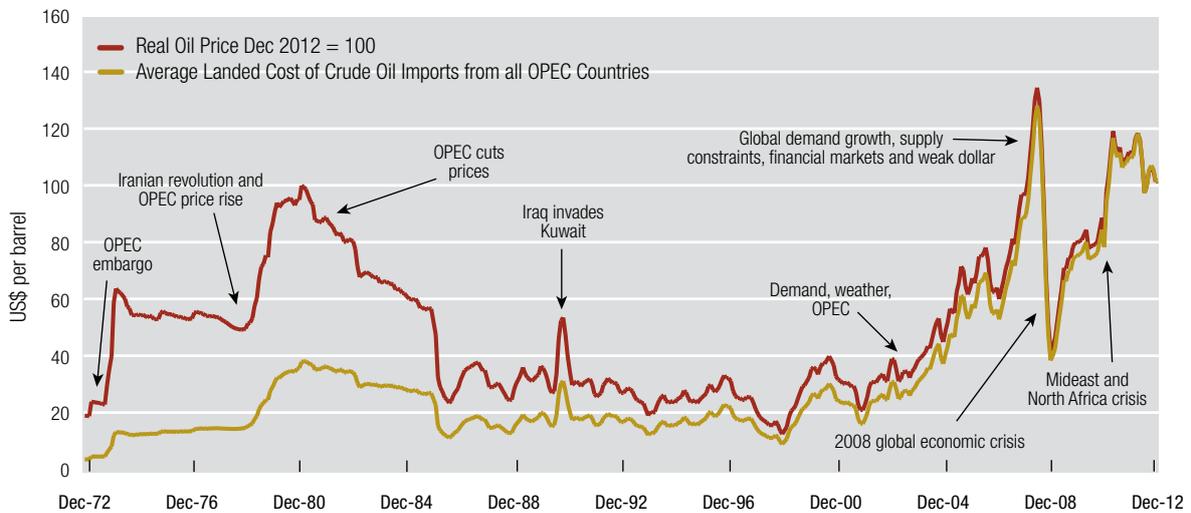


Figure 39. **Historic Oil Prices** Source: Energy Information Administration, US Department of Energy, DMP

# QUANTITY AND VALUE BY QUARTER

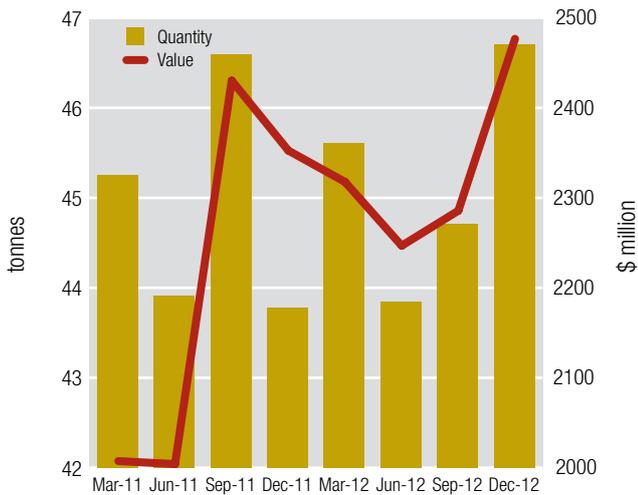


Figure 40. **Gold Quantity and Value by Quarter**  
Source: DMP

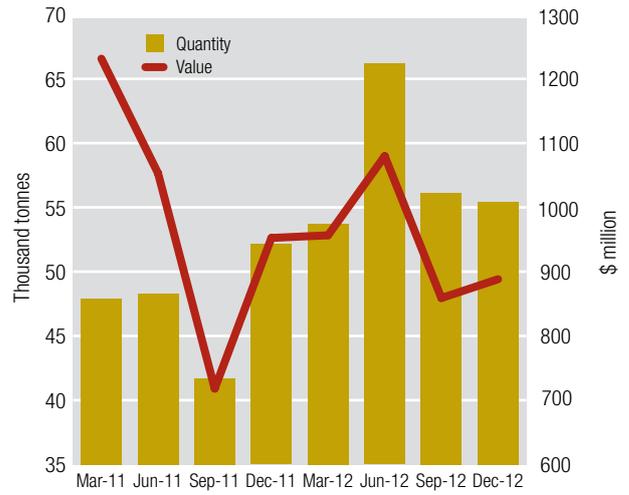


Figure 41. **Nickel Quantity and Value by Quarter**  
Source: DMP

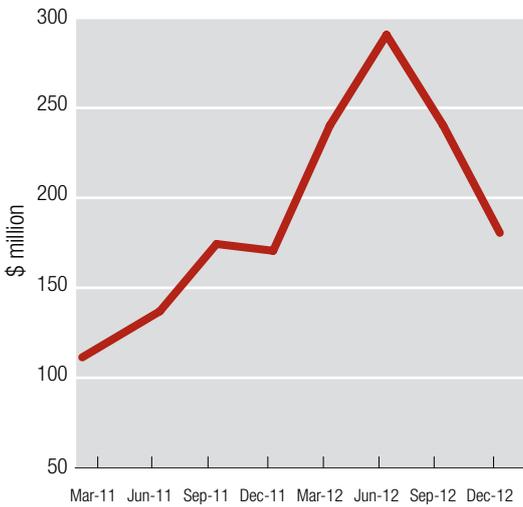


Figure 42. **Heavy Mineral Sands Value by Quarter**  
Source: DMP

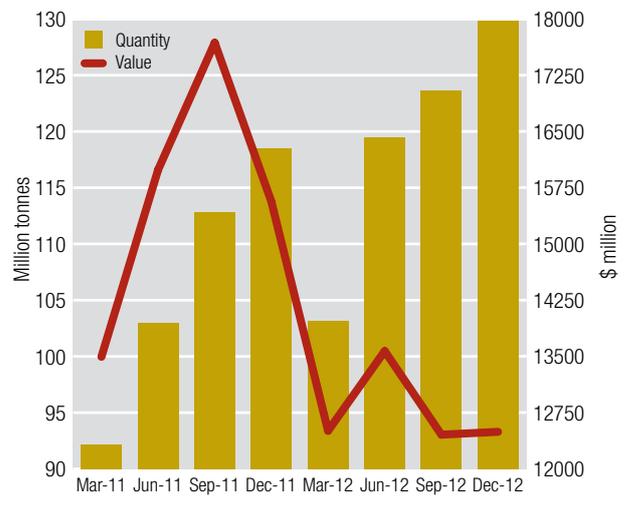


Figure 43. **Iron Ore Quantity and Value by Quarter**  
Source: DMP

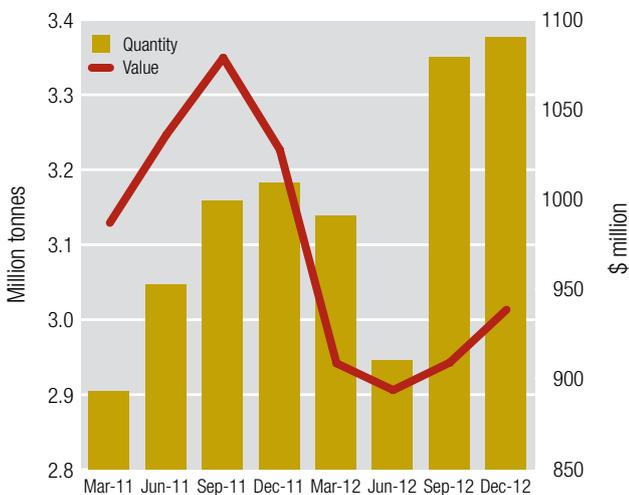


Figure 44. **Alumina Quantity and Value by Quarter**  
Source: DMP

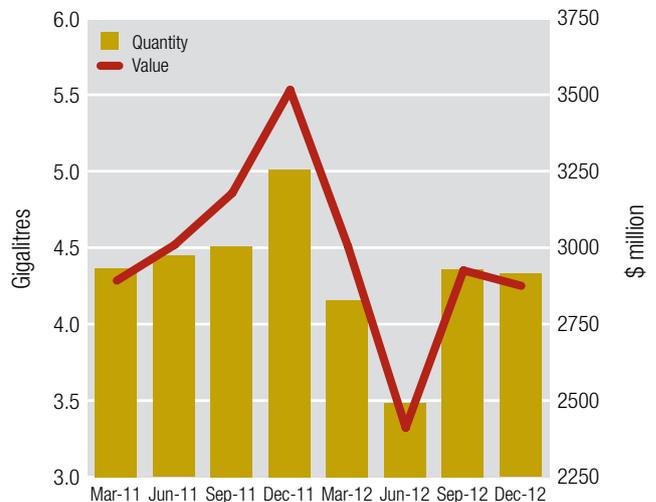


Figure 45. **Crude Oil and Condensate Quantity and Value by Quarter** Source: DMP

# QUANTITY – WESTERN AUSTRALIA VERSUS AUSTRALIA

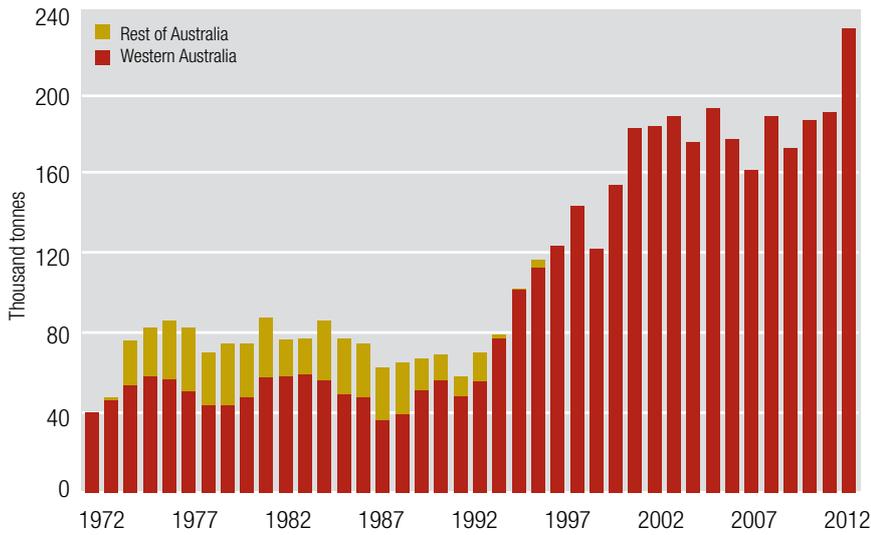


Figure 46. **Nickel Quantity** Source: DMP and BREE

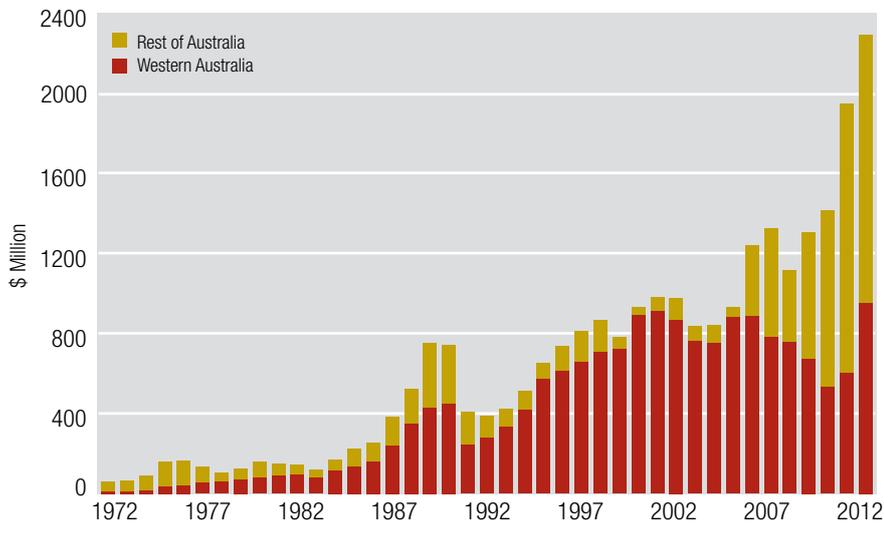


Figure 47. **Heavy Mineral Sands Value of Production**  
Includes Ilmenite, Leucoxene, Upgraded Ilmenite, Rutile, Zircon and Monazite  
Source: DMP and BREE

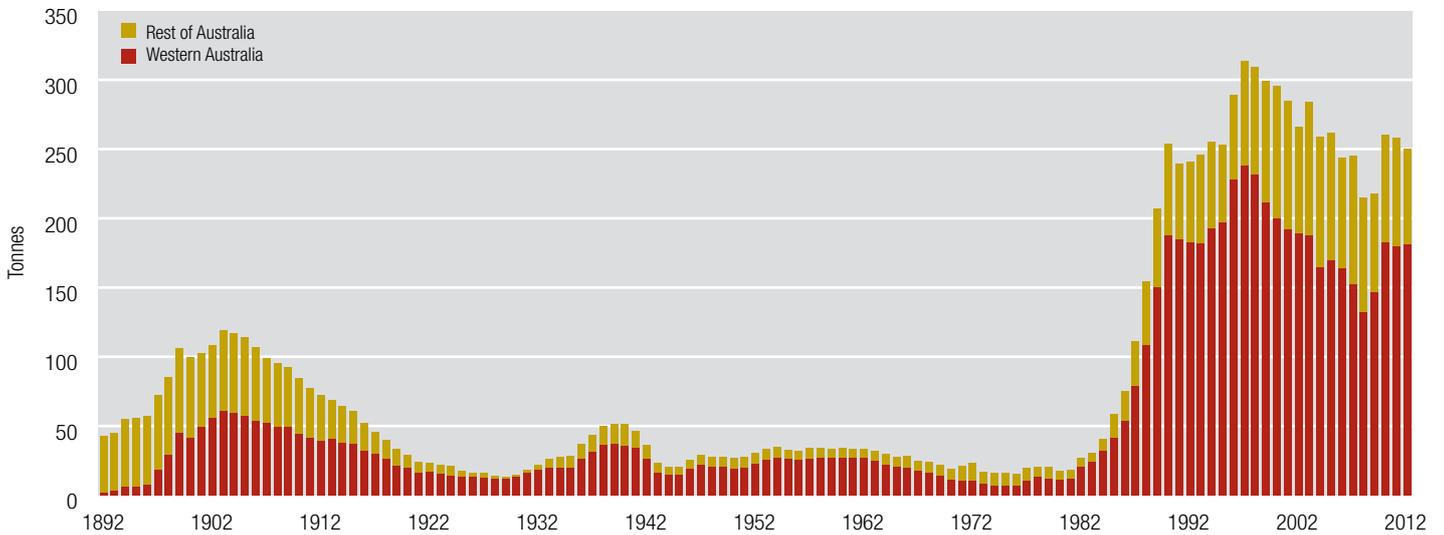


Figure 48. **Gold Production** Source: DMP and BREE

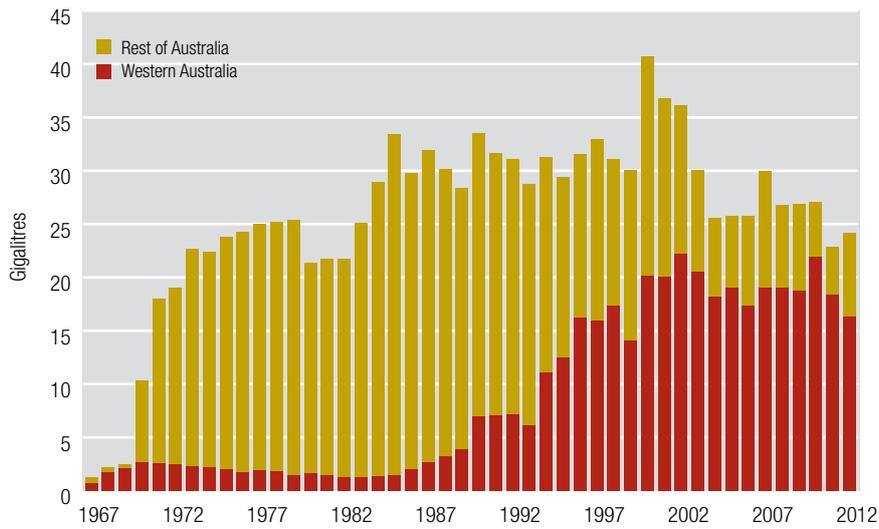


Figure 49. **Crude Oil and Condensate Quantity** Source: DMP and BREE

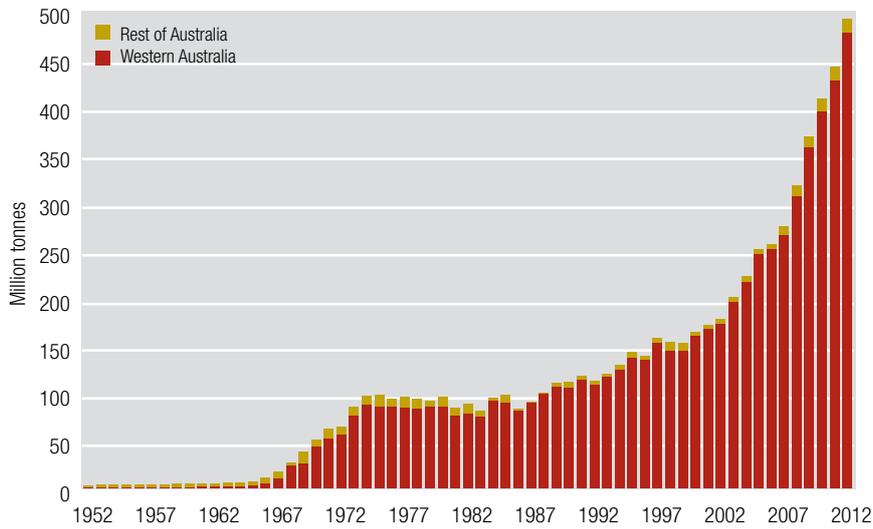


Figure 50. **Iron Ore Quantity** Source: DMP and BREE

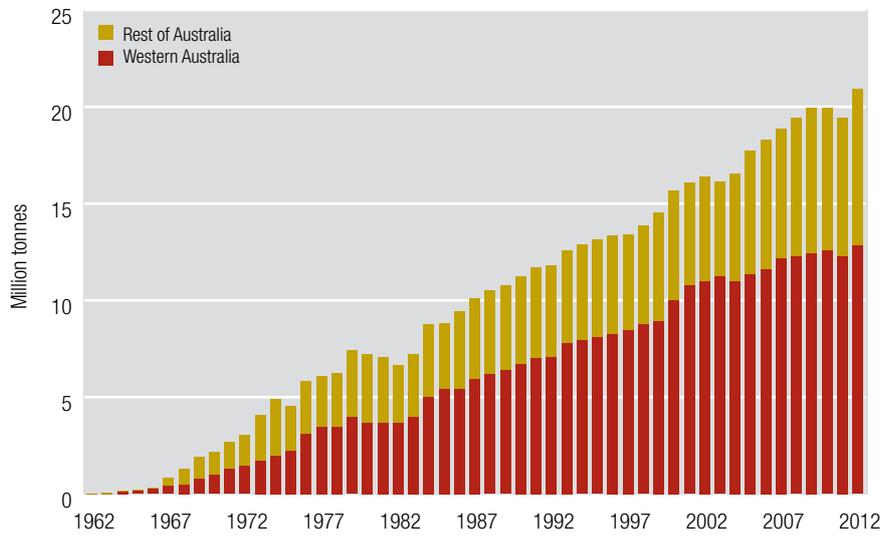


Figure 51. **Alumina Quantity** Source: DMP and BREE

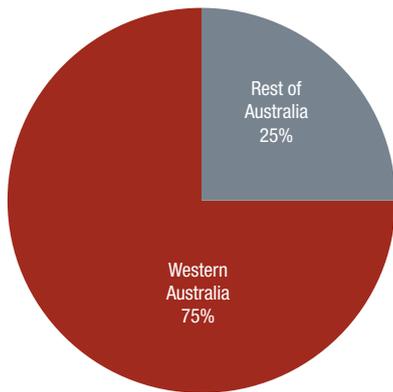


Figure 52. **Crude Oil and Condensate Production 2012** Source: EnergyQuest

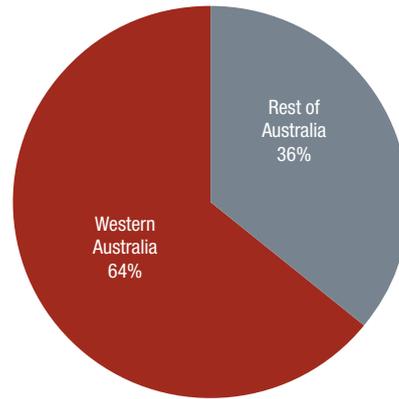


Figure 53. **Natural Gas Production 2012** Source: EnergyQuest (Data includes LNG feedstock)

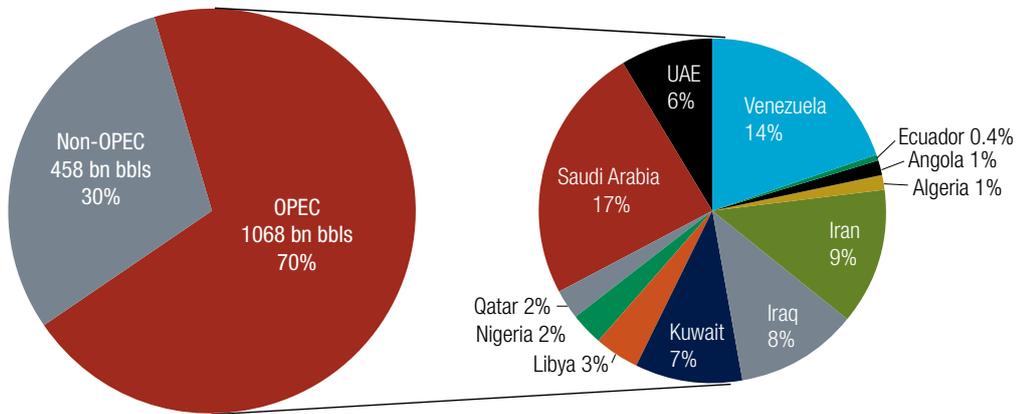


Figure 54. **OPEC Share of World Crude Oil Reserves** Source: BP World Energy Statistics 2011

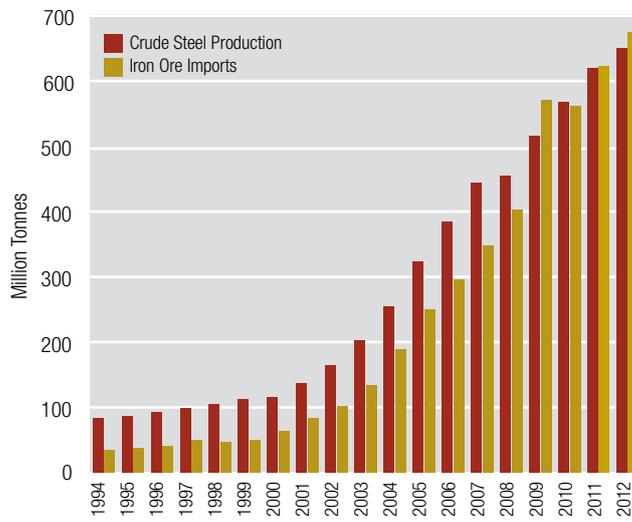


Figure 55. **China's Crude Steel Production and Iron Ore Imports** Source: TEX Report and Interfax China Ltd

**TABLE 2. MINERALS TENEMENTS IN FORCE 1978 ACT**

	2007-08		2008-09		2009-10		2010-11		2011-12	
	Number	000 ha								
Prospecting Licences	6,260	800	7,110	913	7,032	890	7,106	897	7,265	910
Exploration Licences	5,427	51,790	4,959	42,367	5,297	44,123	6,050	52,205	6,969	60,396
Mining Leases	5,475	2,036	5,618	2,065	5,764	2,125	5,845	2,233	5,897	2,285
Other	3,678	4,119	2,512	3,477	2,884	4,541	2,995	4,926	3,157	5,323
Mineral Claims and Other 1904 Act	186	21	186	21	186	21	186	21	186	21
<b>TOTAL</b>	<b>21,026</b>	<b>58,766</b>	<b>20,385</b>	<b>48,843</b>	<b>21,163</b>	<b>51,700</b>	<b>22,182</b>	<b>60,282</b>	<b>23,474</b>	<b>68,935</b>

Source: DMP

**TABLE 3. PETROLEUM TITLES**

Legislation	Title Type	Title	Area	Blocks	Number of Titles
Offshore Petroleum and Greenhouse Gas Storage Act, 2006			392,263.7515 km <sup>2</sup>	5,807	254
	Access Authority		0.0000 km <sup>2</sup>	931	18
	Exploration Permit		364,558.7200 km <sup>2</sup>	4,590	136
	Infrastructure Licence		6.4000 km <sup>2</sup>	0	2
	Pipeline Licence		823.7430 km		23
	Production Licence		13,652.5115 km <sup>2</sup>	170	46
	Retention Lease		8,302.5800 km <sup>2</sup>	107	27
	Special Prospecting Authority		5,743.5400 km <sup>2</sup>	9	2
Petroleum (Submerged Lands) Act, 1982			38,903.7250 km <sup>2</sup>	121	44
	Access Authority		0.0000 km <sup>2</sup>	3	1
	Exploration Permit		35,783.9050 km <sup>2</sup>	69	5
	Pipeline Licence		614.9500 km		23
	Production Licence		1,958.3000 km <sup>2</sup>	28	9
	Retention Lease		1,161.5200 km <sup>2</sup>	21	6
Petroleum and Geothermal Energy Resources Act, 1967			310,771.3726 km <sup>2</sup>	3,963	146
	Access Authority		0.0000 km <sup>2</sup>	3	1
	Access Authority to Deviated Well		0.0000 km <sup>2</sup>	0	4
	Drilling Reservation		546.5000 km <sup>2</sup>	7	2
	Exploration Permit		243,014.3020 km <sup>2</sup>	2,981	74
	Geothermal Exploration Permit		62,739.6414 km <sup>2</sup>	887	43
	Petroleum Lease		260.1000 km <sup>2</sup>	9	1
	Production Licence		2,921.8580 km <sup>2</sup>	47	15
	Retention Lease		411.8900 km <sup>2</sup>	8	5
	Special Prospecting Authority with Acreage Option		877.0812 km <sup>2</sup>	21	1
Petroleum Pipelines Act, 1969			5,999.7210 km		80
	Pipeline Licence		5,999.7210 km		80
			<b>741,938.8491 km<sup>2</sup></b>	<b>9,891</b>	<b>524</b>

**TABLE 4. QUANTITY AND VALUE OF MINERALS AND PETROLEUM**

COMMODITY	UNIT	CALENDAR YEAR 2011		CALENDAR YEAR 2012	
		QUANTITY	VALUE	QUANTITY	VALUE
<b>ALUMINA</b>	t	12,291,484	4,127,281,377	12,811,548	3,648,939,277
<b>BASE METALS</b>					
Copper Metal	t	148,592 (r)	1,222,892,022 (r)	179,291	1,316,809,125
Lead Metal	t	8,343 (r)	19,595,475 (r)	8,682	15,503,683
Zinc Metal	t	74,401 (r)	153,041,131 (r)	57,122	104,438,410
<b>TOTAL BASE METALS</b>			1,395,528,627 (r)		1,436,751,218
<b>CHROMITE</b>	t	96,573	n/a	186,635	n/a
<b>CLAYS</b>		63,336	1,444,177	61,291	1,446,577
<b>COAL</b>	t	6,981,908	283,495,535 (r)	7,458,257	315,363,250
<b>CONSTRUCTION MATERIALS</b>					
Aggregate	t	2,662,484 (r)	61,840,425 (r)	3,630,580	120,241,965
Gravel	t	265,339 (r)	2,360,5787 (r)	447,491	3,310,102
Rock	t	303,452 (r)	2,917,833 (r)	852,794	18,134,882
Sand	t	5,731,340 (r)	45,345,204 (r)	5,698,333	56,726,249
<b>TOTAL CONSTRUCTION MATERIALS</b>			112,464,040 (r)		198,413,198
<b>DIAMONDS</b>	ct	7,634,725	291,177,856 (r)	9,877,301	346,106,740
<b>DIMENSION STONE</b>		11,281 (r)	1,074,311 (r)	3,413	1,513,547
<b>GEM &amp; SEMI-PRECIOUS STONES</b>	kg	147,262	133,026	274,928	344,291
<b>GOLD</b>	kg	179,540 (r)	8,788,999,385 (r)	180,877	9,351,635,414
<b>GYPSUM</b>	t	359,766 (r)	5,935,567 (r)	244,197	4,002,420
<b>HEAVY MINERAL SANDS</b>					
Garnet	t	308,139	n/a	266,224	n/a
Ilmenite	t	379,284 (r)	56,851,391 (r)	303,258	77,612,417
Leucoxene	t	24,772 (r)	14,361,119	20,369	23,387,534
Zircon	t	217,298 (r)	210,012,842 (r)	162,789	183,219,891
Other	t		317,673,803 (r)		667,259,683
<b>TOTAL HEAVY MINERAL SANDS</b>			598,899,155 (r)		951,479,525
<b>IRON ORE</b>	t	426,534,421 (r)	62,720,521,187 (r)	476,171,281	51,021,209,298
<b>LIMESAND-LIMESTONE-DOLOMITE</b>	t	3,780,430 (r)	31,618,697 (r)	4,437,405	37,161,819
<b>MANGANESE ORE</b>	t	839,149 (r)	n/a	700,325	n/a

COMMODITY	UNIT	CALENDAR YEAR 2011		CALENDAR YEAR 2012	
		QUANTITY	VALUE	QUANTITY	VALUE
<b>NICKEL INDUSTRY</b>					
Cobalt	t	3,848 (r)	127,586,210 (r)	5,882	156,209,277
Nickel	t	190,017 (r)	3,947,381,473 (r)	231,472	3,780,484,444
Palladium and Platinum By-Product	kg	445	8,185,694	706	15,679,998
<b>TOTAL NICKEL INDUSTRY</b>			4,083,153,377 (r)		3,952,373,719
<b>PETROLEUM</b>					
Condensate	kl	6,282,227	4,093,923,384 (r)	5,999,510	3,862,301,115
Crude Oil	kl	12,053,493	8,485,937,909 (r)	9,991,681	7,099,593,535
LNG	t	16,031,149	9,344,019,455	18,260,551	11,271,620,675
LPG – Butane and Propane	t	861,480	745,879,960	809,878	729,155,763
Natural Gas	'000m <sup>3</sup>	8,869,413	1,421,126,106	9,009,209	1,470,541,897
<b>TOTAL PETROLEUM</b>			24,090,886,814 (r)		24,433,212,986
<b>SALT</b>	t	12,252,575	335,770,893	12,529,752	417,084,623
<b>SILICA-SILICA SAND</b>	t	479,904	15,439,625	455,711	15,209,708
<b>SILVER</b>	kg	93,023 (r)	97,628,816 (r)	128,534	119,096,910
<b>TIN-TANTALUM-LITHIUM</b>	t	0	196,306,721	0	200,844,824
<b>OTHER (Includes Feldspar, Red Oxide, Manganese, Rare Earths, Spongolite and Talc)</b>	t		475,507,551 (r)		399,797,766
<b>TOTAL VALUE</b>			107,653,266,738 (r)		96,851,987,112

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

(r) Revised from previous edition

n/a Breakdown of chromite, feldspar, garnet, red oxide, talc, spodumene and tantalite not available.

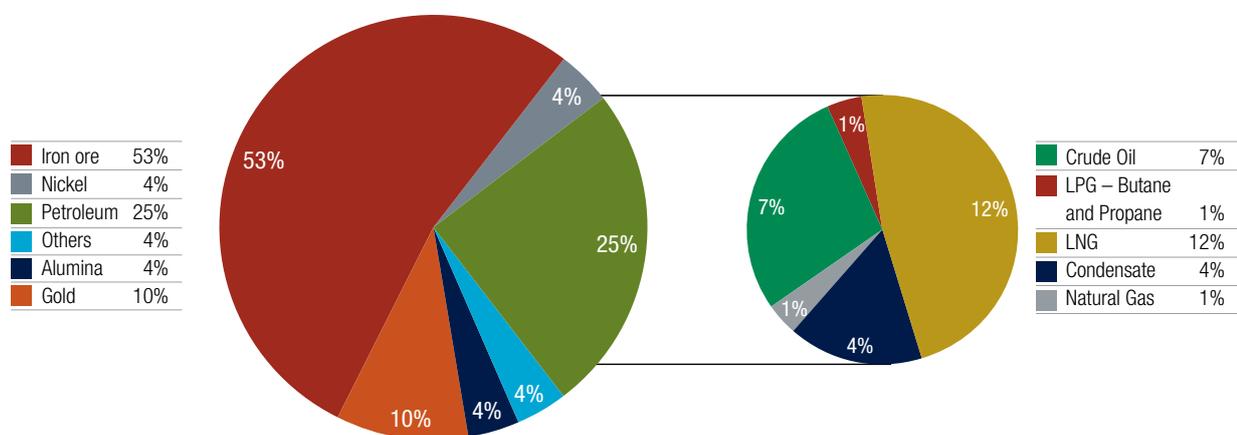


Figure 56. **Sales by Commodity 2012**  
Total \$96.9 billion Source: DMP

**TABLE 5. QUANTITY AND VALUE OF SELECTED MAJOR COMMODITIES**

		2003		2004		2005		2006	
	Unit	Quantity	Value \$M						
<b>ALUMINA</b>	Mt	11.23	3,140.48	10.99	3,178.95	11.35	3,655.84	11.87	4,767.05
<b>BASE METALS</b>									
Copper Metal	kt	58.78	145.09	42.68	160.94	83.88	434.71	99.96	917.78
Lead Metal	kt	56.49	24.32	1.17	0.31	30.27	41.17	74.85	130.61
Zinc Metal	kt	174.55	139.73	51.78	57.78	63.61	118.91	138.84	607.12
<b>TOTAL BASE METALS</b>			309.15		219.03		594.79		1,655.50
<b>COAL</b>	Mt	6.03	266.41	6.31	281.91	6.41	283.26	7.25	317.90
<b>COBALT</b>	kt	5.17	145.04	4.55	262.2	4.59	166.95	5.13	220.4
<b>DIAMONDS</b>	M ct	35.48	661.86	24.23	414.81	34.31	740.15	17.07	446.90
<b>GOLD</b>	t	187.50	3,364.96	164.42	2,940.98	169.83	3,146.54	163.84	4,234.61
<b>HEAVY MINERAL SANDS</b>									
Ilmenite	Mt	0.86	110.46	0.76	87.94	0.67	74.00	0.74	84.44
Rutile	kt	123.63	80.28	112.93	69.02	100.45	63.79	102.21	64.39
Zircon	kt	420.55	242.10	414.07	265.07	416.92	329.80	370.18	358.82
Other HMS			327.91		327.05		412.78		376.01
<b>TOTAL HEAVY MINERAL SANDS</b>			760.75		749.08		880.37		883.67
<b>IRON ORE</b>	Mt	194.75	5,061.06	215.85	6,173.16	244.64	11,308.57	250.40	14,751.69
<b>MANGANESE ORE</b>	kt	587.84	65.18	593.68	106.48	785.01	184.39	906.68	195.25
<b>NICKEL METAL</b>	kt	190.21	2,680.24	174.70	3,261.21	191.71	3,484.39	175.18	5,844.17
<b>PETROLEUM</b>									
Condensate	Gl	6.39	1,765.46	5.94	2,011.14	5.88	2,576.86	5.61	2,940.19
Crude oil	Gl	14.12	4,034.63	12.25	4,211.56	13.18	6,168.82	11.95	6,602.75
LNG *	Btu 10 <sup>12</sup>	408.27	2,874.61	454.12	3,150.81	11.03	4,320.27	11.96	4,550.76
LPG – Butane **	kt	425.20	182.83	398.84	189.28	870.73	544.22	862.23	613.83
LPG – Propane	kt	319.97	142.72	322.85	151.13				
Natural Gas	Gm <sup>3</sup>	8.11	690.45	7.71	655.46	7.41	661.61	8.36	816.67
<b>TOTAL PETROLEUM</b>			9,690.71		10,369.39		14,397.85		15,524.20
<b>SALT</b>	Mt	9.75	197.01	10.40	185.08	11.48	213.78	10.72	241.64
<b>OTHER</b>			343.08		353.17		579.55		605.10
<b>TOTAL</b>			26,685.93		28,495.43		39,452.04		49,492.86

\* Expressed in million tonnes from 2005 onwards

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

2007		2008		2009		2010		2011		2012	
Quantity	Value \$M	Quantity	Value \$M								
12.17	4,704.33	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
119.41	1,018.75	129.53	1,041.60	149.04	992.51	153.86	1,286.70	148.59	1,222.89	179.29	1,316.81
42.02	115.57	13.78	32.61	22.76	46.32	52.63	120.36	8.34	19.60	8.68	15.50
180.73	685.54	156.01	329.13	101.65	213.80	81.52	191.88	74.40	153.04	57.12	104.44
	1,819.86		1,403.34		1,252.62		1,598.94		1,395.53		1,436.75
5.81	265.15	6.73	305.50	6.56	308.16	7.00	319.12	6.98	283.50	7.46	315.36
4.73	343.08	4.78	378.7	4.34	182.76	3.85	168.9	3.85	127.59	5.88	156.2
23.54	555.02	21.24	490.71	11.90	231.80	14.42	345.54	7.63	291.18	9.88	346.11
152.69	4,073.29	131.82	4,391.32	146.43	5,814.75	182.85	7,846.34	179.54	8,789.00	180.88	9,351.64
0.73	79.80	0.60	76.95	0.46	63.50	0.50	66.69	0.38	56.85	0.30	77.61
92.92	56.30	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
289.88	263.93	356.39	309.50	253.50	214.49	333.47	229.84	217.30	210.01	162.79	183.22
	380.25		411.44		394.39		233.11		332.03		690.65
	780.28		797.89		672.37		529.64		598.90		951.48
264.45	16,165.25	305.72	31,896.03	356.07	28,149.03	393.85	48,758.75	426.53	62,720.52	476.17	51,021.21
430.45	185.71	270.71	n/a	630.32	282.39	579.30	421.52	839.15	n/a	700.33	n/a
161.01	6,958.08	187.79	4,059.16	171.18	3,373.73	185.74	4,294.25	190.02	3,947.38	231.47	3,780.48
5.86	3,236.76	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
13.20	7,384.29	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
12.38	4,448.58	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
893.91	686.64	764.67	731.50	950.52	612.78	988.72	763.33	861.48	745.88	809.88	729.16
9.17	1,002.47	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
	16,758.73		23,330.46		16,827.94		22,861.92		24,090.89		24,433.21
10.39	229.60	11.49	276.72	10.06	447.59	11.54	386.67	12.25	335.77	12.53	417.08
	638.27		833.74		397.41		395.36		945.74		993.51
	53,290.94		73,064.70		61,533.99		91,911.50		107,653.27		96,851.99

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

<b>PILBARA REGION</b>	<b>2012 Value</b>
Iron Ore	48,562,876,041
Gold and Silver	906,151,364
Copper	546,386,008
Manganese and Salt	525,147,104
Construction Materials	163,514,808
Tantalite, Tin and Gems	36,753,788
<b>TOTAL</b>	<b>50,740,829,113</b>

<b>OFFSHORE PETROLEUM</b>	
Crude Oil and Condensate	10,944,531,643
Liquefied Natural Gas	11,271,620,675
Natural Gas	1,428,004,242
LPG Butane and Propane	729,155,763
<b>TOTAL</b>	<b>24,373,312,323</b>

<b>GOLDFIELDS-ESPERANCE REGION</b>	
Gold	6,038,626,673
Nickel, Platinum and Palladium	3,003,706,617
Cobalt and Rare Earths	156,244,249
Copper	62,186,344
Spodumene, Tantalite and Zinc	57,660,097
Silver	37,646,564
Gypsum and Limesand	15,730,488
Construction Materials and Gems	8,319,580
<b>TOTAL</b>	<b>9,380,120,612</b>

<b>PEEL REGION</b>	
Alumina	3,648,939,277
Gold, Silver and Copper	1,374,288,177
<b>TOTAL</b>	<b>5,023,227,454</b>

<b>MID WEST REGION</b>	
Gold	913,172,262
Iron ore	523,654,601
Nickel and Talc	193,419,951
Copper, Lead and Zinc	547,200,905
Heavy Mineral Sands, Chromite	337,022,557
Crude Oil and Condensate	9,170,452
Silver	56,475,249
Natural Gas	42,537,655
Other	5,400,030
<b>TOTAL</b>	<b>2,628,053,662</b>

<b>WHEATBELT REGION</b>	<b>2012 Value</b>
Iron ore	1,327,648,622
Gypsum and Heavy Mineral Sands	547,498,738
Nickel, Copper and Salt	503,736,476
Gold and Silver	280,028,516
Silica, Sand and Limesand-Limestone	5,214,863
<b>Total</b>	<b>2,664,127,215</b>

<b>KIMBERLEY REGION</b>	
Iron Ore	607,030,034
Gold, Silver and Diamonds	413,643,463
Nickel, Copper, Cobalt and Crude	184,993,748
Construction Materials and Gems	11,754,955
<b>TOTAL</b>	<b>1,217,422,200</b>

<b>SOUTH WEST REGION</b>	
Coal	315,363,250
Heavy Mineral Sands and Spodumene	304,867,165
Other	429,488
<b>TOTAL</b>	<b>620,659,903</b>

<b>GASCOYNE REGION</b>	
Salt and Gems	160,919,897
Construction Materials	439,880
Limesand-Limestone	209,885
<b>TOTAL</b>	<b>161,569,662</b>

<b>PERTH METROPOLITAN REGION</b>	
Construction Materials and Silica Sand, Limesand-Limestone	<b>39,018,428</b>

<b>GREAT SOUTHERN REGION</b>	
Spongolite, Silica Sand and Limesand	<b>5,864,220</b>

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

<b>PILBARA REGION</b>	<b>2012 Value</b>
East Pilbara	29,828,820,725
Ashburton	20,002,483,643
Roebourne and Karratha	155,782,451
Port Hedland and Marble Bar	753,742,294
<b>TOTAL</b>	<b>50,740,829,113</b>

<b>OFFSHORE PETROLEUM</b>	<b>24,373,312,323</b>
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<b>GOLDFIELDS-ESPERANCE REGION</b>	
Coolgardie	3,135,812,035
Kalgoorlie-Boulder	2,139,615,228
Leonora	1,716,904,174
Laverton	1,410,517,725
Ravensthorpe	592,247,511
Dundas	195,534,744
Menzies	189,330,437
Esperance	158,756
<b>TOTAL</b>	<b>9,380,120,612</b>

<b>PEEL REGION</b>	
Warooka	2,595,986,402
Boddington	2,427,241,052
<b>TOTAL</b>	<b>5,023,227,454</b>

<b>MID WEST REGION</b>	
Wiluna and Three Springs	799,830,676
Mullewa, Mt Magnet and Murchison	231,603,135
Yalgoo and Carnamah	754,662,518
Meekatharra, Cue and Morawa	652,567,910
Irwin and Northampton	112,908,142
Coorow and Geraldton	76,277,601
Perenjori, Sandstone, Three Springs	203,680
<b>TOTAL</b>	<b>2,628,053,662</b>

<b>WHEATBELT REGION</b>	<b>2012 Value</b>
Yilgarn	1,480,580,321
Dandaragan and Koorda	545,210,277
Kondinin and Northam	495,569,734
Lake Grace, Westonia and Wyalkatchem	136,614,586
Gingin and Moora	4,510,728
Dalwallinu and Kellerberrin	1,641,569
<b>TOTAL</b>	<b>2,664,127,215</b>

<b>KIMBERLEY REGION</b>	
Derby-West Kimberley	588,262,869
Wyndham-East Kimberley	377,046,255
Halls Creek	244,348,697
Broome	7,764,379
<b>TOTAL</b>	<b>1,217,422,200</b>

<b>SOUTH WEST REGION</b>	
Bridgetown-Greenbushes, Capel and Collie	537,775,878
Bunbury, Dardanup, Donnybrook, Manjimup	82,884,025
<b>TOTAL</b>	<b>620,659,903</b>

<b>GASCOYNE REGION</b>	
Carnarvon	70,582,841
Exmouth, Shark Bay and Upper Gascoyne	90,986,821
<b>TOTAL</b>	<b>161,569,662</b>

<b>PERTH METROPOLITAN REGION</b>	
Wanneroo	13,366,764
Kalamunda and Swan	10,781,187
Cockburn, Kwinana and Rockingham	14,870,477
<b>TOTAL</b>	<b>39,018,428</b>

<b>GREAT SOUTHERN REGION</b>	
Albany, Denmark and Plantagenet	5,864,220

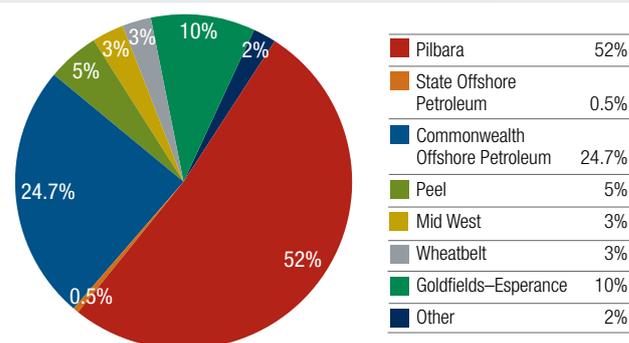


Figure 57. Value of Minerals and Petroleum by Region 2012  
Total \$96.9 billion Source: DMP

**TABLE 8. ROYALTY RECEIPTS AND NORTH WEST SHELF GRANTS 2011 AND 2012**

COMMODITY	2011	2012	2012 Growth	
	TOTAL A\$	TOTAL A\$	A\$	%
Alumina	68,402,559	65,293,682	-3,108,877	-5
Diamonds	13,509,606	16,194,434	2,684,828	20
Gold	210,970,385	218,918,291	7,947,906	4
Heavy Mineral Sands	19,222,523	25,124,566	5,902,043	31
Iron Ore	3,785,119,525	3,535,417,771	-249,701,754	-7
Nickel	103,020,310	94,532,050	-8,488,260	-8
Petroleum*	21,987,488	17,220,539	-4,766,949	-22
Other	139,401,002	136,911,982	-2,489,020	-2
Total Royalty Receipts	4,361,633,398	4,109,613,315	-252,020,083	-6
North West Shelf Grants	927,123,968	985,832,277	58,708,309	6
<b>TOTAL REVENUE</b>	<b>5,288,757,366</b>	<b>5,095,445,592</b>	<b>-193,311,774</b>	<b>-4</b>

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).

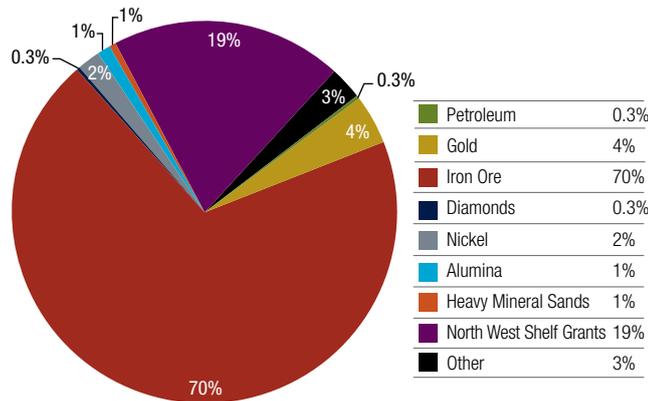


Figure 58. **Royalty Receipts 2012**  
 Total \$5.1 Billion Source: DMP, WA Treasury

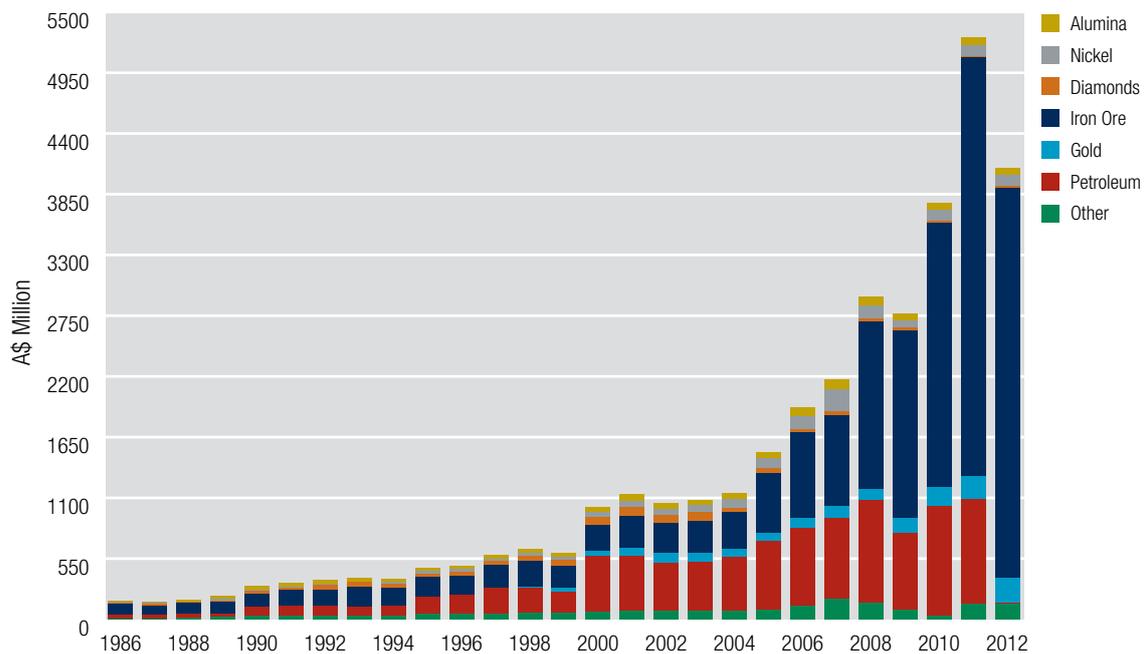


Figure 59. **Royalty Receipts by Commodity** Source: DMP

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

**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	2010–11	2011–12
<b>BAUXITE – ALUMINA</b>			
Alcoa World Alumina Australia	Huntly	819	846
	Kwinana Alumina Refinery	1,303	1,329
	Pinjarra Refinery	1,600	1,661
	Wagerup Alumina Refinery	1,058	1,085
	Willowdale	361	327
Bauxite Resources Limited	Bindoon Bauxite Quarry	0	1
Doral Fused Materials Pty Ltd	Rockingham Fused Alumina Plant	101	100
Worsley Alumina Pty Ltd	Boddington Bauxite	495	481
	Worsley Refinery	5,171	4,417
<b>TOTAL BAUXITE – ALUMINA</b>		<b>10,908</b>	<b>10,247</b>
<b>BASE METALS</b>			
Birla (Nifty) Pty Ltd	Nifty	746	744
Jabiru Metals Ltd	Jaguar	323	352
Lennard Shelf Pty Ltd	Pillara	16	4
Magellan Metals Pty Ltd	Magellan	201	37
Minerals and Metals Group	Golden Grove	950	1,120
Sandfire Resources NL	DeGrussa Mine	61	633
Venturex Resources Limited	Whim Creek	20	17
<b>TOTAL BASE METALS</b>		<b>2,317</b>	<b>2,907</b>
<b>COAL</b>			
Griffin Coal Mining Co. Pty Ltd	Muja Open Cut	430	474
Wesfarmers Premier Coal Ltd	Premier	555	202
<b>TOTAL COAL</b>		<b>985</b>	<b>676</b>

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010-11	2011-12
<b>DIAMONDS</b>			
Argyle Diamond Mines Pty Ltd	Argyle Diamond Mine	1,378	1,917
Kimberley Diamond Company Ltd	Ellendale/Kimberley Diamonds	305	328
North Australian Diamonds Limited	Wangarra Laboratory	4	3
<b>TOTAL DIAMONDS</b>		<b>1,687</b>	<b>2,248</b>
<b>GOLD</b>			
A1 Minerals Ltd	Brightstar Beta-Mikado	48	17
Agnew Gold Mining Company Pty Limited	Agnew-Emu	435	529
AngloGold Ashanti Australia Ltd	Sunrise Dam	1,025	1,111
	Tropicana Gold Mine	6	163
Apex Gold Pty Ltd	Wiluna Group	300	232
Auzex / CCG JV	Bullabulling	12	19
Avoca Resources Ltd	Higginsville Gold Project	588	611
Barrick Gold of Australia Ltd	Darlot	487	482
	Granny Smith	778	897
	Kalgoorlie West Group	782	869
	Lawlers	393	477
	Plutonic	661	679
Central Norseman Gold Corporation	Central Norseman Group	307	264
Crescent Gold Limited	Laverton Gold Project	210	268
Dacian Gold Ltd	Mt Morgans Gold Mine	96	3
Evolution Mining Limited	Edna May Gold Project	129	142
Focus Minerals Ltd	The Mount	25	66
	Three Mile Hill	174	152
	Tindals	116	153
FMR Investments Pty Ltd	Burbanks	7	4
	Greenfields Mill	66	49
	Gordon Sirdar Project	58	19
GMK Exploration Pty Ltd	Meekatharra Gold Operations – Bluebird	2	10
Haoma Pty Ltd	Bamboo Creek	8	10
HBJ Minerals Pty Ltd	South Kal Operations	225	277
Integra Mining Ltd	Randalls	196	184
Kalgoorlie Consolidated Gold Mines Pty Ltd	Golden Mile – Super Pit	1,693	1,903
Kalgoorlie Mining Company (Bullant) Pty Ltd	Bullant Mine	14	58
Kentor Gold Ltd	Burnakura	0	52
La Mancha Resources Australia Pty Ltd	Frogs Leg Group	236	235
	White Foil	12	3
Mc Verde Minerals Pty Ltd	Pithara Open Pit Mine	4	1
Millennium Minerals Limited	Nullagine Gold Operations	0	59
Minjar Gold Pty Ltd	Minjar Gold Project	19	28
Mount Magnet South NL	Kirkalocka	6	7
Navigator (Bronzewing) Pty Ltd	Bronzewing	208	275
Newcrest Mining Ltd	Telfer	1,946	2,570
Newmont Boddington Gold Pty Ltd	Boddington	2,495	3,402
Newmont Mining Corporation	Jundee	593	672

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010-11	2011-12
<b>GOLD Continued</b>			
Nex Metals Explorations Ltd	Orient Well	5	31
Northern Star Resources Ltd	Paulsens	168	237
Northwest Nonferrous Australia	Indee Gold	7	4
Northwest Resources Ltd	Blue Spec – Golden Spec Mine	2	4
Paddington Gold Mine Pty Ltd	Paddington Gold	448	501
	Binduli	180	198
Ramelius Milling Services Pty Ltd	Burbanks Treatment Plant	19	18
Ramelius Resources Ltd	Wattle Dam	69	64
	Hill 50 – Mt Magnet Group	8	241
Reed Resources Ltd	Sand Queen	2	1
Regis Resources Limited	Duketon	174	153
	Garden Well	0	244
Silver Lake Resources Limited	Daisy-Milano	161	224
	Lakewood – Fimtails Plant	44	67
	Murchison Operations	0	22
Saracen Gold Mines Pty Limited	Carosue Dam	331	277
St Barbara Mines Ltd	Southern Cross – Marvel Loch and Hercules mines	399	397
	Leonora Operations – Sons of Gwalia	511	512
	King of the Hills Underground	67	150
St Ives Gold Mining Company Pty Limited	Kambalda/St Ives	1,569	1,825
Swan Gold Mining Ltd	Carnegie Gold	3	3
	Mt Ida	4	3
Tanami Gold NL	Coyote Minesite	200	196
The Perth Mint	Perth Mint	87	103
Troy Resources Ltd	Sandstone Group	14	3
Other	Various	27	9
<b>TOTAL GOLD</b>		<b>18,859</b>	<b>22,439</b>
<b>HEAVY MINERAL SANDS</b>			
BHP Titanium Minerals Pty Ltd	Beenup	3	7
Bemax Resources Limited	Bunbury	158	155
Doral Mineral Sands Pty Ltd	Dardanup	281	268
Mintech Chemical Industries Pty Ltd	Rockingham Zirconia Plant	30	50
GMA Garnet Pty Ltd	Narngulu Garnet Plant	30	34
	Port Gregory	30	32
Iluka Resources Limited	Capel	360	652
	Eneabba	35	143
	Narngulu Synthetic Rutile Plants	272	298
	Gingin/Iluka	5	16
Tronox Management Pty Ltd	Chandala-Muchea	401	361
	Cooljarloo	194	205
	Bunbury Port	13	10
<b>TOTAL HEAVY MINERAL SANDS</b>		<b>1,812</b>	<b>2,231</b>

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010-11	2011-12
<b>IRON ORE</b>			
Atlas Iron Ltd	Abydos DSO Project	0	2
	Mt Dove	0	1
	Pardoo RSD Group	83	85
	Wodgina	65	116
BC Iron Limited		215	329
BHP Billiton Iron Ore Pty Ltd	Boodarie HBI Plant	58	15
	Eastern Ridge Operation	625	767
	Jimblebar Hub	0	29
	Mining Area C	1,687	1,988
	Mt Newman Railway	532	0
	Mt Whaleback	1,765	1,909
	Nelson Point	1,617	1,172
BHP Billiton Iron Ore Pty Ltd Continued	RGP4/5 Port Hedland Pace Project	258	958
	Yandi – Marillana Creek	1,166	1,425
	Yandi 3 Rail Loop Ore Handling Plant	0	37
Calibre Projects Pty Ltd	Western Turner Syncline	0	136
	Brockman 4 – Phase 2	0	274
Citic Pacific Mining Management Pty Ltd	Sino Iron	520	668
Cliffs Natural Resources Pty Ltd	Koolyanobbing	836	1,114
Crosslands Resources Ltd	Cuddingwarra	61	59
	Geraldton Port Storage Facility	55	39
	Jack Hills	126	64
Downer EDI Works Pty Ltd	Warrambo Project	0	87
Forge Resources Ltd	Balla Balla Group	3	1
Fortescue Metals Group Ltd	Anderson Point Port Facility	380	884
	Christmas Creek	1,182	2,928
	Cloudbreak	3,316	3,809
	Rail Ballast Quarry	15	19
	Solomon Project	0	1,172
Hamersley HMS Pty Ltd	Hope Downs 1-3 Group	1,390	415
	Hope Downs 4	0	10
Hamersley Iron Pty Ltd	Brockman	594	655
	Dampier Port Operations	1,685	2,697
	Dampier Power Plant	252	51
	Hismelt Kwinana	77	50
	Marandoo	383	421
	Paraburdoo/Channar/Eastern Range	1,454	1,469
	Tom Price	2,041	2,145
	Yandicoogina	1,093	1,221
Henry Walker Eltin Cockatoo Pty Ltd	Cockatoo Island	173	200
Karara Mining Limited	Karara	103	196
Kimberley Metals Group Pty Ltd	Ridges Iron Ore Project	16	111
Lycopodium Minerals Pty Ltd	Marandoo Phase 2 Construction	0	97

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010-11	2011-12
<b>IRON ORE Continued</b>			
MacMahon Holdings Pty Ltd	Orebody 18 – Wheelarra	459	432
Mount Gibson Mining Limited	Extension Hill	191	175
	Geraldton Port Storage Facility	24	22
	Koolan Island	556	606
	Perenjori Iron Ore Sliding	0	47
	Ruvidini Rail Terminal	83	70
	Tallering Peak	310	354
Ngarda Civil and Mining Pty Ltd.	Yarrie Nimingarra	411	388
Polaris Metals Pty Ltd	Carina Iron Ore Mine	75	249
Process Minerals International	Boodarie RSI	33	33
	Poondano	10	84
Rio Tinto Iron Ore Pty Ltd	Brockman 4 Operations	827	1,079
	Cape Lambert Power Station	61	58
	Cape Lambert Expansion	154	121
	Dampier Fuel Wharf	81	128
	Kangaroo Hill Village	0	32
	West Angelas Power Plant	0	2
	Cape Lambert Port Operations and Power Plant	1,258	1,452
Robe River Mining Co. Pty Ltd	Pannawonica	667	684
	West Angelas	1,168	1,381
Roy Hill Iron Ore Pty Ltd	Roy Hill	0	149
Sinosteel Midwest Corporation Limited	Koolanooka	76	155
<b>TOTAL IRON ORE</b>		<b>30,270</b>	<b>37,526</b>
<b>MANGANESE</b>			
Pilbara Manganese Pty Ltd	Woodie Woodie	782	770
Process Minerals International	Peak Hill	30	0
	Nicholas Downs	26	6
	Woodie Woodie Tailings Treatment Plant	28	24
<b>TOTAL MANGANESE</b>		<b>866</b>	<b>800</b>
<b>NICKEL</b>			
BHP Billiton (Nickel West)	Cliffs	269	254
	Kalgoorlie Nickel Smelter	615	644
	Kambalda	189	179
	Kwinana Refinery	495	556
	Leinster	1,030	961
	Mt Keith	1,527	1,289
Consolidated Nickel Pty Ltd	Beta-Hunt Nickel Group	4	4
First Quantum Minerals (Australia) Pty Limited	Ravensthorpe	799	979
Focus Minerals Ltd	Nepean	1	1
Fox Resources Pty Ltd	Radio Hill	30	29
Lake Johnston Ltd	Emily Ann	78	243
Lightning Nickel Pty Ltd	Long Shaft	209	203
Mincor Resources NL	Carnilya Hill	41	10

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010-11	2011-12
<b>NICKEL Continued</b>			
	Mincor Operations	270	120
	Otter Juan	152	111
Norilsk Nickel Avalon Pty Ltd	Avalon-Bulong Plant	12	13
	Black Swan	22	16
	Cawse	15	16
	Waterloo	8	10
Murrin Murrin Operations Pty Ltd	Murrin Murrin	1,738	1,493
Panoramic Resources Limited	Lanfranchi	276	311
	Savannah Group	354	355
Poseidon Nickel Ltd	Windarra Group	13	26
Xstrata Nickel Australasia Operations Pty Ltd	Cosmos	307	246
	Sinclair	93	109
Southern Cross Energy	Southern Cross Energy Power Group	89	95
Western Areas Limited	Forrestania	532	525
<b>TOTAL NICKEL</b>		<b>9,168</b>	<b>8,798</b>
<b>SALT</b>			
Dampier Salt Ltd	Dampier	667	262
	Lake MacLeod	221	249
	Port Hedland	168	210
WA Salt Supply Koolyanobbing Pty Ltd	Lake Deborah	11	11
Onslow Solar Salt Pty Ltd	Onslow	112	154
Shark Bay Salt JV	Useless Loop	115	123
Western Salt Refinery Pty Ltd	Pink Lake	1	1
<b>TOTAL SALT</b>		<b>1,295</b>	<b>1,010</b>
<b>TIN, TANTALUM AND LITHIUM</b>			
Galaxy Resources Ltd	Mt Cattlin (Spodumene)	157	162
Global Advanced Metals Greenbushes Pty Ltd	Greenbushes	21	22
	Wodgina	98	127
Nagrom and Co.	Kelmscott	69	86
Talison Minerals Pty Ltd	Greenbushes	187	254
<b>TOTAL TIN, TANTALUM AND LITHIUM</b>		<b>532</b>	<b>651</b>
<b>OTHER COMMODITIES</b>			
<b>TOTAL CHROMITE</b>		<b>111</b>	<b>92</b>
<b>TOTAL CLAYS</b>		<b>104</b>	<b>106</b>
<b>TOTAL CONSTRUCTION MATERIALS</b>		<b>692</b>	<b>918</b>
<b>TOTAL DIMENSION STONE</b>		<b>137</b>	<b>123</b>
<b>TOTAL GYPSUM</b>		<b>30</b>	<b>12</b>
<b>TOTAL INDUSTRIAL PEGMATITE MINERALS</b>		<b>24</b>	<b>23</b>
<b>TOTAL LIMESTONE - LIMESAND</b>		<b>176</b>	<b>208</b>
<b>TOTAL MINERAL EXPLORATION</b>		<b>3,353</b>	<b>3,681</b>
<b>TOTAL PHOSPHATE</b>		<b>159</b>	<b>170</b>
<b>TOTAL RARE EARTHS</b>		<b>109</b>	<b>162</b>
<b>TOTAL SILICA - SILICA SAND</b>		<b>450</b>	<b>580</b>

**TABLE 9. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA MINERALS AND PETROLEUM INDUSTRIES**

MINERAL/Company	Operating Site	2010–11	2011–12
<b>OTHER COMMODITIES Continued</b>			
<b>TOTAL SILVER</b>		9	42
<b>TOTAL TALC</b>		64	49
<b>TOTAL TUNGSTEN AND MOLYBDENUM</b>		83	95
<b>TOTAL VANADIUM</b>		111	340
<b>TOTAL VARIOUS PORTS</b>		798	740
<b>ALL OTHER MATERIALS</b>		4	2
<b>TOTAL</b>		<b>85,113</b>	<b>96,876</b>
<b>PETROLEUM</b> (onshore facilities and pipelines covered under <i>Petroleum Pipelines Act 1969</i> and <i>Petroleum Geothermal Energy Resources Act 1967</i> ) *			
APA Group	Includes Parmelia and Telfer Nifty Pipelines		139
Apache Energy Ltd	Burrup Fertilisers Lateral, Devil Creek and Varanus		235
APT Parmelia Pty Ltd	Mondarra Gas Storage Facility		59
ARC Energy Ltd	Includes Dongara and Hovea Production facilities and Woodada Gas Field		103
BHP Billiton Petroleum	Griffin Export Facility, Macedon Gas Project		277
Buru Energy	Includes various Pipelines, Blina, Century, Ensign		247
Chevron (Australia) Pty Ltd	Gorgon, WA Oil Asset and Drilling		1,157
DBNGP (WA) Transmission Pty Ltd	Dampier-Bunbury Natural Gas Pipeline		241
Epic Energy Corp Shared Services Pty Ltd	Pilbara Pipeline System		17
Goldfields Gas Transmission Pty Ltd	Goldfields Gas Pipeline		71
Origin Energy Resources Ltd	Beharra Springs, Jingemlia and Cockburn Lateral		46
<b>PETROLEUM</b>			
Pilbara Iron	Cape Lambert Lateral, Paraburdoo Gas Lateral		20
Roc Oil (WA) Pty Ltd	Arrowsmith Stabilisation Facility		159
Southern Cross Pipelines Aust Pty Ltd	Mt Keith, Parkeston, Kambalda and Leinster Laterals		25
Other	Various sites		89
<b>TOTAL WA ONSHORE &amp; COASTAL WATERS</b>			<b>2,885**</b>
<b>Estimated offshore petroleum (Commonwealth waters) plus LNG processing facilities</b>			<b>5,820***</b>

SOURCE: AXTAT Reporting System, Resources Safety Division, Department of Mines and Petroleum for minerals data and Monthly Status Reports submitted to the Department for Western Australian onshore petroleum facilities and pipelines. Figures shown are preliminary, subject to revision and include employees as well as contractors.

\* From 1 January 2012, the responsibility for administering safety regulation for coastal waters under the *Petroleum (Submerged Lands) Act 1982* reverted to DMP.

\*\* Excludes operational personnel working at onshore LNG processing facilities and oil and gas sites located in Commonwealth offshore waters.

\*\*\* Estimates are derived from contacting petroleum companies including Woodside Energy Ltd and Chevron (Australia) Pty Ltd to ascertain the number of people working at oil and gas sites in offshore Commonwealth waters and onshore LNG processing facilities.

**TABLE 10. AVERAGE NUMBER OF PERSONS EMPLOYED IN THE WA PETROLEUM INDUSTRIES**

**PETROLEUM EMPLOYMENT DATA SOURCES**

For areas under state jurisdiction, petroleum employment data is compiled from 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.

This data represents the average number of persons employed at operating sites, including contractor employees, over a 12 month period.

The relevant acts used to collect this data are:

*Petroleum Pipelines Act 1969; Petroleum and Geothermal Energy Resources Act 1967; and Petroleum (Submerged Lands) Act 1982.*

It is important to note that according to the relevant acts listed above, petroleum is typically defined as any naturally occurring hydrocarbon or mixture of hydrocarbons, whether in a gaseous, liquid or solid state. Therefore, persons employed in petroleum activities involving significant processing to produce a saleable product are excluded from DMP's petroleum employment dataset. This includes people working at onshore liquefied natural gas (LNG) facilities.

From 1 January 2012 the responsibility for administering safety regulation for coastal waters under the *Petroleum (Submerged Lands) Act 1982* reverted to DMP. 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 responsible for administering safety regulation in Commonwealth waters.

In order to capture the wider extent of petroleum employment, offshore Western Australia plus LNG facilities, the Department conducts a survey of petroleum producing companies in Western Australia to estimate the average number of people working in locations not within scope of DMP's petroleum safety regulatory responsibilities.

Estimates are derived from contacting petroleum companies including Woodside Energy Ltd and Chevron (Australia) Pty Ltd to ascertain the number of people working at oil and gas sites in offshore Commonwealth waters and onshore LNG processing facilities. Where possible, estimates include both direct and contract employees working at operational sites and on major developments such as the Gorgon and Wheatstone projects.

MINERAL/Company	Operating Site	2011
<b>PETROLEUM</b> (onshore facilities and pipelines covered under <i>Petroleum Pipelines Act 1969</i> and <i>Petroleum Geothermal Energy Resources Act 1967</i> ) *		
APA Group	includes Parmelia and Telfer Nifty Pipelines	135
Apache Energy Ltd	Burrup Fertilisers Lateral, Devil Creek and Varanus	555
APT Parmelia Pty Ltd	Mondarra Gas Storage Facility	18
ARC Energy Ltd	includes Dongara and Hovea Production facilities and Woodada Gas Field	137
BHP Billiton Petroleum	Griffin Export Facility, Macedon Gas Project	111
Buru Energy	includes Athos, Century Rig, Commodore East, Ensign Rig and Yulleroo	72
Chevron (Australia) Pty Ltd	Gorgon, WA Oil Asset and Drilling	557
DBNGP (WA) Transmission Pty Ltd	Dampier-Bunbury Natural Gas Pipeline	222
Epic Energy Corp Shared Services Pty Ltd	Pilbara Pipeline System	16
Goldfields Gas Transmission Pty Ltd	Goldfields Gas Pipeline	69
Origin Energy Resources Ltd	Beharra Springs, Jingemina	49
Pilbara Iron	Cape Lambert Lateral, Paraburdoo Gas Lateral	20
Roc Oil (WA) Pty Ltd	Arrowsmith Stabilisation Facility	23
Southern Cross Pipelines Aust Pty Ltd	Mt Keith, Parkeston, Kambalda and Leinster Laterals	24
Other	Various sites	112
<b>TOTAL WA ONSHORE AND COASTAL WATERS</b>		<b>2,120 **</b>
<i>Estimated offshore petroleum (Commonwealth waters) plus LNG processing facilities</i>		<i>6,180 ***</i>
<b>TOTAL PETROLEUM</b>		<b>8,300</b>

\* From 1 January 2012, the responsibility for administering safety regulation for coastal waters under the *Petroleum (Submerged Lands) Act 1982* reverted to DMP.

\*\* Excludes operational personnel working at onshore LNG processing facilities and oil and gas sites located in Commonwealth offshore waters.

\*\*\* Estimate is derived from contacting petroleum companies including Woodside Energy Ltd and Chevron (Australia) Pty Ltd to ascertain the number of people working at oil and gas sites in offshore Commonwealth waters and onshore LNG processing facilities.

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE MAY 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](http://www.bhpbilliton.com)

**MMG Golden Grove Pty Ltd,**  
Level 23,  
28 Freshwater Place,  
Southbank Vic 3001,  
(03) 9288 0413,  
Golden Grove.  
[www.mmg.com](http://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](http://www.igo.com.au)

**Newcrest Mining Ltd,**  
193 Great Eastern Highway,  
Belmont WA 6104,  
(08) 9270 7070,  
Telfer.  
[www.newcrest.com.au](http://www.newcrest.com.au)

**Newmont Boddington Pty Ltd,**  
388 Hay Street,  
Subiaco WA 6008  
(08) 9423 6580,  
Boddington Gold  
[www.newmont.com](http://www.newmont.com)

**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](http://www.alcoa.com/australia)

**Worsley Alumina Pty Ltd,**  
PO Box 344,  
Collie WA 6225,  
(08) 9734 8311,  
Worsley.  
[www.bhpbilliton.com.au](http://www.bhpbilliton.com.au)

**CHROMITE**

**Consolidated Minerals,**  
Level 1, 28 Ventnor Avenue,  
West Perth WA 6005,  
(08) 9460 7000,  
Coobina.  
[www.consminerals.com.au](http://www.consminerals.com.au)

**CLAY**

**ATTAPULGITE**

**Hudson Resources Ltd,**  
2 Kemp Street, Narngulu,  
Geraldton WA 6530,  
(08) 9923 3604,  
Lake Nerramayne.  
[www.hudsonresources.com](http://www.hudsonresources.com)

**CLAY SHALE**

**Wesfarmers Premier Coal Ltd,**  
Premier Road,  
Collie WA 6225,  
(08) 9780 2222,  
Collie.  
[www.wesfarmers.com.au](http://www.wesfarmers.com.au)

**SAPONITE**

**Watheroo Minerals Pty Ltd,**  
PO Box 353,  
Dunsborough WA 6281,  
(08) 9756 6121,  
Watheroo Clays.  
[www.bentonitewa.com.au](http://www.bentonitewa.com.au)

**COAL**

**Griffin Coal Mining Company  
Pty Limited,**  
Level 15, 28 The Esplanade,  
Perth WA 6000,  
(08) 6188 2211,  
Collie.  
[www.griffincoal.com.au](http://www.griffincoal.com.au)

**Wesfarmers Premier Coal Ltd,**  
Premier Road,  
Collie WA 6225,  
(08) 9780 2222,  
Collie.  
[www.wesfarmers.com.au](http://www.wesfarmers.com.au)

**CONSTRUCTION MATERIALS**

**AGGREGATE**

**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](http://www.holcim.com.au)

**GRAVEL**

**Hanson Construction Materials**  
123 Burswood Road,  
Burswood WA 6100,  
(08) 9311 8811,  
Turner River.  
[www.hanson.com.au](http://www.hanson.com.au)

**NTC Contracting**

Lot 550 Onslow Road,  
Onslow WA 6710,  
(08) 9184 6025  
Onslow.  
[www.ntc.net.au](http://www.ntc.net.au)

**WA Limestone Co.,**  
41 Spearwood Avenue,  
Bibra Lake WA 6163,  
(08) 9434 2299,  
Pickering Brook.  
[www.walimestone.com](http://www.walimestone.com)

**SAND**

**Boral Resources (WA) Ltd**  
63–69 Abernethy Road,  
Belmont WA 6104,  
(08) 9333 3400,  
Gnangara, Grosmont.  
[www.boral.com.au](http://www.boral.com.au)

**Rocla Quarry Products,**  
130 Fauntleroy Avenue,  
Redcliffe WA 6104,  
(08) 9475 2500,  
Various sites.  
[www.rocla.com.au](http://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](http://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](http://www.argylediamonds.com.au)

**Kimberley Diamond Company,**  
Level 3, 52 Kings Park Road,  
West Perth WA 6005,  
(08) 9426 9888,  
Ellendale.  
[www.gemdiamonds.com](http://www.gemdiamonds.com)

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE MAY 2013**

**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

Apex Minerals NL,  
Level 1, 10 Ord Street,  
West Perth WA 6005,  
(08) 6311 5555,  
Wiluna.  
www.apexminerals.com.au

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

Focus Minerals Limited,  
Level 30, St Martins Tower,  
44 St Georges Terrace,  
Perth WA 6000,  
(08) 9215 7888,  
Coolgardie–Redemption,  
Perseverance, The Mount, Tindals.  
www.focusminerals.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

Northern Star Resources Limited,  
Level 1, 1 Puccini Court,  
Stirling WA 6021,  
(08) 6188 2100,  
Paulsens.  
www.nsrftd.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

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 2290,  
Moolart, Garden Well.  
www.regisresources.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

Stone Resources Australia Ltd,  
1st Floor, 265 Great Eastern Hwy,  
Belmont WA 6104,  
(08) 9277 6008,  
Brightstar  
www.stonerresourcesaustralia.com.

St Barbara Limited,  
1205 Hay Street,  
West Perth WA 6005,  
(08) 9476 5555,  
Marvel 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

**GYP SUM**

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,  
PO Box 46,  
Gibson WA 6448,  
(08) 9075 3031,  
Scaddan.

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE MAY 2013**

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

### **HEAVY MINERAL SANDS**

#### **GARNET SAND**

**GMA Garnet Pty Ltd,**  
122 Goulds Road,  
Geraldton WA 6532,  
(08) 9923 6000,  
Port Gregory.  
[www.garnetsales.com](http://www.garnetsales.com)

#### **ILMENITE, LEUCOXENE, RUTILE AND ZIRCON**

**Bemax Resources Limited,**  
Koombana Drive, North Shore,  
Bunbury WA 6230,  
(08) 9721 0200,  
Ludlow, Gwindinup Mine.  
[www.bemax.com.au](http://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](http://www.doral.com.au)

**Iluka Resources Ltd,**  
Level 23, 140 St Georges Terrace,  
Perth WA 6000,  
(08) 9360 4700.  
Capel.  
[www.iluka.com](http://www.iluka.com)

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

#### **IRON ORE**

**Atlas Iron Ltd,**  
Raine Square,  
Level 18, 300 Murray Street,  
Perth WA 6000.  
(08) 6228 8000,  
Pardoo, Wodgina.  
[www.atlasiron.com.au](http://www.atlasiron.com.au)

**BC Iron Limited,**  
Level 1, 15 Rheola Street,  
West Perth WA 6005,  
(08) 6311 3400,  
Nullagine.  
[www.bciron.com.au](http://www.bciron.com.au)

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

**Channar Mining Pty Ltd,**  
152 St Georges Terrace,  
Perth WA 6000,  
(08) 9327 2327,  
Channar.

**Cliffs Natural Resources Pty Ltd,**  
Level 12, 1 William Street,  
Perth WA 6000,  
(08) 9426 3333,  
Koolyanobbing.  
[www.cliffsnaturalresources.com](http://www.cliffsnaturalresources.com)

**Fortescue Metals Limited,**  
Level 2, 87 Adelaide Terrace,  
East Perth WA 6004,  
(08) 6218 8888,  
Cloud Break, Christmas Creek,  
Nullagine.  
[www.fmgil.com.au](http://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](http://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](http://www.hamersleyiron.com)

**Hope Downs Management Services Pty Ltd,**  
152 St Georges Terrace,  
Perth WA 6000,  
(08) 9327 7000,  
Hope Downs.  
[www.riotintoironore.com](http://www.riotintoironore.com)

**Kimberley Metals Group,**  
Suite 4, 610 Murray Street,  
West Perth WA 6005,  
(08) 9364 5884,  
Ridges.  
[www.kmetgroup.com](http://www.kmetgroup.com)

**Mineral Resources Limited,**  
1 Sleet Road,  
Applecross WA 6153,  
(08) 9329 3600,  
Poondano, Carina.  
[www.mineralresources.com.au](http://www.mineralresources.com.au)

**Mitsubishi Australia Ltd,**  
Level 21 Exchange Plaza,  
2 The Esplanade,  
West Perth WA 6005,  
(08) 6263 5300,  
Jack Hills.  
[www.mitsubishicorp.com/au](http://www.mitsubishicorp.com/au)

**Moly Mines Limited,**  
46-50 Kings Park Road,  
West Perth WA 6005,  
(08) 9429 3300,  
Spinifex Ridge  
[www.molymines.com](http://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](http://www.mtgibsoniron.com.au)

**Pluton Resources Limited,**  
Level 1, 5 Ord Street,  
West Perth WA 6005,  
(08) 6145 1800,  
Cockatoo Island  
[www.plutonresources.com](http://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](http://www.riotinto.com)

**Sinosteel Midwest Corporation Limited,**  
7 Rheola Street,  
West Perth WA 6005,  
(08) 9429 4888,  
Koolanooka.  
[www.smcl.com.au](http://www.smcl.com.au)

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE MAY 2013**

**LIMESAND–LIMESTONE**

**Cockburn Cement Ltd,**  
Lot 242, Russell Road,  
Munster WA 6163,  
(08) 9411 1000,  
Cockburn, Denison, Ledge Point.  
[www.cockburncement.com.au](http://www.cockburncement.com.au)

**Gypsum Industries of Australia,**  
Suite 1, 110 Robinson Avenue,  
Belmont WA 6104,  
1800 644 951,  
Cervantes, Dongara–Denison,  
Lancelin, Jurien.  
[www.aglime.com.au/](http://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](http://www.limestone-resources.com.au)

**WA Limestone Co.,**  
41 Spearwood Avenue,  
Bibra Lake WA 6163,  
(08) 9434 2299,  
Various sites throughout State.  
[www.walimestone.com/](http://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](http://www.consminerals.com.au)

**Process Minerals International Pty Ltd,**  
1 Sleat Road,  
Applecross WA 6153,  
(08) 9329 3600,  
Woodie Woodie.  
[www.processminerals.com.au](http://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](http://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](http://www.first-quantum.com)

**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](http://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](http://www.minara.com.au)

**Mincor Resources NL,**  
Level 1, 56 Ord Street,  
West Perth WA 6005,  
(08) 9476 7200,  
Coronet, McMahon, Mariners,  
Miittel, North Kambalda,  
Otter Juan, South Kambalda.  
[www.mincor.com.au](http://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](http://www.nornik.ru/en)

**Panoramic Resources Ltd,**  
Level 9, 553 Hay Street,  
Perth WA 6000,  
(08) 6266 8600,  
Savannah, Lanfranchi Tramways.  
[www.panoramicresources.com](http://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](http://www.westernareas.com.au)

**PALLADIUM**

**BHP Billiton (Nickel West),**  
125 St George's Terrace,  
Perth WA 6845,  
(08) 6321 0000,  
Kambalda.  
[www.bhpbilliton.com](http://www.bhpbilliton.com)

**PETROLEUM**

**Apache Energy Ltd,**  
Level 9, 100 St Georges Terrace,  
Perth WA 6000,  
(08) 6218 7100,  
Albert, Artreus, Bambra,  
Double Island, Gipsy, Gudrun, Harriet, Hoover,  
Lee, Legendre, John Brookes, Linda, Little  
Sandy, Mohave, North Alkimos, Pedirka, Rose,  
Simpson, Sinbad, South Plato, Van Gogh,  
Victoria, West Cycad, Wonnich.  
[www.apachecorp.com](http://www.apachecorp.com)

**AWE Ltd,**  
679 Murray Street,  
West Perth WA 6005,  
(08) 9480 1300,  
Apium, Corbyas, Hovea–Eremia, Mt Horner,  
Dongara, Woodada, Xyris, Yardarino.  
<http://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](http://www.buruenergy.com.au)

**BHP Billiton Petroleum (North West Shelf) Pty Ltd,**  
Brookfield Place,  
125 St Georges Terrace,  
Perth WA 6000,  
(08) 6321 0000,  
Chinook–Scindian, Crosby,  
Eskdale, Macedon, Pyranees,  
Ravensworth, Stickle, Stybarrow.  
[www.bhpbilliton.com](http://www.bhpbilliton.com)

**Chevron Australia Pty Ltd,**  
Level 24, QV1 Building,  
250 St Georges Terrace,  
Perth WA 6000,  
(08) 9216 4000,  
Barrow Island, Cowle, Crest,  
Roller–Skate, Saladin, Yammaderry.  
[www.chevron.com](http://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, Jingemina.  
[www.originenergy.com.au](http://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](http://www.rocoil.com.au)

**Santos Limited,**  
Level 1, 40 The Esplanade,  
Perth WA 6000,  
(08) 9333 9500,  
Mutineer–Exeter.  
[www.santos.com.au](http://www.santos.com.au)

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE MAY 2013**

**Vermilion Oil and Gas Australia Pty Ltd,**  
Level 5, 30 The Esplanade,  
Perth WA 6000,  
(08) 9215 0300,  
Wandoo.  
[www.vermillionenergy.com/](http://www.vermillionenergy.com/)

**Woodside Energy Ltd,**  
240 St Georges Terrace,  
Perth WA 6000,  
(08) 9348 4000,  
Angel, Athena, Cossack, Echo–Yodel,  
Goodwyn, Hermes, Laminaria East, Pluto,  
North Rankin, Wanaea, Vincent, Enfield.  
[www.woodside.com.au](http://www.woodside.com.au)

**PLATINUM**

**BHP Billiton (Nickel West),**  
125 St George's Terrace,  
Perth WA 6845,  
(08) 6321 0000,  
Kambalda.  
[www.bhpbilliton.com](http://www.bhpbilliton.com)

**RARE EARTHS**

**Lynas Corporation,**  
Level 1, 7 Tully Road,  
EAST PERTH WA 6004,  
(08) 6241 3800,  
Mount Weld.  
[www.lynascorp.com](http://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](http://www.dampiersalt.com.au)

**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.

**WA Salt Supply Ltd,**  
Lot 102-103 Cockburn Road,  
North Coogee WA 6163,  
(08) 9431 9431,  
Lake Deborah East.  
[www.wasalt.com.au](http://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](http://www.simcoa.com.au)

**SILICA SAND**

**Austsand Pty Ltd,**  
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](http://www.ksspl.com.au).

**Rocla Quarry Products,**  
3 Casella Place,  
Kewdale WA 6105,  
(08) 9353 9800,  
Gnangara.  
[www.rocla.com.au](http://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](http://www.luzenac.com.au)

**Sibelco Australia,**  
26 Tomlinson Road,  
Welshpool WA 6106,  
(08) 9362 1411,  
Mt Seabrook.  
[www.unimin.com.au](http://www.unimin.com.au)

**TIN–TANTALUM–LITHIUM  
SPODUMENE**

**Talison Minerals Ltd,**  
Level 4, 37 St Georges Terrace,  
Perth WA 6000,  
(08) 9263 5555,  
Greenbushes.  
[www.talison.com.au](http://www.talison.com.au)

**TANTALUM**

**Galaxy Resources Ltd,**  
Level 2, 16 Ord Street,  
West Perth WA 6005,  
(08) 9215 1700,  
Mt Cattlin.  
[www.galaxyresources.com.au](http://www.galaxyresources.com.au)

**Global Advanced Metals Pty Ltd,**  
Ground Floor,  
76 Kings Park Road,  
West Perth WA 6005,  
(08) 96217 2500,  
Greenbushes, Wodgina.  
[www.globaladvancedmetals.com](http://www.globaladvancedmetals.com)

**TIN**

**Global Advanced Metals Pty Ltd,**  
Ground Floor,  
76 Kings Park Road,  
West Perth WA 6005,  
(08) 96217 2500,  
Greenbushes, Wodgina.  
[www.globaladvancedmetals.com](http://www.globaladvancedmetals.com)

**VANADIUM**

**Atlantic Ltd,**  
Bankwest Tower,  
108 St Georges Terrace,  
Perth WA 6000,  
(08) 6141 7100,  
Windimurra.  
[www.atalnticltd.com.au](http://www.atalnticltd.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 and BREE.

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

<b>Mine Production</b>
Clays
Coal
Construction Materials
Dimension Stone
Gold
Gypsum
Limesand–Limestone–Dolomite
Silica – Silica Sand
Talc
<b>Sales</b>
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
Pigments
Salt
Silver
Spongolite
Tin–Tantalum–Lithium

## ABBREVIATIONS

A\$	Australian dollar	kt	thousand tonnes
ABARE	Australian Bureau of Agricultural and Resource Economics	LME	London Metal Exchange
ABS	Australian Bureau of Statistics	Mboe	Millions of barrels of oil equivalent
bbl	barrels of oil	Mtoe	Million tonnes of oil equivalent
Bcm	billion cubic metres	Mct	million carats
Btu	British Thermal Units	Moz	million ounces
ct	carat	Mt	million tonnes
GDP	Gross Domestic Product	oz	ounce
Gm <sup>3</sup>	billion cubic metres	OPEC	Organisation of Petroleum Exporting Countries
ha	hectares	RBA	Reserve Bank of Australia
km	kilometres	t/a	tonnes per annum
km <sup>2</sup>	square kilometres	Tcf	trillion cubic feet
		US\$	United States dollar

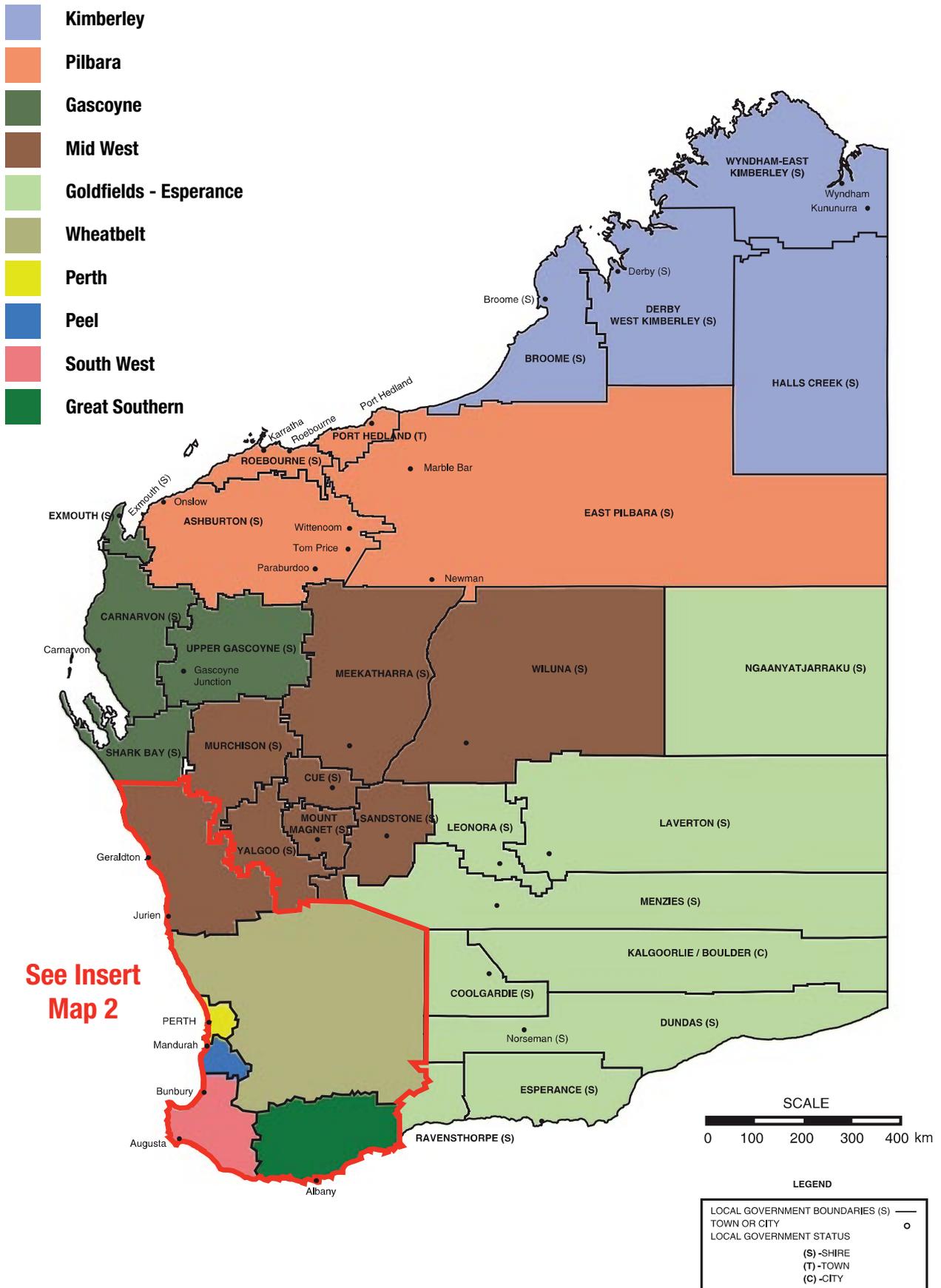
## WEIGHTS AND MEASURES

Kilo	1000 <sup>1</sup>	10 <sup>3</sup>	1,000
Mega	1000 <sup>2</sup>	10 <sup>6</sup>	1,000,000
Giga	1000 <sup>3</sup>	10 <sup>9</sup>	1,000,000,000
Tera	1000 <sup>4</sup>	10 <sup>12</sup>	1,000,000,000,000
Peta	1000 <sup>5</sup>	10 <sup>15</sup>	1,000,000,000,000,000
Exa	1000 <sup>6</sup>	10 <sup>18</sup>	1,000,000,000,000,000,000
Zetta	1000 <sup>7</sup>	10 <sup>21</sup>	1,000,000,000,000,000,000,000
Yotta	1000 <sup>8</sup>	10 <sup>24</sup>	1,000,000,000,000,000,000,000,000

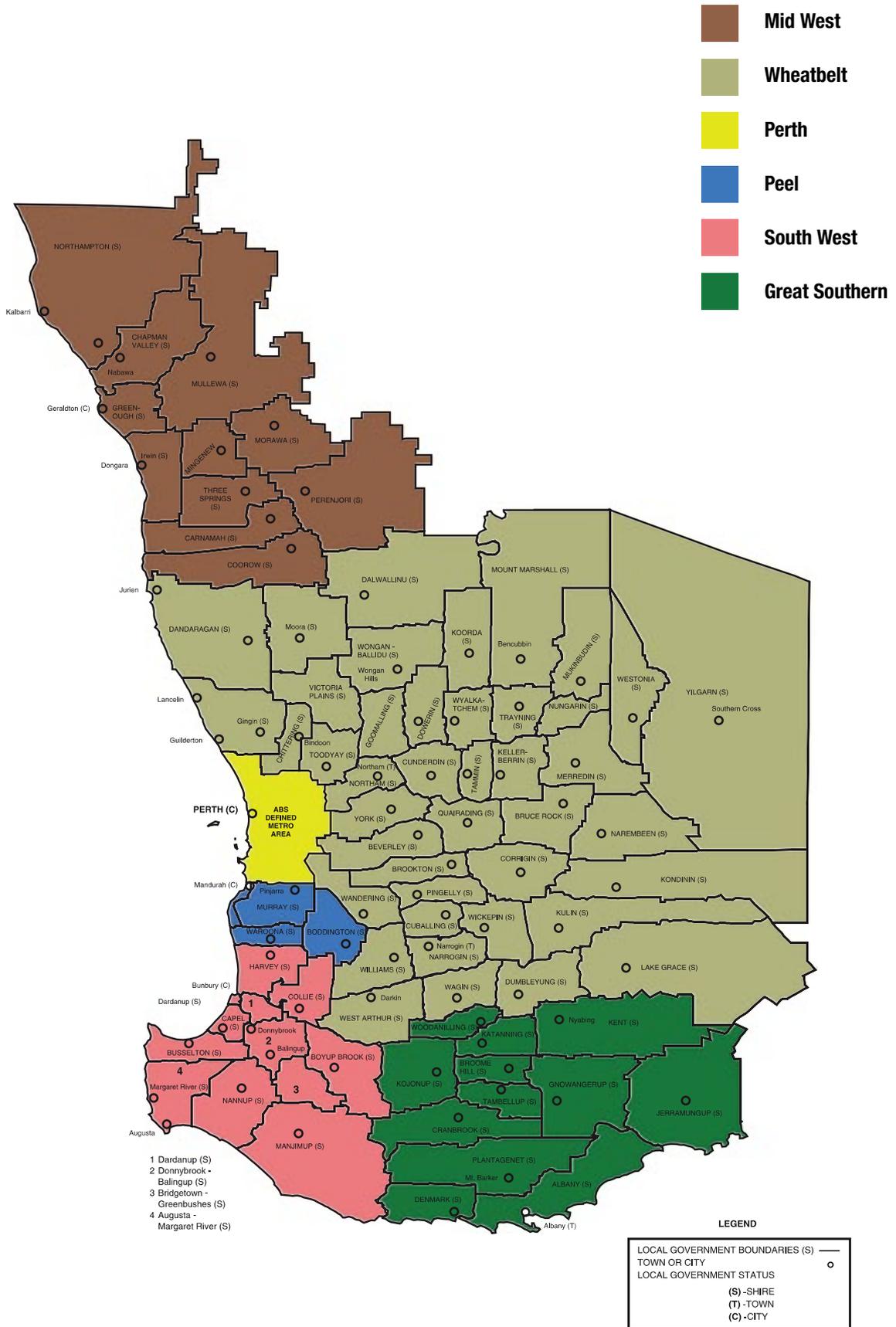
## UNITS AND CONVERSION FACTORS

	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 <sup>3</sup>	= 35.3147 cubic feet (ft <sup>3</sup> ) [1 kilolitre (kl) = 1 cubic metre (m <sup>3</sup> )]
Energy	1 kilojoule	kJ	= 0.94781 British Thermal Units (Btu)
Energy Content		Prefix	
Coal	19.7 GJ/t	kilo (k)	10 <sup>3</sup>
Condensate	32.0 MJ/L	mega (M)	10 <sup>6</sup>
Crude oil	37.0 MJ/L	giga (G)	10 <sup>9</sup>
LNG	25.0 MJ/L	tera (T)	10 <sup>12</sup>
Natural gas	38.2 MJ/m <sup>3</sup>	peta (P)	10 <sup>15</sup>
LPG-butane	28.7 MJ/L (1 tonne LPG-butane = 1,720 litres)		
LPG-propane	25.4 MJ/L (1 tonne LPG-propane = 1,960 litres)		

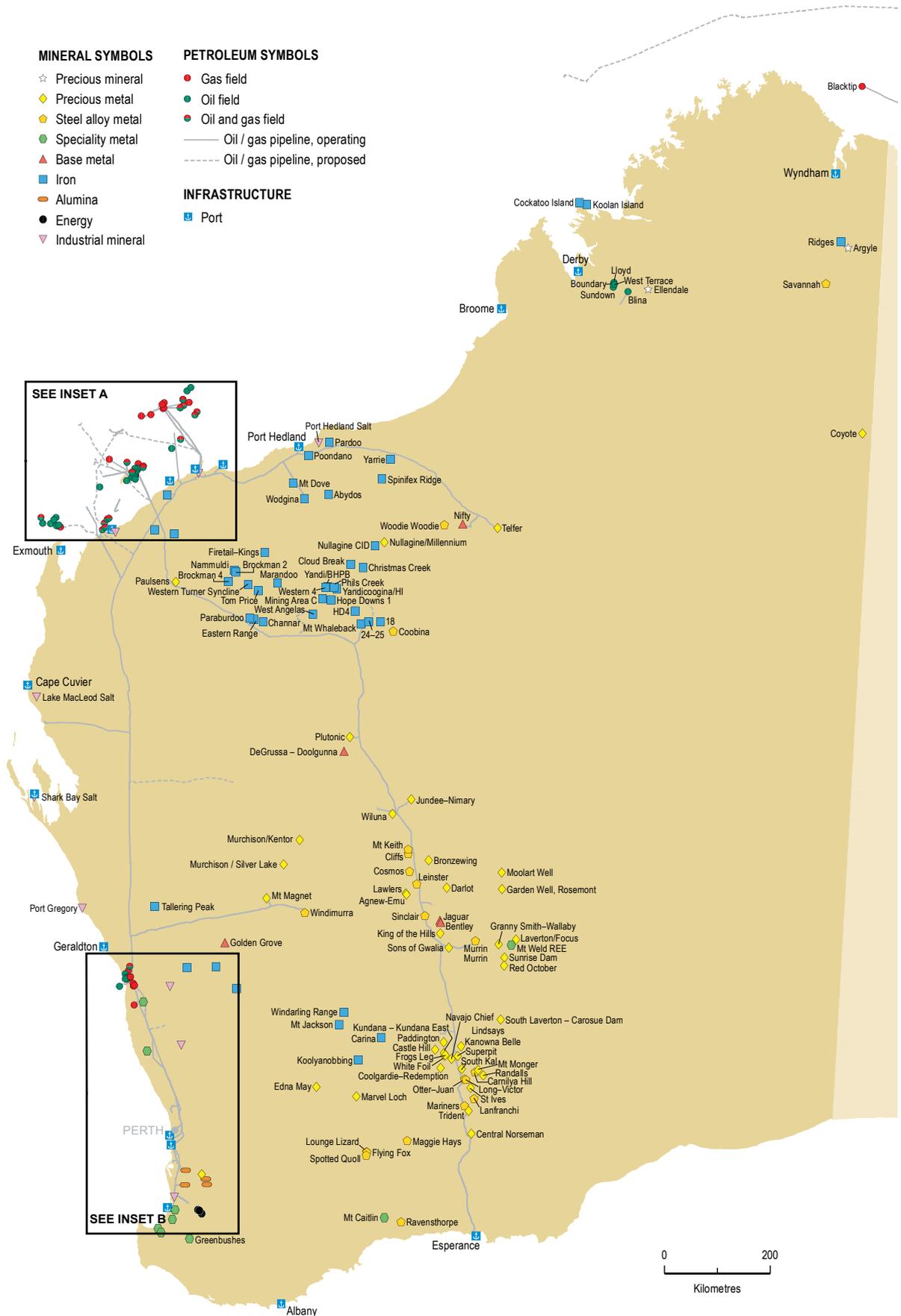
# MAP 1. LOCAL GOVERNMENT BOUNDARIES



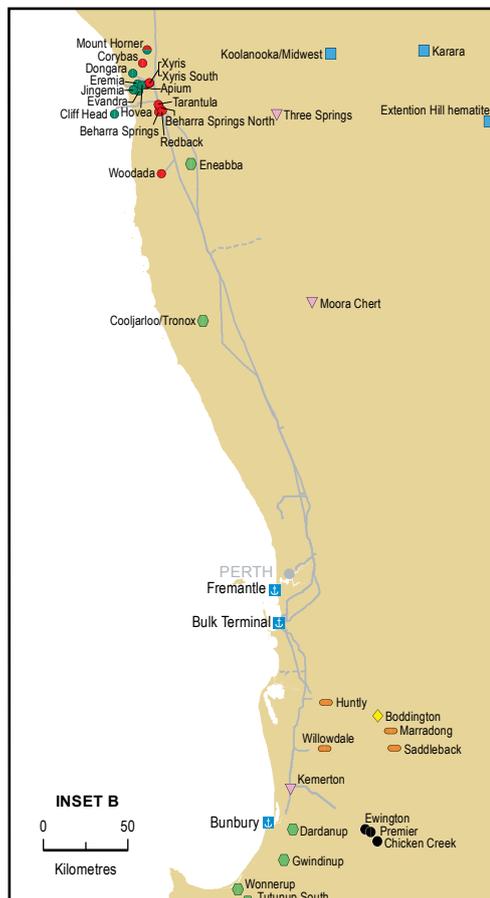
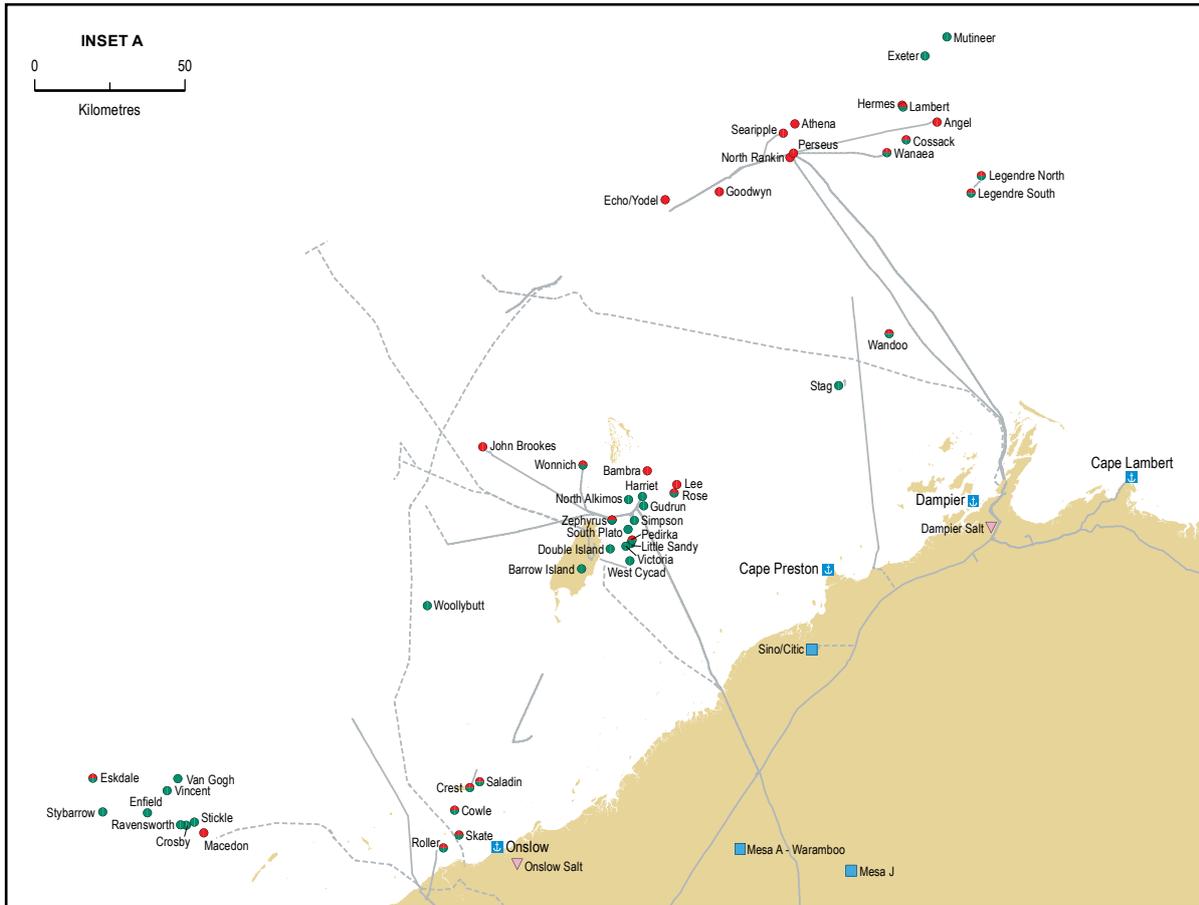
# MAP 2. LOCAL GOVERNMENT BOUNDARIES



# 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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Department of Mines and Petroleum  
Mineral House, 100 Plain Street  
East Perth, Western Australia 6004

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