



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

# WA

# MINERAL

# AND

# PETROLEUM

# STATISTICS

2011 WA Mineral and  
Petroleum Statistics Digest

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The value of Western Australia's mineral and petroleum industry reached a record high of \$107 billion in 2011 representing an increase of 16 per cent over the previous year. This is the second time resource sales have exceeded \$100 billion and is significant considering the 12 per cent appreciation of the Australian dollar against the US dollar during 2011.

This outcome was supported by exceptionally high commodity prices and robust overseas demand for the State's resources. The sales record was delivered against a backdrop of flooding from a longer than normal wet season and increasing costs and skills shortages which are hampering expansions and developments.

The most outstanding sales outcome in 2011 came from the iron ore sector. Coupled with petroleum and gold, these three sectors accounted for 89 per cent or \$95.1 billion of all mineral and petroleum sales.

Western Australia is very prominent in the global iron ore industry. In 2011 another sales record was set, resulting in an average 34 per cent increase in value each year over the past five years. With its close proximity to Asia, vast iron ore reserves and project expansions, Western Australian producers are well placed to remain a significant contributor to growth in the national economy.

The strong Australian dollar traded at an average of US\$1.03 during 2011. High commodity prices helped to compensate for the strengthening Australian dollar and played an important role in raising the value of Western Australian mineral and petroleum sales in 2011.

In 2011, Western Australia accounted for a record 46 per cent of Australia's merchandise exports which were worth \$263 billion. Queensland followed with 20 per cent, New South Wales 15 per cent and Victoria contributed around eight per cent.

Mining and petroleum dominated Western Australia's merchandise exports accounting for 92 per cent of the total in 2011 with China remaining the State's largest market, taking 43 per cent. Japan followed with 19 per cent and South Korea with nine per cent.

The magnitude of the State's mining developments is demonstrated in the Australian Bureau of Statistics

(ABS) figures for 2011. This data shows that Western Australia's share of national mining capital expenditure rose 44 per cent to \$35.6 billion and accounted for 56 per cent of the total (\$63.5 billion). Over the past five years private new capital expenditure by the industry has grown on average by 23 per cent.

Western Australia attracted the bulk of mineral and petroleum exploration expenditure in Australia drawing in 51 and 71 per cent respectively in 2011.

As highlighted by record sales in 2011, the State's mineral and petroleum industry remains globally competitive and is in a very strong position given the uncertain global economic outlook. This follows a decade of rapid expansion where the value of resource sales has increased on average by 14 per cent each year. Supported by a substantial pipeline of resource investment activity, the industry is well placed to take advantage of Asian industrialisation and the resultant strong demand for commodities.

### Highlights in 2011

**Iron ore** is the State's largest sector accounting for a record \$62.8 billion in 2011, an increase of 29 per cent on last year. This also represents 59 per cent of total sales in 2011. Australian dollar prices for all grades of iron ore from Western Australian producers increased by an average of 32 per cent over the year. Adverse weather conditions early in 2011 affected shipments of iron ore however overall exports increased by eight per cent to 427 million tonnes.

**Petroleum**, which includes crude oil, condensate, LNG, natural gas, LPG butane and propane, is Western Australia's second largest resource sector after iron ore accounting for \$23.5 billion or 22 per cent of total sales in 2011. This represents a three per cent increase in overall value compared to the previous year.

**LNG** was the second most valuable commodity in the State in 2011. Output decreased by three per cent to 16 million tonnes although the value of LNG sales rose by seven per cent to \$9.3 billion. LNG production is forecast to grow in the period ahead due to increased demand from Asia and supply from new projects including Woodside Energy's Pluto LNG project which commenced production in March 2012.

**Gold** ranked third in terms of overall value and reached \$8.8 billion, representing eight per cent of all sales in 2011. The price of gold was up by 28 per cent in US dollar terms and this reflects gold's role as a 'safe haven' investment given concerns about the world economy. Output of gold decreased by almost two per cent to 5.8 million ounces.

The value of **crude oil** sales from Western Australia fell by four per cent to \$7.9 billion in 2011, making crude oil the fourth most valuable commodity. International events pushed up the Tapis crude oil price by 40 per cent to average US\$118 a barrel in 2011. This reflects disruptions to oil supply in Libya, political unrest in the Middle East and North Africa, and an increase in Japan's oil-fired electricity generation following the March 2011 earthquakes and tsunami. Crude output decreased by 18 per cent to 76.2 million barrels despite increased production during the period from the Pyrenees and Stybarrow fields.

**Alumina** claimed fifth place in 2011 with output down marginally by two per cent to 12.3 million tonnes. Strengthening of the Australian dollar offset the 19 per cent rise in the US dollar price for alumina, resulting in the value of alumina sales increasing by four per cent to reach \$4.1 billion.

The value of **condensate** increased by ten per cent to reach just over \$4 billion, however output fell by 13 per cent to 39.5 million barrels.

**Nickel**, in seventh place, contributed \$3.9 billion or four per cent to the total value of the State's resources in 2011. A five per cent increase in the US dollar nickel price was not sufficient to counteract the strengthening of the Australian dollar and resulted in the value of nickel sales falling by nine per cent. Nickel production was up marginally by one per cent to 188 thousand tonnes.

Domestic **natural gas** sales fell by four per cent to 8.9 billion cubic metres in 2011 whilst the value of sales rose slightly by two per cent to \$1.4 billion. **LPG butane** and **propane's** output fell by 13 per cent and the sales value also fell to \$746 million, which was down two per cent on the previous year.

**Base metals** (copper, lead and zinc) were down in terms of overall value by 15 per cent to \$1.4 billion in 2011.

**Copper** dominated base metals in terms of value however output fell by five per cent to 146 thousand tonnes in 2011. US dollar copper prices were up by

17 per cent compared to 2010, however the value of copper sales fell by seven per cent to \$1.2 billion.

**Lead** shipments fell by 84 per cent to eight thousand tonnes in 2011 due to the closure of the Magellan lead mine and sales followed with a similar fall to \$19 million.

Sales values of **zinc** were down by 24 per cent to \$147 million and volumes were down by 10 per cent to 73 thousand tonnes in 2011.

The total value of **mineral sands** sales was up by 14 per cent to \$602 million in 2011. This was chiefly due to improved output and prices for synthetic rutile.

In 2011, the value of **salt** sales fell by 13 per cent to \$336 million largely due to a strong Australian dollar. Volumes increased by six per cent to 12.2 million tonnes.

**Diamond** sales volumes fell sharply in 2011 decreasing by 44 per cent to eight million carats. Declining grades in the Argyle mine together with a heavy wet season were responsible for reduced production.

**Coal** production remained static at almost 7 million tonnes in 2011.

Output for **Cobalt**, as a by-product of nickel mining, remained static in 2011. A 14 per cent fall in the average US dollar price of cobalt in 2011 contributed to a 24 per cent fall in the value of sales which reached \$128 million.

Western Australia's mineral and petroleum resources in order of value for 2011 are:

Commodity	Billion
Iron Ore	\$62.8
Crude Oil and Condensate	\$12.0
LNG	\$9.3
Gold	\$8.8
Alumina	\$4.1
Nickel	\$3.9
Others	\$6.1
<b>Total</b>	<b>\$107.0</b>

**TABLE 1. QUICK RESOURCES FACTS**

All data is for the 2011 calendar year unless otherwise stated

<b>Output of minerals and energy</b>	<b>\$ million</b>
Western Australia	\$107,049
Australia (DMP estimate)	\$188,000
WA minerals	\$83,512
WA petroleum	\$23,537
<b>Major West Australian Commodities</b>	<b>\$ million</b>
Iron Ore	\$62,786
Petroleum	\$23,537
Gold	\$8,795
Alumina	\$4,127
Nickel	\$3,923
<b>Crude Oil and Condensate</b>	<b>Million barrels</b>
Western Australia	110
Australia	143
WA share	77%
<b>Natural Gas (inc. LNG feedstock)</b>	<b>Million cubic metres</b>
Western Australia	32,685
Australia	52,232
WA share	63%
<b>Merchandise Exports</b>	<b>\$ million</b>
Western Australia	\$121,202
Australia	\$263,000
WA share	46%
WA exports of minerals and energy as % share of all State Merchandise exports	92%
<b>Mineral and Energy Exports</b>	<b>\$ million</b>
Western Australia	\$110,923
Australia (DMP estimate)	\$182,000
WA share	61%
<b>Exploration</b>	<b>\$ million</b>
Western Australian mineral	\$1,825
Australian mineral	\$3,573
WA share	51%
<b>Western Australian petroleum</b>	<b>\$2,346</b>
Australian petroleum	\$3,293
WA share	71%
<b>Private New Capital Investment</b>	<b>\$ million</b>
Australia	\$137,939
Western Australia	\$45,239
WA share	33%
Australian minerals and energy	\$63,505
Western Australian minerals and energy	\$35,551
WA share	56%
<b>Economy</b>	<b>\$ million</b>
Australia GDP 2010-11	\$1,320,057
Western Australian GSP 2010-11	\$187,117
Mining component of WA GSP	28%

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

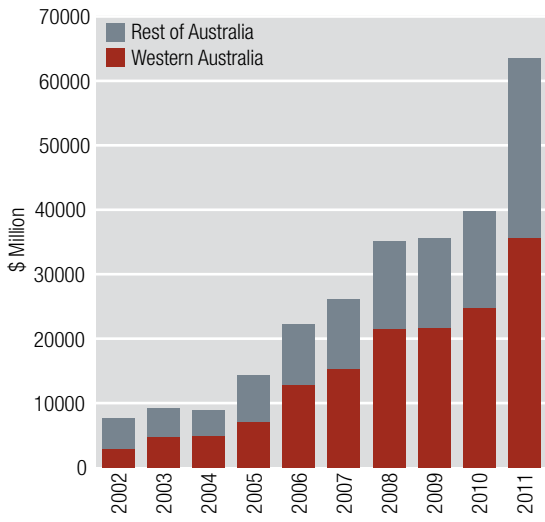


Figure 1. Mining Investment Source: ABS

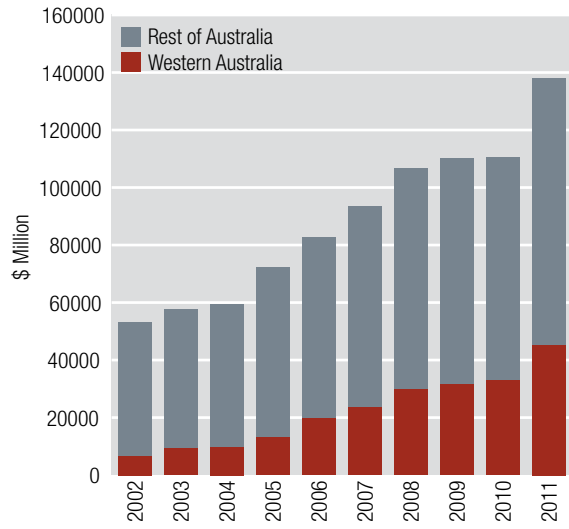


Figure 2. New Capital Investment Source: ABS

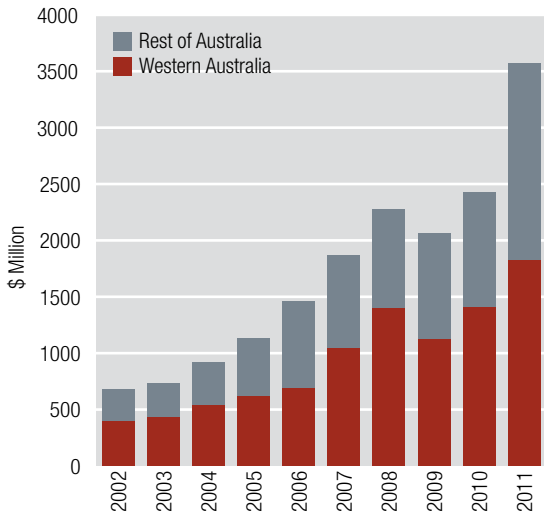


Figure 3. Mineral Exploration Expenditure Source: ABS

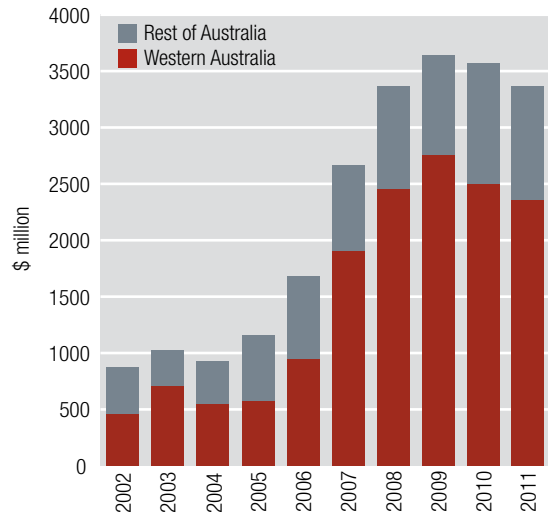


Figure 4. Petroleum Exploration Expenditure Source: ABS

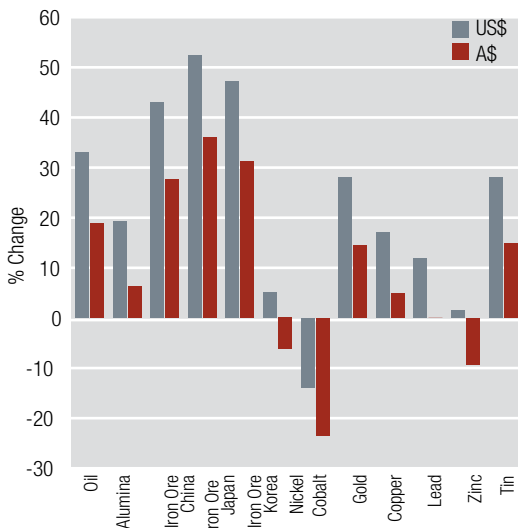


Figure 5. Average Price Comparison 2010 and 2011 Source: LME, Kitco, Metal Prices, WATC and DMP

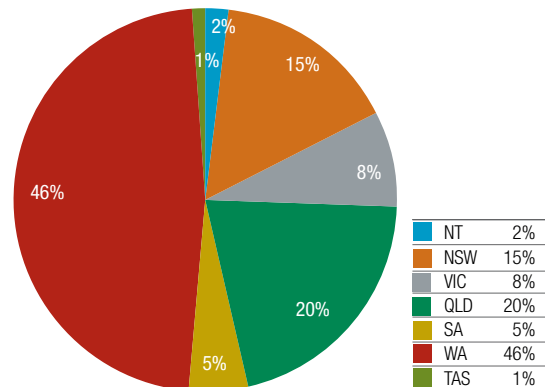


Figure 6. Australian Merchandise Exports 2011 \$263 billion Source: ABS

Note: These percentages are based on data which includes \$8.8 billion of re-exported goods and of no State origin available and account for around 3% of the total.

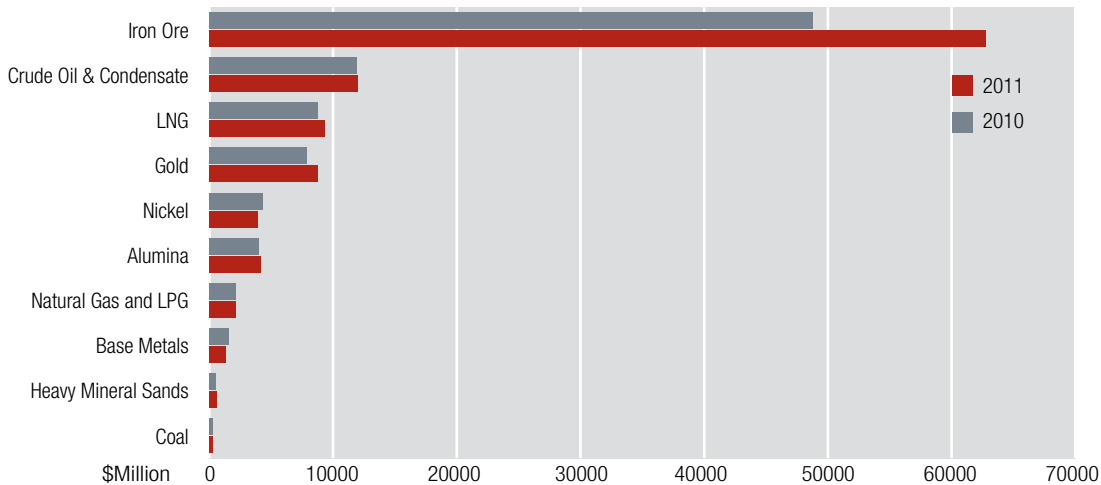


Figure 7. Major Commodities by Value 2010 and 2011 Source: DMP

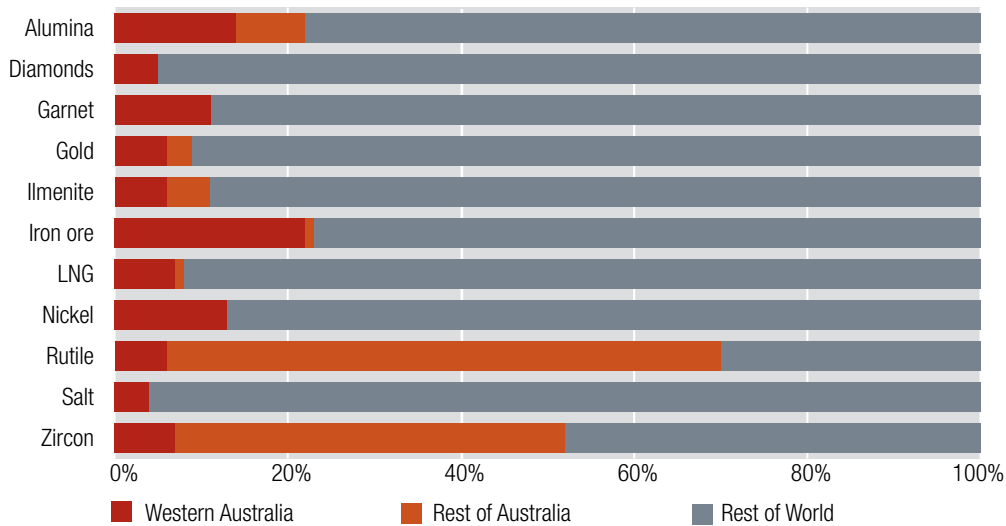


Figure 8. Selected WA Commodities Relative to World Production Ending 2011 by Quantity

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 11%, gold 6%, ilmenite 6%, iron ore 22%, LNG (sea-borne trade) 7%, nickel 13%, rutile 6%, salt 4%, zircon 7% and 5% of diamonds (mainly industrial grade)

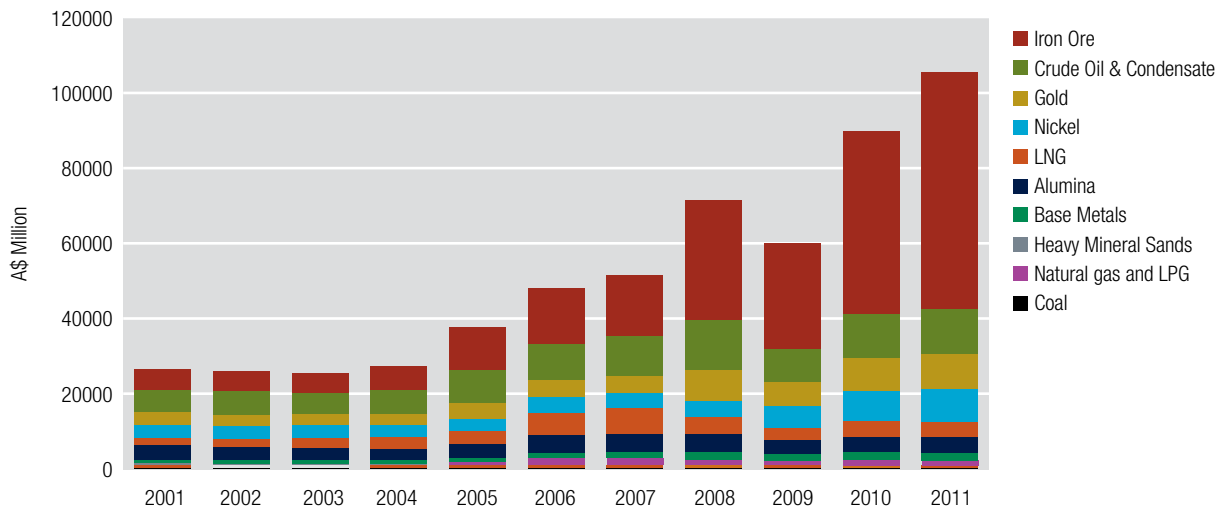


Figure 9. Value of Minerals and Petroleum by Commodity Source: DMP



# 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.

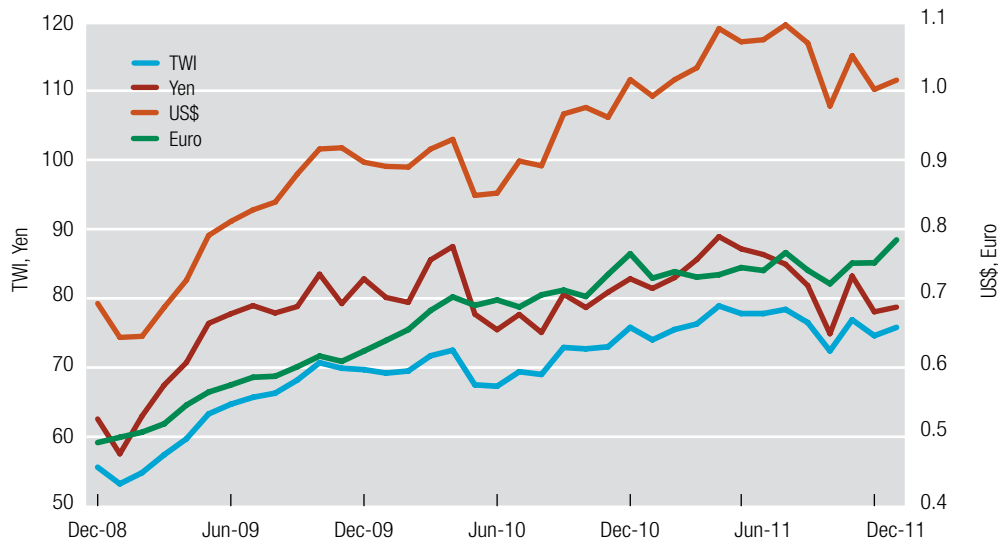


Figure 12. Australian Dollar Exchange Rate Against Major Currencies (May 1970 = 100)

Source: Reserve Bank of Australia

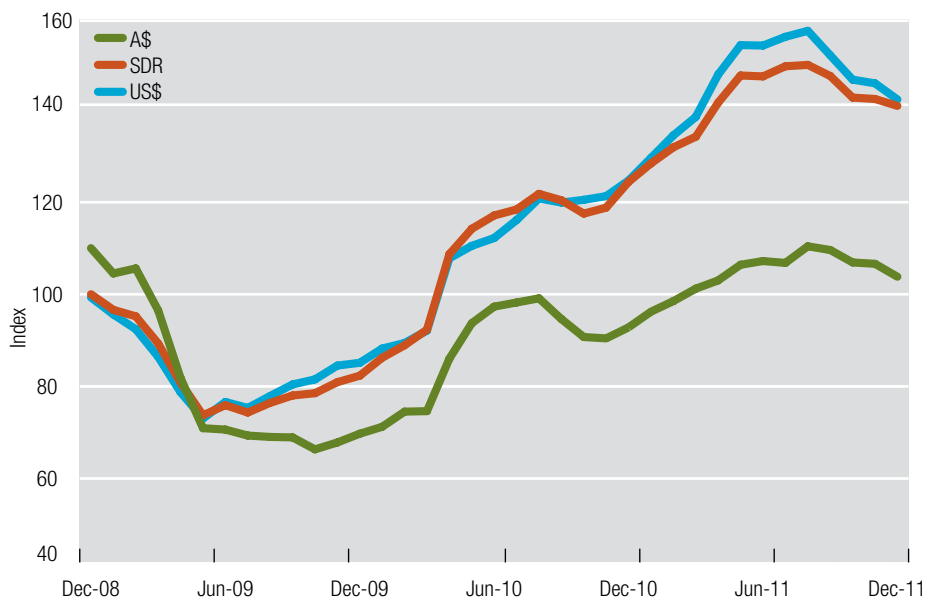


Figure 13. Non-Rural Commodity Price Index (2008-09 = 100) Source: Reserve Bank of Australia

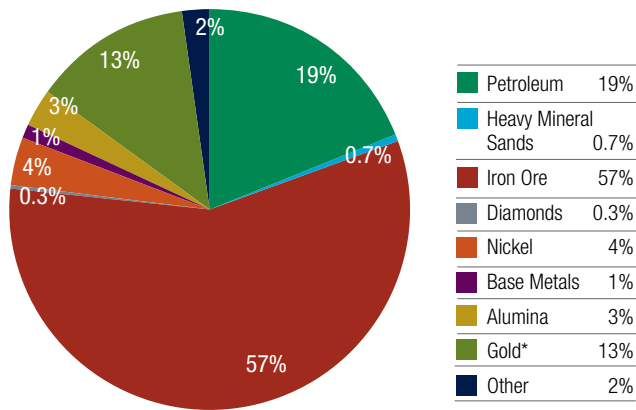


Figure 14. **Western Australian Mineral and Petroleum Exports 2011**  
 Total Value A\$110.9 billion Source: DMP  
 \* Includes \$6.1 billion of gold refined/processed and exported from Western Australia, but produced from mining operations in other States, Territories and overseas.

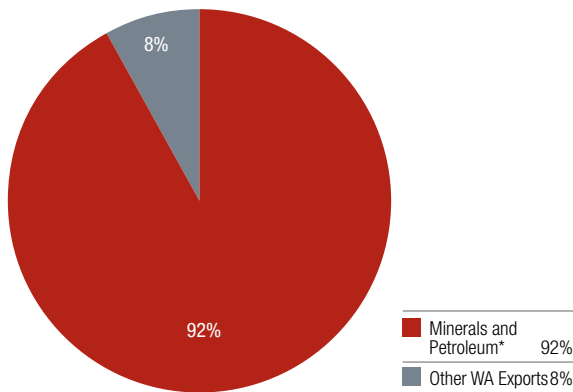


Figure 15. **Western Australian Merchandise Exports 2011**  
 \$121.2 billion Source: DMP and ABS  
 Other includes wheat, wool, wood chips, live animals, seafood, meat, pearls and other agricultural and manufactured items.  
 \* Revised from 95% 5 April 2012.

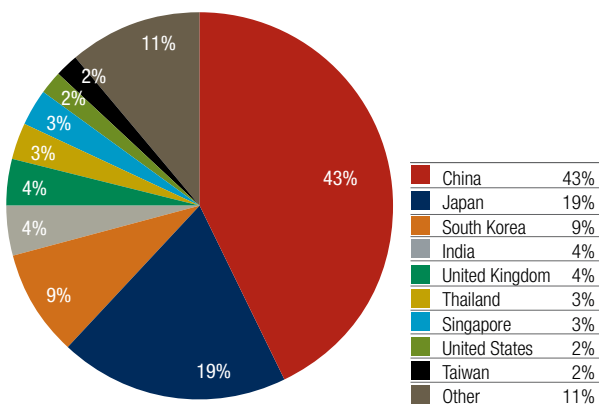


Figure 16. **Western Australian Merchandise Exports by Country 2011**  
 \$121.2 billion Source: ABS

**Gold Export update 2011**

The Australia Bureau of Statistics (ABS) release trade data that indicates a significant rise in Western Australian gold exports. However, 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 when the AGR Matthey partnership was created. The latest change occurred in March 2010 when the AGR Matthey partnership was dissolved and full ownership returned to the Western Australian Mint.

As a result of the mergers made in 2002, all Australian gold is now refined at the Western Australian Mint (usually known as The Perth Mint). The Victorian refinery still refines silver and jewellery products.

Gold export data published by the ABS from Western Australia must therefore be interpreted with some caution. It includes gold produced in other States and Territories, in addition to production from overseas operations, namely Papua New Guinea and Asia, which is refined and exported from Western Australia. This export figure is therefore larger than Western Australia's own level of gold production.

The ABS estimates that gold exports from Western Australia in 2011 amounted to approximately \$14.9 billion. Approximately 59% or \$8.8 billion was gold produced in Western Australia. The remaining 41% (approximately \$6.1 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.

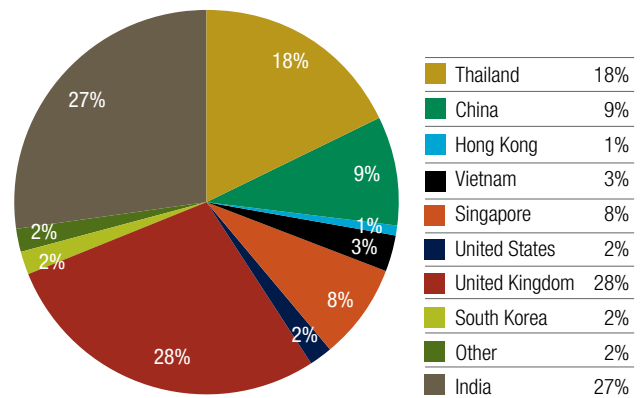


Figure 17. **Gold Exports**  
 Total Value \$14.9 billion Source: ABS and DMP  
 Note: Includes gold refined/processed and exported from Western Australia, but produced from mining operations in other States, Territories and overseas.

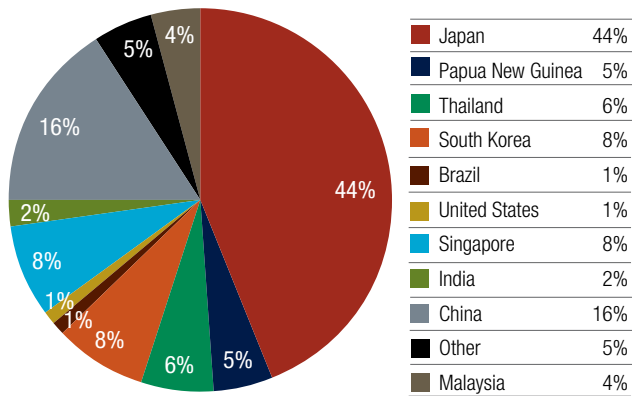


Figure 18. **Petroleum Exports**  
Total Value \$21.6 billion Source: DMP and ABS

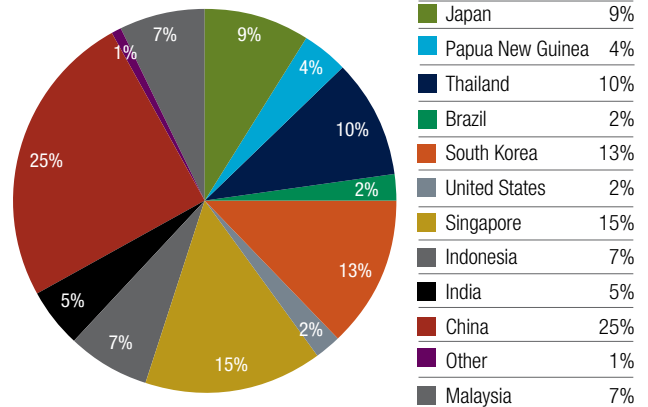


Figure 19. **Crude Oil and Condensate Exports**  
Total Value \$11.46 billion Source: DMP and ABS

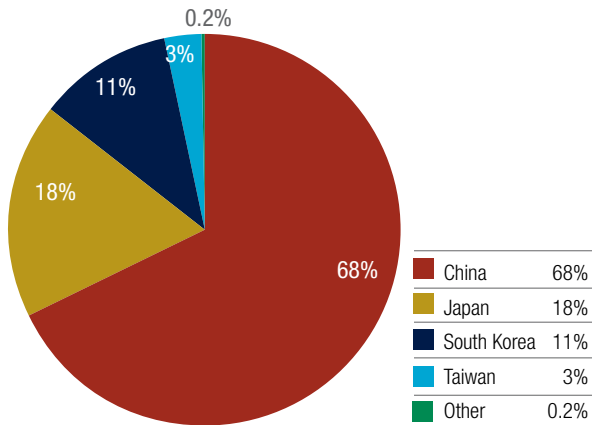


Figure 20. **Iron Ore Exports** Total Value \$62.8 billion Source: DMP

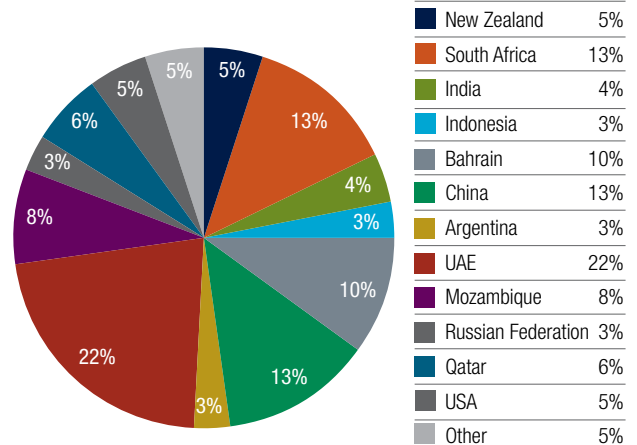


Figure 21. **Alumina Exports** Total Value \$3.5 billion Source: DMP

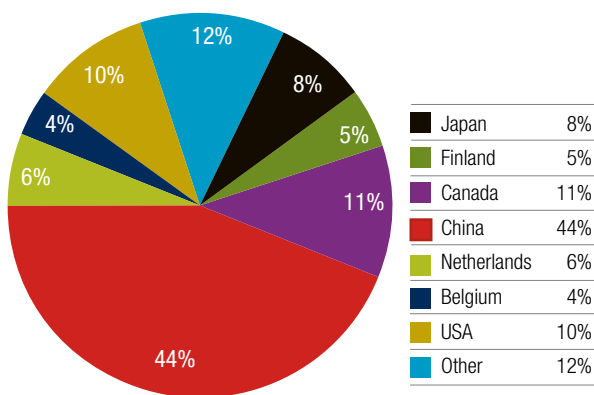


Figure 22. **Nickel Exports** Total Value \$3.9 billion Source: DMP

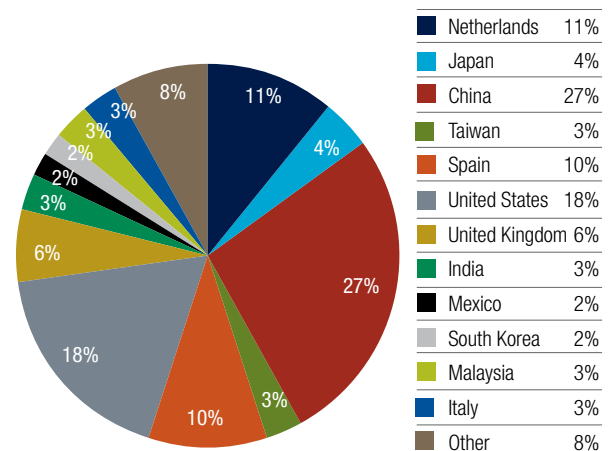


Figure 23. **Heavy Mineral Sands Exports**  
Total Value \$931 million Source: DMP  
Note: Exports include titanium dioxide and product sourced from private land, overseas and other States and processed in Western Australia

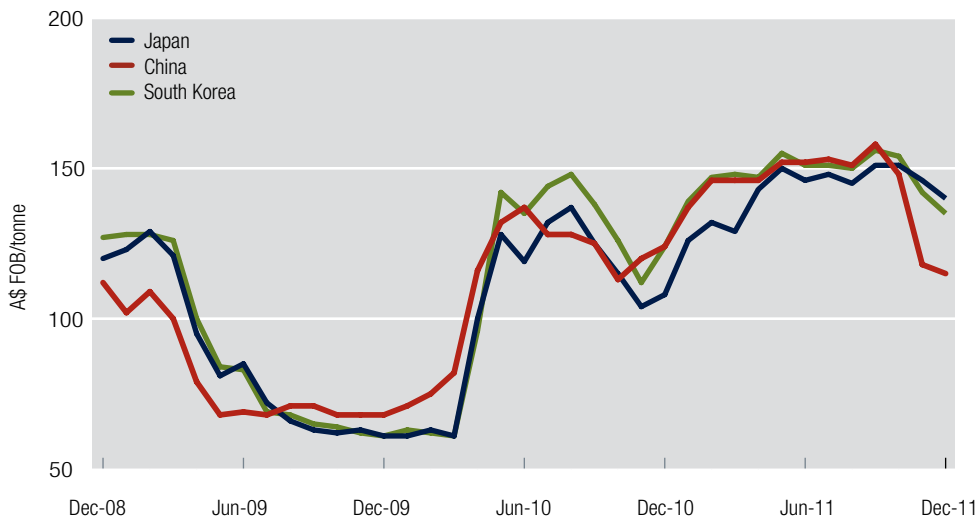


Figure 24. **Average Iron Ore Fines (all grades) Received by Western Australian Producers** Source: DMP

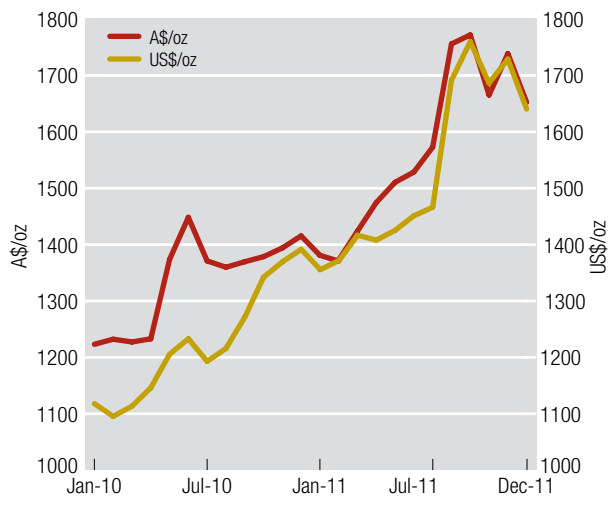


Figure 25. **Gold Price** Source: Perth Mint and London Fix



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

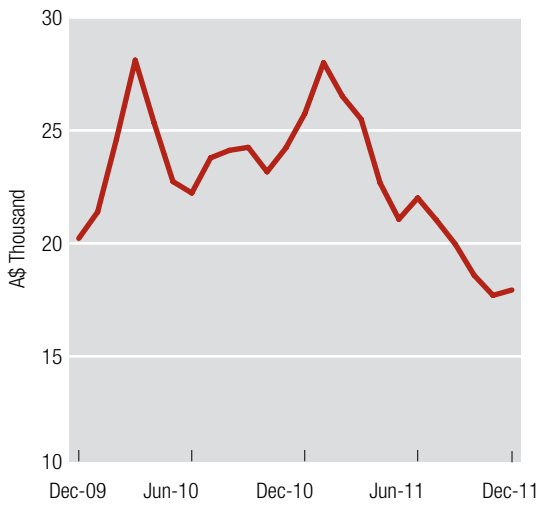


Figure 27. **Nickel Price A\$/tonne**  
Source: LME Cash, Monthly Average



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

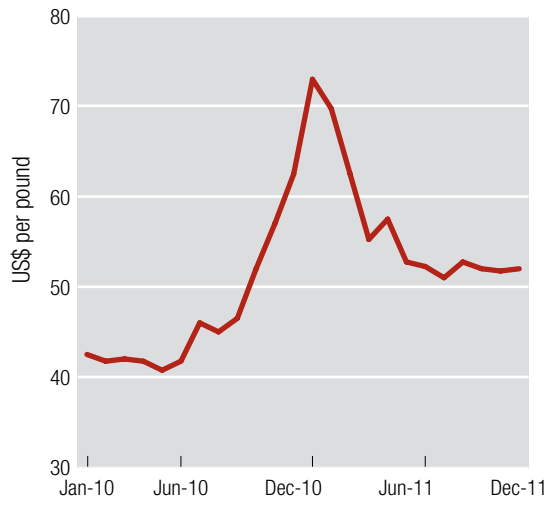


Figure 29. **Uranium Price**  
Source: UX Consulting

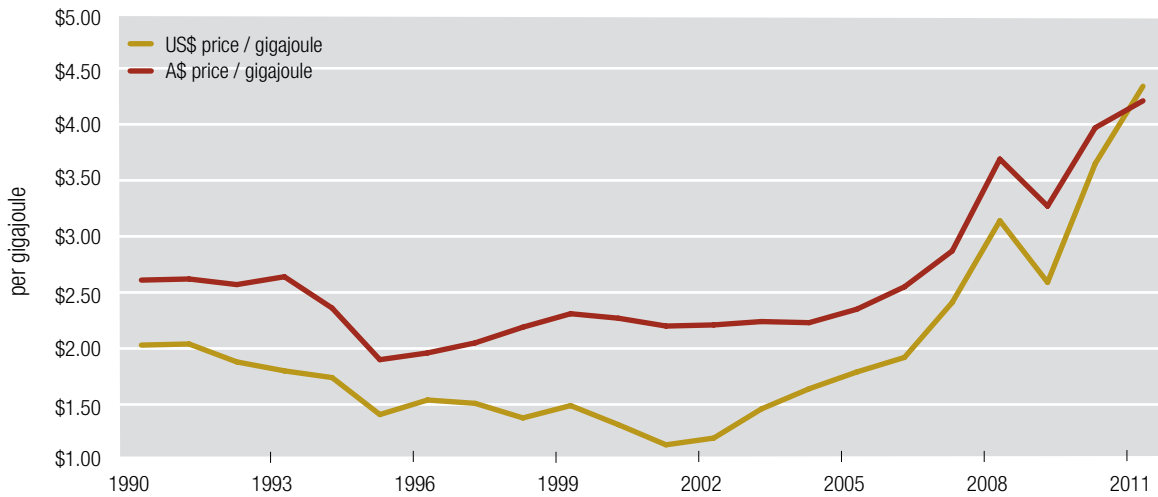


Figure 30 | **Western Australian Average Domestic Natural Gas Price**  
Source: DMP

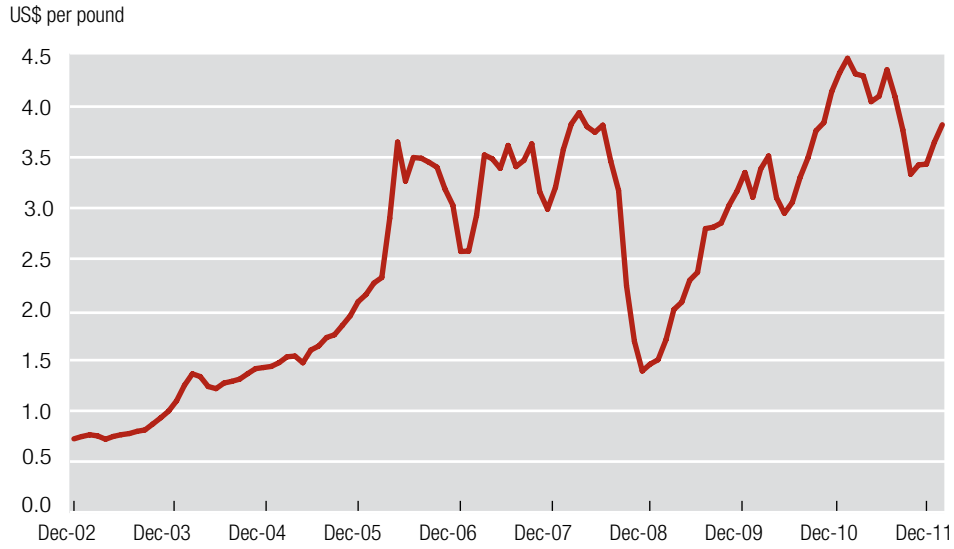


Figure 31. **Copper Price** Source: Metalprices.com



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



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

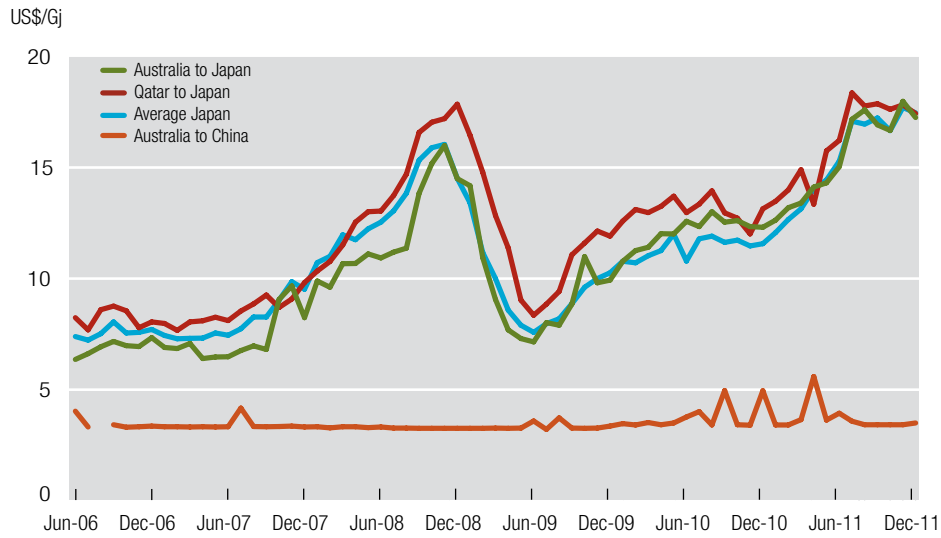


Figure 34. **LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

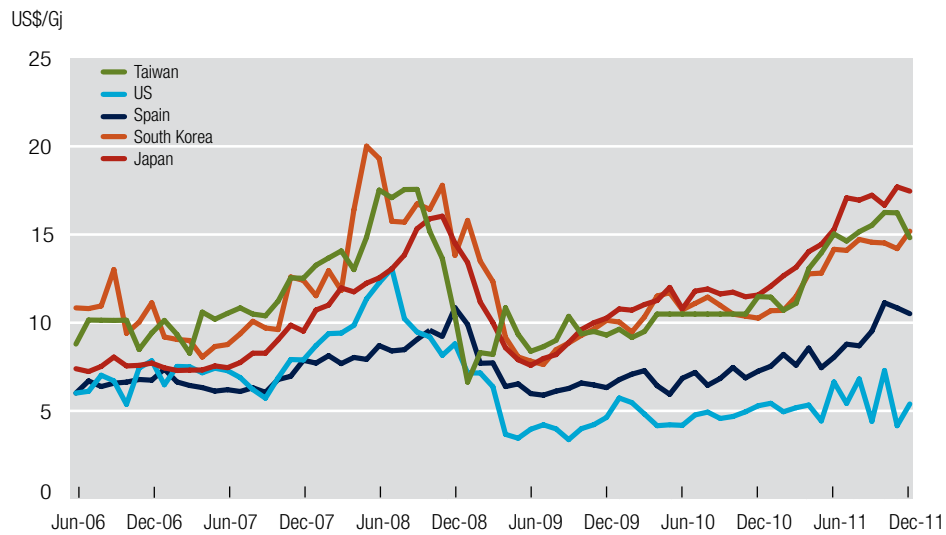


Figure 35. **Average LNG Import Prices** Source: Argus Monthly LNG (prices include freight and regassing)

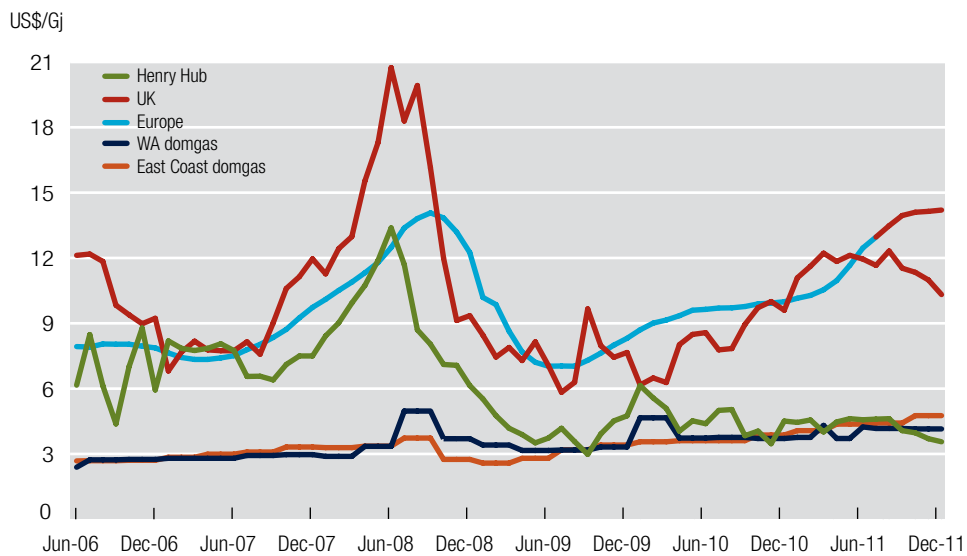


Figure 36. **Average Natural Gas Prices** Source: Argus Monthly LNG, EnergyQuest and DMP

# HISTORIC PRICES

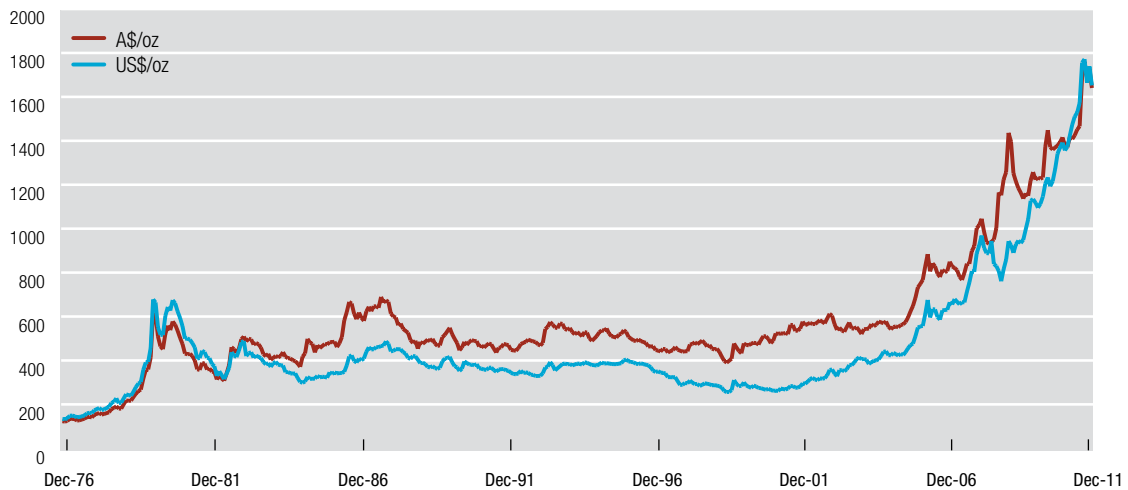


Figure 37. **Historic Gold Prices, US\$/A\$ per ounce** Source: World Gold Council, Perth Mint and London PM Fix

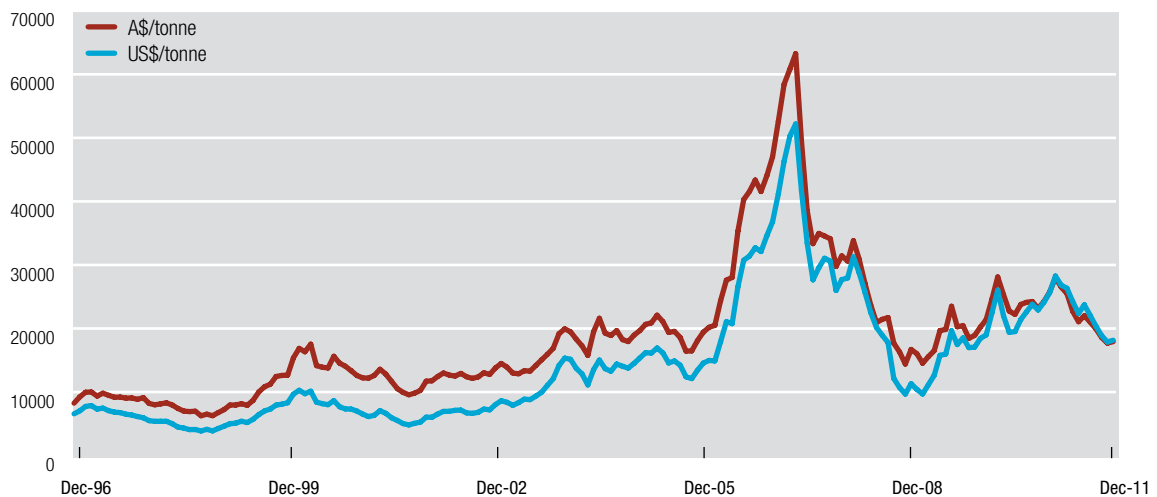


Figure 38. **Historic Nickel Prices** Source: LME

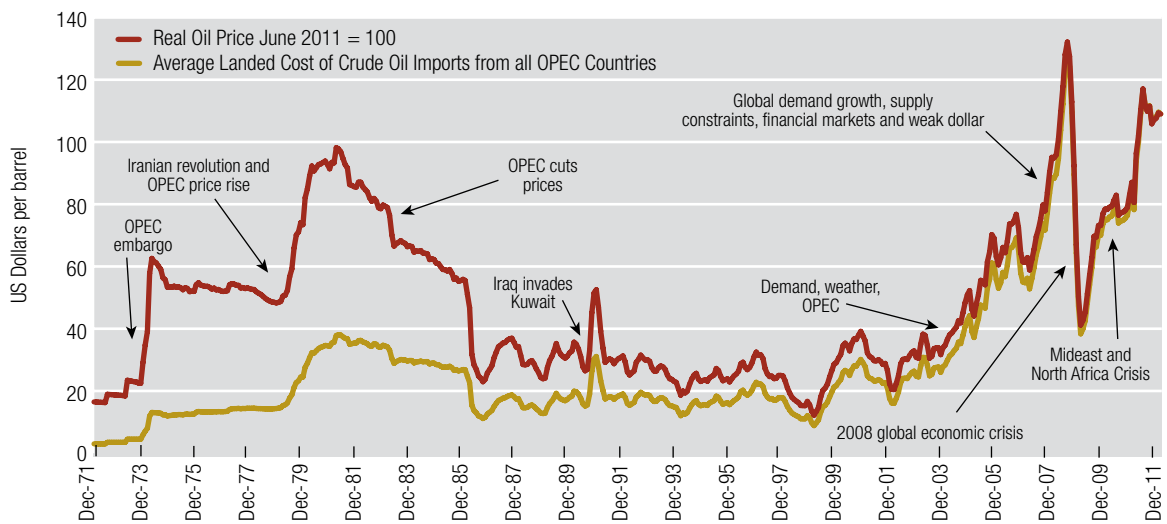


Figure 39 | **Historic Oil Prices** Source: Energy Information Administration, US Department of Energy, DMP



# QUANTITY AND VALUE BY QUARTER

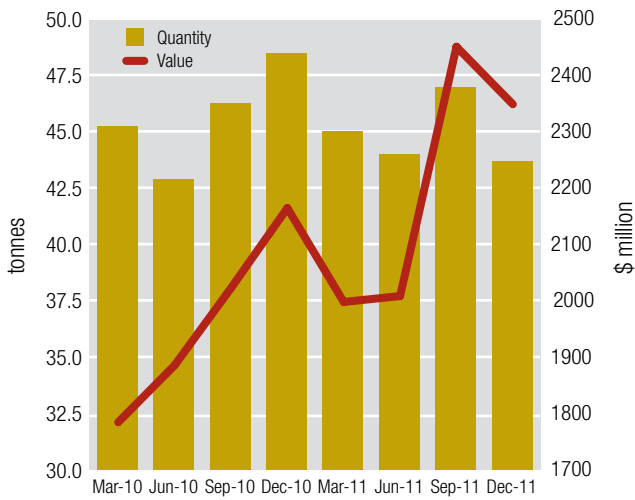


Figure 40. **Gold Quantity and Value by Quarter**  
Source: DMP

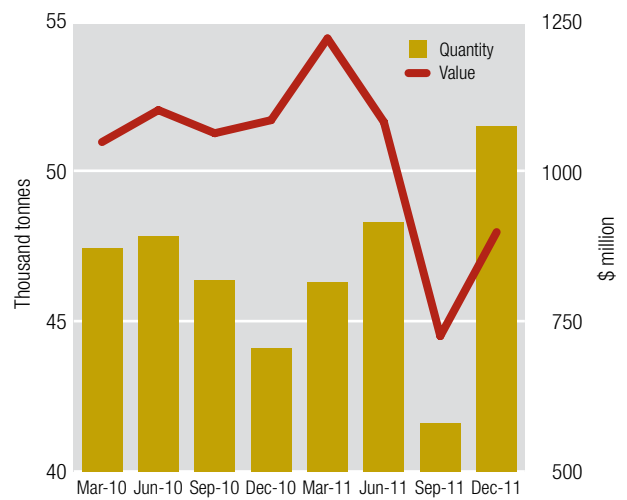


Figure 41. **Nickel Quantity and Value by Quarter**  
Source: DMP

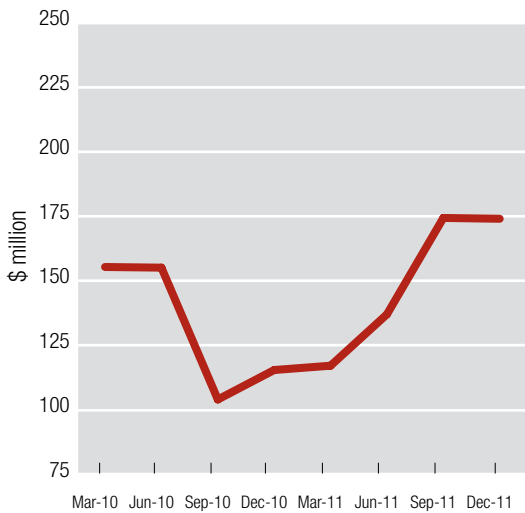


Figure 42. **Heavy Mineral Sands Value by Quarter**  
Source: DMP

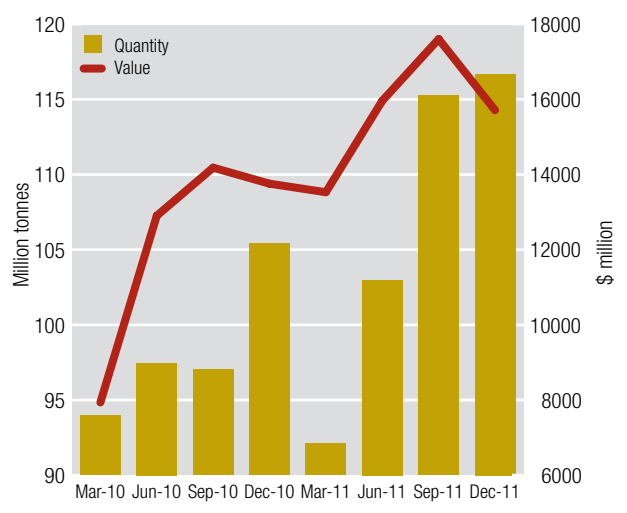


Figure 43. **Iron Ore Quantity and Value by Quarter**  
Source: DMP

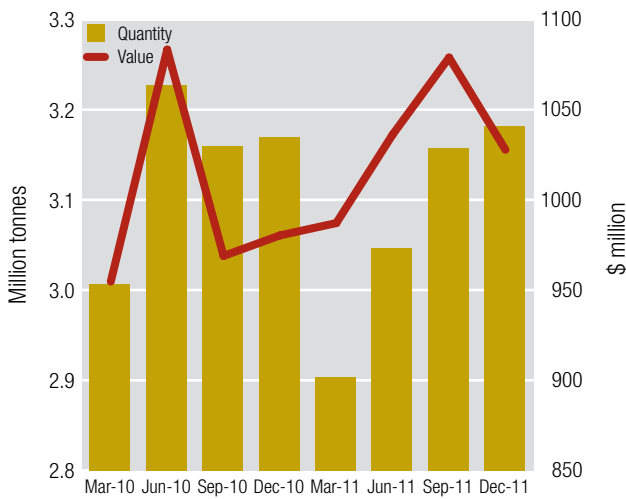


Figure 44. **Alumina Quantity and Value by Quarter**  
Source: DMP

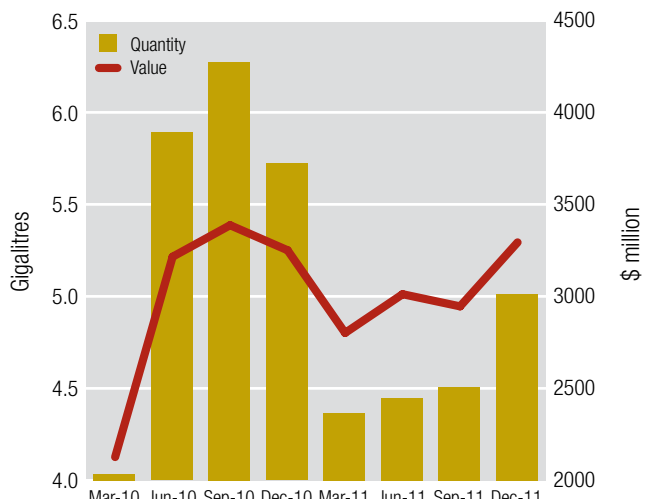


Figure 45. **Crude Oil and Condensate Quantity and Value by Quarter**  
Source: DMP

# QUANTITY – WESTERN AUSTRALIA VERSUS AUSTRALIA

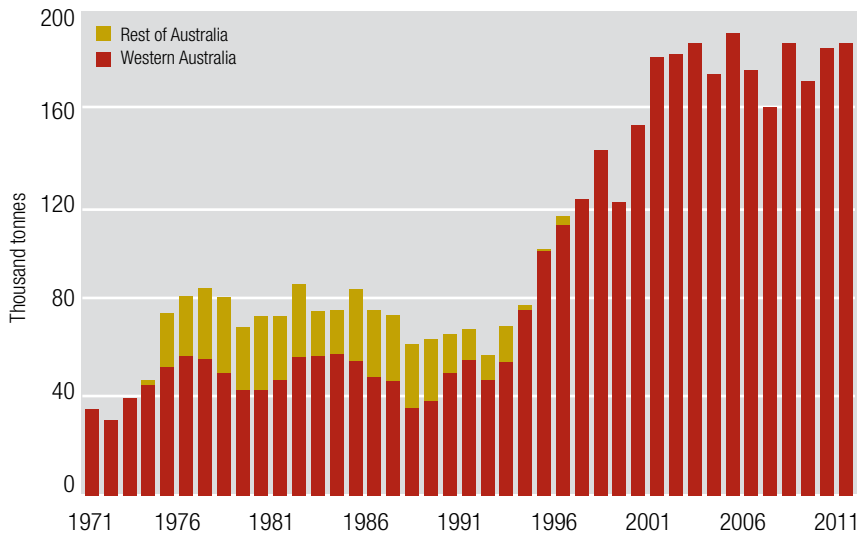


Figure 46. **Nickel Quantity** Source: DMP and BREE

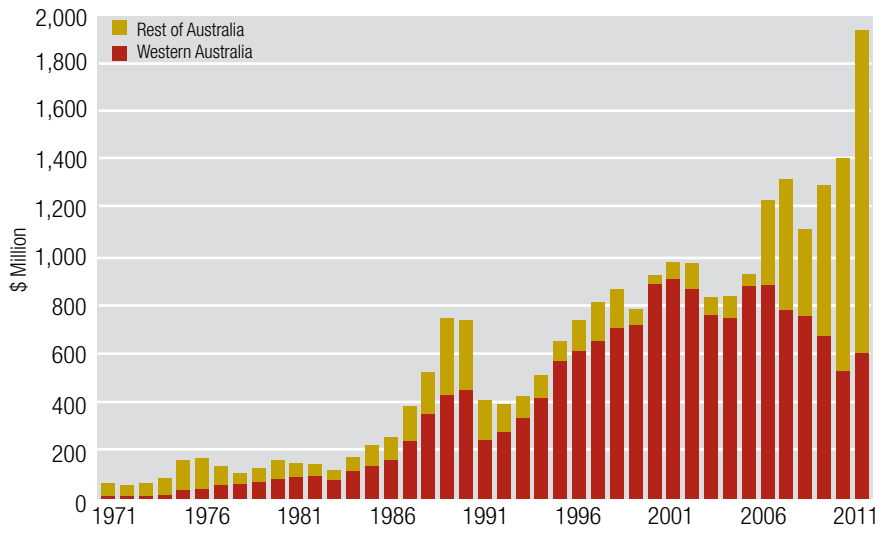


Figure 47. **Heavy Mineral Sands Value of Production**  
Includes Ilmenite, Leucoxene, Upgraded Ilmenite, Rutile, Zircon and Monazite  
Source: DMP and BREE

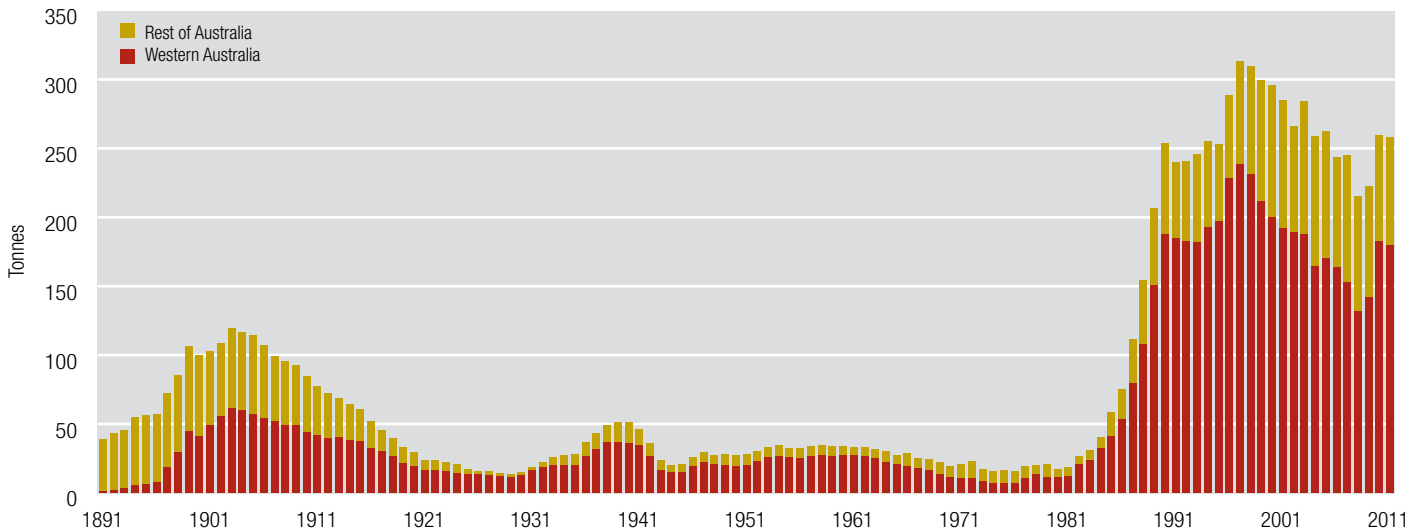


Figure 48. **Gold Production** Source: DMP and BREE

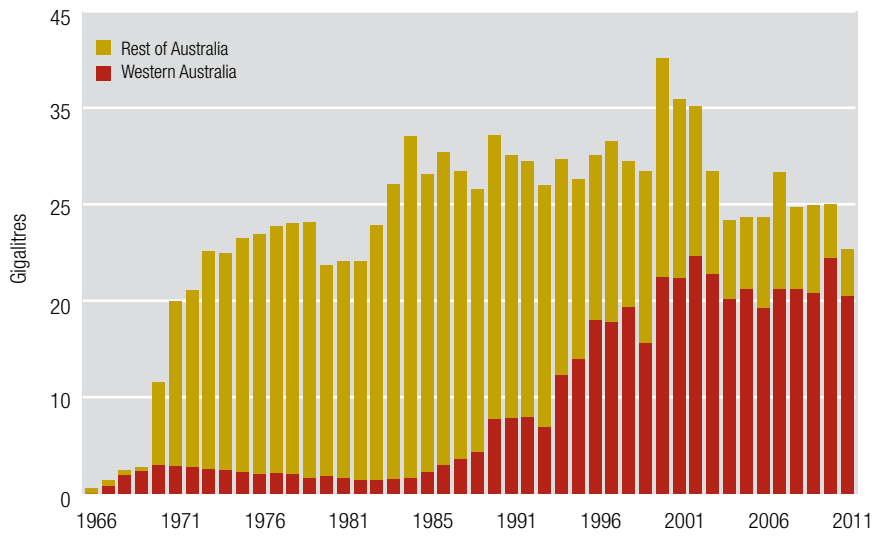


Figure 49. **Crude Oil and Condensate Quantity** Source: DMP and BREE

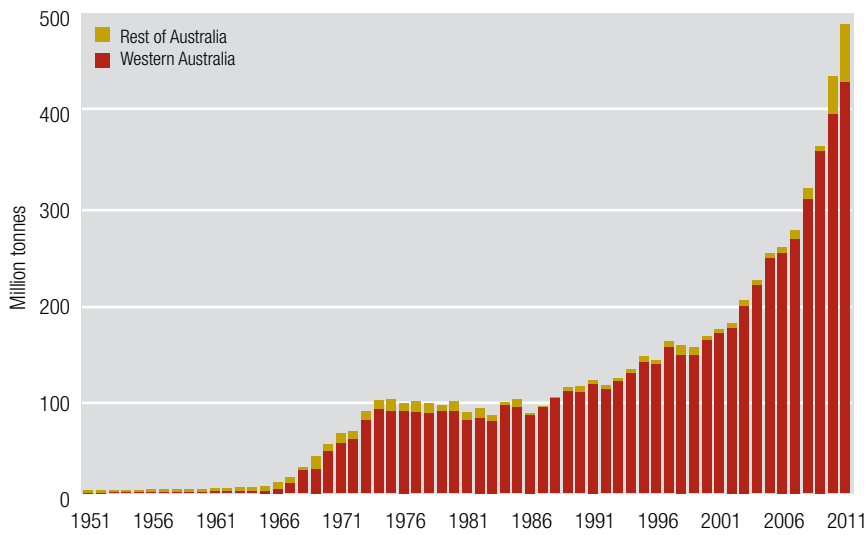


Figure 50. **Iron Ore Quantity** Source: DMP and BREE

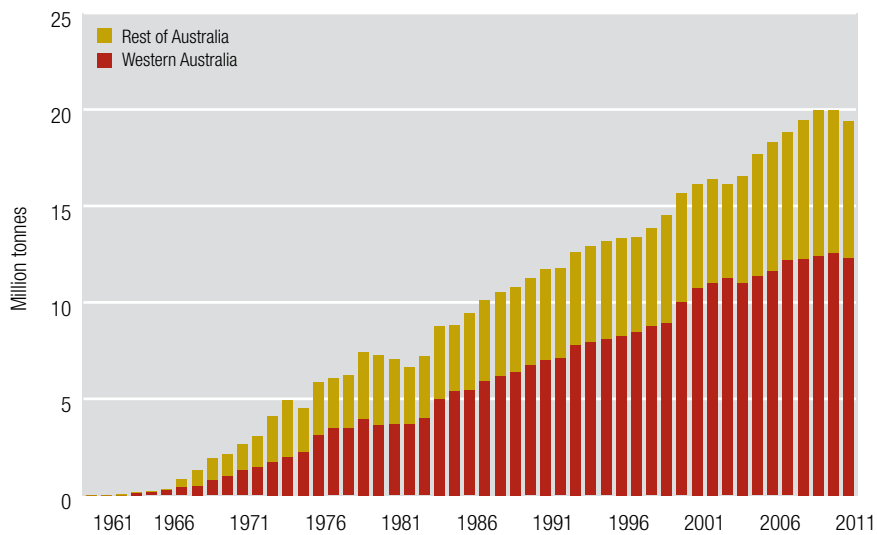


Figure 51. **Alumina Quantity** Source: DMP and BREE

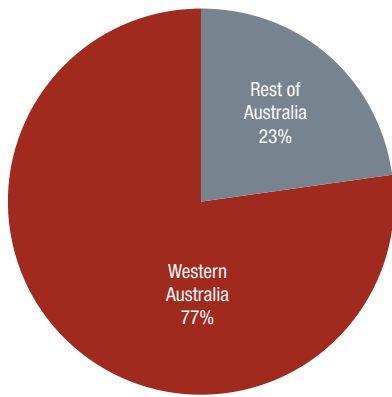


Figure 52. **Crude Oil and Condensate Production 2011** Source: Energy Quest

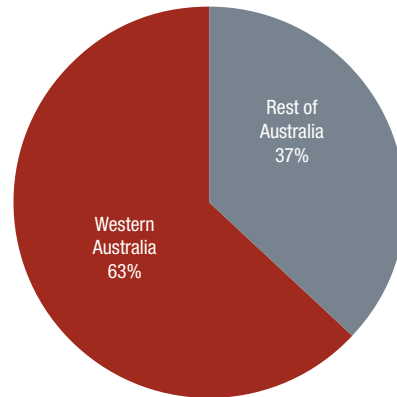


Figure 53. **Natural Gas Production 2011** Source: Energy Quest (Data includes LNG feedstock)

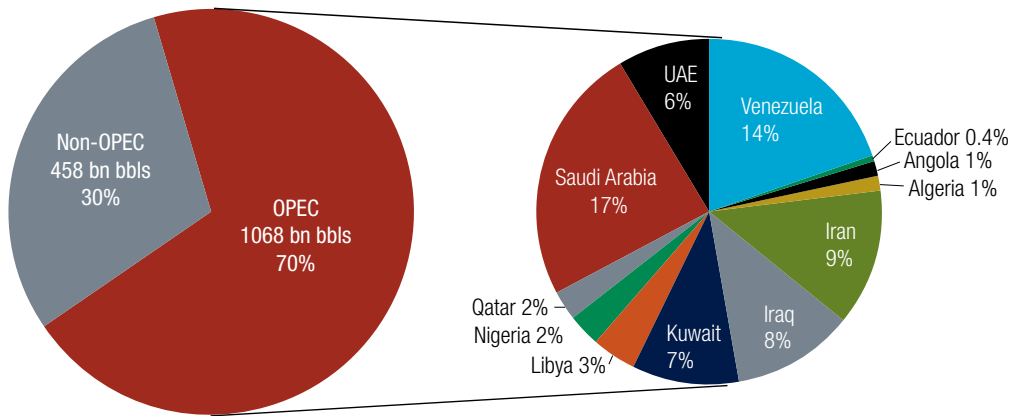


Figure 54. **OPEC Share of World Crude Oil Reserves** Source: BP World Energy Statistics 2011

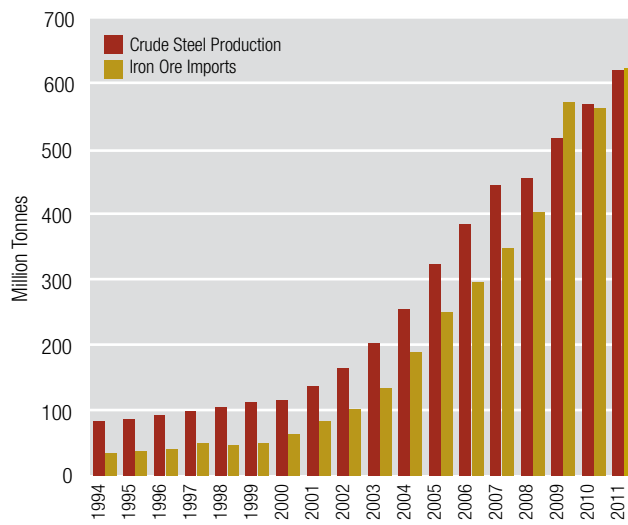


Figure 55. **China's Crude Steel Production and Iron Ore Imports** Source: TEX Report and Interfax China Ltd

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

	2006-07		2007-08		2008-09		2009-10		2010-11	
	Number	000 ha	Number	000 ha	Number	000 ha	Number	000 ha	Number	000 ha
Prospecting Licences	5,376	682	6,260	800	7,110	913	7,032	890	7,106	897
Exploration Licences	4,766	40,031	5,427	51,790	4,959	42,367	5,297	44,123	6,050	52,205
Mining Leases	5,090	1,824	5,475	2,036	5,618	2,065	5,764	2,125	5,845	2,233
Other	3,629	3,248	3,678	4,119	2,512	3,477	2,884	4,541	2,995	4,926
Mineral Claims & Other 1904 Act	186	21	186	21	186	21	186	21	186	21
<b>Total</b>	<b>19,047</b>	<b>45,806</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>

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 2010		CALENDAR YEAR 2011	
		QUANTITY	VALUE	QUANTITY	VALUE
<b>ALUMINA</b>	t	12,563,285	3,984,503,900	12,291,484	4,127,281,377
<b>BASE METALS</b>					
Copper Metal	t	153,856 (r)	1,286,698,380 (r)	145,879	1,191,740,968
Lead Metal	t	52,628 (r)	120,360,186 (r)	8,328	19,493,931
Zinc Metal	t	81,515 (r)	191,884,136 (r)	73,080	146,570,746
<b>TOTAL BASE METALS</b>			1,598,942,702 (r)		1,357,805,645
<b>CHROMITE</b>	t	73,535 (r)	n/a	96,573	n/a
<b>CLAYS</b>		67,834	1,255,153	63,336	1,408,751
<b>COAL</b>	t	6,998,521 (r)	319,115,460 (r)	6,981,908	283,529,571
<b>CONSTRUCTION MATERIALS</b>					
Aggregate	t	2,367,977 (r)	57,783,933 (r)	2,579,882	55,864,918
Gravel	t	124,506 (r)	1,021,717 (r)	274,613	1,859,238
Rock	t	449,224 (r)	7,668,172 (r)	303,452	2,917,833
Sand	t	3,818,958 (r)	29,911,942 (r)	5,519,273	43,849,409
<b>TOTAL CONSTRUCTION MATERIALS</b>			96,385,765 (r)		104,491,398
<b>DIAMONDS</b>	ct	14,416,656	345,543,721 (r)	8,043,092	292,881,604
<b>DIMENSION STONE</b>		5,162	728,675	10,126	504,149
<b>GEM &amp; SEMI-PRECIOUS STONES</b>	kg	508,984	364,163 (r)	167,632	140,307
<b>GOLD</b>	kg	182,848 (r)	7,846,342,927 (r)	179,615	8,794,846,929
<b>GYPSUM</b>	t	892,256 (r)	16,828,178 (r)	359,766	5,935,567
<b>HEAVY MINERAL SANDS</b>					
Garnet	t	196,839	n/a	308,139	n/a
Ilmenite	t	497,715 (r)	66,691,050 (r)	415,440	60,306,243
Leucoxene	t	33,353 (r)	15,412,925 (r)	24,772	14,361,119
Zircon	t	333,469 (r)	229,840,510 (r)	221,298	210,194,042
Other	t		217,696,033 (r)		317,492,603
<b>TOTAL HEAVY MINERAL SANDS</b>			529,640,518 (r)		602,354,007
<b>IRON ORE</b>	t	393,852,473 (r)	48,758,745,605 (r)	427,038,194	62,786,384,297
<b>LIMESAND-LIMESTONE-DOLOMITE</b>	t	3,855,381 (r)	22,740,018 (r)	3,600,211	28,760,618

COMMODITY	UNIT	CALENDAR YEAR 2010		CALENDAR YEAR 2011	
		QUANTITY	VALUE	QUANTITY	VALUE
<b>MANGANESE ORE</b>	t	579,298 (r)	421,520,074 (r)	789,281	375,840,317
<b>NICKEL INDUSTRY</b>					
Cobalt	t	3,852 (r)	168,946,924 (r)	3,851	128,161,953
Nickel	t	185,738 (r)	4,294,247,043 (r)	187,715	3,923,463,272
Palladium and Platinum By-Product	kg	781	8,225,481	445	8,185,694
<b>TOTAL NICKEL INDUSTRY</b>			4,471,419,448 (r)		4,059,810,919
<b>PETROLEUM</b>					
Condensate	kl	7,215,589	3,705,433,478	6,282,227	4,087,399,938
Crude Oil	kl	14,726,104	8,247,309,631	12,113,959	7,938,292,133
LNG	t	16,527,193	8,754,682,474	16,031,149	9,344,019,455
LPG – Butane and Propane	t	988,724	763,328,435	861,480	745,879,960
Natural Gas	'000m <sup>3</sup>	9,226,158	1,391,169,679	8,869,413	1,421,126,106
<b>TOTAL PETROLEUM</b>			22,861,923,696		23,536,717,592
<b>SALT</b>	t	11,540,128 (r)	386,668,816 (r)	12,246,224	335,770,893
<b>SILICA-SILICA SAND</b>	t	422,611 (r)	12,544,042 (r)	479,904	15,439,625
<b>SILVER</b>	kg	113,062 (r)	78,396,048 (r)	85,113	86,071,958
<b>TIN-TANTALUM-LITHIUM</b>	t	326,969	93,312,253	0	177,625,009
<b>OTHER (Includes Feldspar, Red Oxide, Spongolite and Talc)</b>	t		64,578,015 (r)		75,067,574
<b>TOTAL VALUE</b>			91,911,499,178 (r)		107,048,668,106

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.

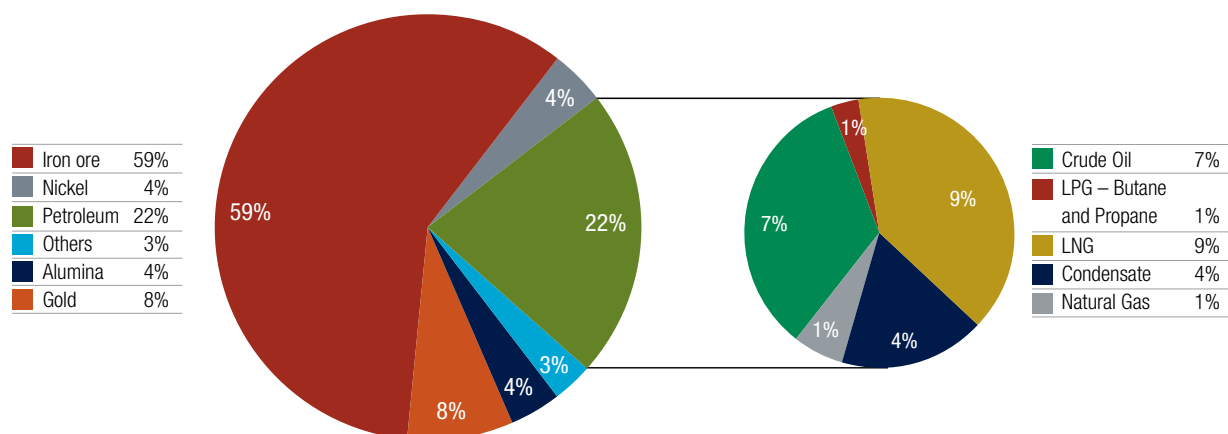


Figure 56. **Sales by Commodity 2011**  
Total \$107 billion Source: DMP

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

		2002		2003		2004		2005	
	Unit	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M
<b>ALUMINA</b>	Mt	11.00	3,339.25	11.23	3,140.48	10.99	3,178.95	11.35	3,655.84
<b>BASE METALS</b>									
Copper Metal	kt	64.29	145.49	58.78	145.09	42.68	160.94	83.88	434.71
Lead Metal	kt	70.40	32.69	56.49	24.32	1.17	0.31	30.27	41.17
Zinc Metal	kt	218.80	173.06	174.55	139.73	51.78	57.78	63.61	118.91
<b>TOTAL BASE METALS</b>			351.24		309.15		219.03		594.79
<b>COAL</b>	Mt	6.26	266.40	6.03	266.41	6.31	281.91	6.41	283.26
<b>COBALT</b>	kt	4.70	119.0	5.17	145.04	4.55	262.2	4.59	166.95
<b>DIAMONDS</b>	M ct	34.37	650.34	35.48	661.86	24.23	414.81	34.31	740.15
<b>GOLD</b>	t	188.86	3,460.87	187.50	3,364.96	164.42	2,940.98	169.83	3,146.54
<b>HEAVY MINERAL SANDS</b>									
Ilmenite	Mt	0.85	131.26	0.86	110.46	0.76	87.94	0.67	74.00
Rutile	kt	125.41	102.66	123.63	80.28	112.93	69.02	100.45	63.79
Zircon	kt	369.92	246.74	420.55	242.10	414.07	265.07	416.92	329.80
Other HMS			375.21		327.91		327.05		412.78
<b>TOTAL HEAVY MINERAL SANDS</b>			855.87		760.75		749.08		880.37
<b>IRON ORE</b>	Mt	171.77	5,064.62	194.75	5,061.06	215.85	6,173.16	244.64	11,308.57
<b>MANGANESE ORE</b>	kt	578.39	75.63	587.84	65.18	593.68	106.48	785.01	184.39
<b>NICKEL METAL</b>	kt	183.00	2,242.55	190.21	2,680.24	174.70	3,261.21	191.71	3,484.39
<b>PETROLEUM</b>									
Condensate	Gl	6.88	1,928.58	6.39	1,765.46	5.94	2,011.14	5.88	2,576.86
Crude oil	Gl	15.29	4,502.72	14.12	4,034.63	12.25	4,211.56	13.18	6,168.82
LNG *	Btu 10 <sup>12</sup>	394.11	2,791.22	408.27	2,874.61	454.12	3,150.81	11.03	4,320.27
LPG – Butane **	kt	458.15	197.56	425.20	182.83	398.84	189.28	870.73	544.22
LPG – Propane	kt	357.41	165.88	319.97	142.72	322.85	151.13		
Natural Gas	Gm <sup>3</sup>	7.75	650.20	8.11	690.45	7.71	655.46	7.41	661.61
<b>TOTAL PETROLEUM</b>			10,236.16		9,690.71		10,369.39		14,397.85
<b>SALT</b>	Mt	9.17	250.53	9.75	197.01	10.40	185.08	11.48	213.78
<b>OTHER</b>			389.16		343.08		353.17		579.55
<b>TOTAL</b>			27,301.57		26,685.93		28,495.43		39,452.04

\* Expressed in million tonnes from 2005 onwards

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



2006		2007		2008		2009		2010		2011	
Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M	Quantity	Value \$M
11.87	4,767.05	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
99.96	917.78	119.41	1,018.75	129.53	1,041.60	149.04	992.51	153.86	1,286.70	145.88	1,191.74
74.85	130.61	42.02	115.57	13.78	32.61	22.76	46.32	52.63	120.36	8.33	19.49
138.84	607.12	180.73	685.54	156.01	329.13	101.65	213.80	81.52	191.88	73.08	146.57
	1,655.50		1,819.86		1,403.34		1,252.62		1,598.94		1,357.81
7.25	317.90	5.81	265.15	6.73	305.50	6.56	308.16	7.00	319.12	6.98	283.53
5.13	220.4	4.73	343.08	4.78	378.7	4.34	182.76	3.85	168.9	3.85	128.16
17.07	446.90	23.54	555.02	21.24	490.71	11.90	231.80	14.42	345.54	8.04	292.88
163.84	4,234.61	152.69	4,073.29	131.82	4,391.32	146.43	5,814.75	182.85	7,846.34	179.61	8,794.85
0.74	84.44	0.73	79.80	0.60	76.95	0.46	63.50	0.50	66.69	0.42	60.31
102.21	64.39	92.92	56.30	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
370.18	358.82	289.88	263.93	356.39	309.50	253.50	214.49	333.47	229.84	221.30	210.19
	376.01		380.25		411.44		394.39		233.11		331.85
	883.67		780.28		797.89		672.37		529.64		602.35
250.40	14,751.69	264.45	16,165.25	305.72	31,896.03	356.07	28,149.03	393.85	48,758.75	427.04	62,786.38
906.68	195.25	430.45	185.71	270.71	n/a	630.32	282.39	579.30	421.52	789.28	375.84
175.18	5,844.17	161.01	6,958.08	187.79	4,059.16	171.18	3,373.73	185.74	4,294.25	187.71	3,923.46
5.61	2,940.19	5.86	3,236.76	5.73	3,512.42	7.49	3,232.73	7.22	3,705.43	6.28	4,087.40
11.95	6,602.75	13.20	7,384.29	13.32	9,737.62	11.25	5,505.45	14.73	8,247.31	12.11	7,938.29
11.96	4,550.76	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
862.23	613.83	893.91	686.64	764.67	731.50	950.52	612.78	988.72	763.33	861.48	745.88
8.36	816.67	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
	15,524.20		16,758.73		23,330.46		16,827.94		22,861.92		23,536.72
10.72	241.64	10.39	229.60	11.49	276.72	10.06	447.59	11.54	386.67	12.25	335.77
	605.10		638.27		833.74		397.41		395.36		879.47
	49,492.86		53,290.94		73,064.70		61,533.99		91,911.50		107,048.67

**TABLE 6. VALUE OF MINERALS AND PETROLEUM BY REGION BY LOCAL GOVERNMENT AREA**

<b>Pilbara Region</b>	<b>2011 Value</b>
East Pilbara	40,131,860,964
Ashburton	21,654,012,317
Roebourne and Karratha	135,540,662
Port Hedland and Marble Bar	743,891,955
<b>Total</b>	<b>62,665,305,898</b>

<b>Offshore Petroleum</b>	<b>23,495,023,785</b>
---------------------------	-----------------------

<b>Goldfields-Esperance Region</b>	
Leonora	2,103,155,688
Coolgardie	2,824,844,426
Kalgoorlie-Boulder	2,185,449,246
Laverton	1,249,339,644
Menzies	170,056,000
Dundas	82,662,200
Ravensthorpe	53,579,928
Esperance	245,843
<b>Total</b>	<b>8,669,332,974</b>

<b>Peel Region</b>	
Waroona	3,025,495,524
Boddington	2,365,795,901
<b>Total</b>	<b>5,391,291,425</b>

<b>Mid West Region</b>	
Wiluna and Three Springs	992,805,869
Mullewa and Murchison	558,784,049
Yalgoo and Carnamah	494,754,081
Meekatharra and Morawa	349,233,952
Irwin and Northampton	102,059,314
Coorow and Geraldton	39,086,952
Perenjori and Sandstone	157,373
<b>Total</b>	<b>2,536,881,590</b>

<b>Wheatbelt Region</b>	<b>2011 Value</b>
Yilgarn	1,354,254,599
Kondinin and Northam	613,486,745
Dandaragan and Koorda	318,095,962
Lake Grace, Westonia and Wyalkatchem	115,594,549
Dalwallinu and Kellerberrin	15,507,993
Gingin and Moora	4,015,095
<b>Total</b>	<b>2,420,954,943</b>

<b>Kimberley Region</b>	
Derby-West Kimberley	590,707,811
Halls Creek	282,913,770
Wyndham-East Kimberley	280,060,441
Broome	5,599,608
<b>Total</b>	<b>1,159,281,630</b>

<b>South West Region</b>	
Bridgetown-Greenbushes, Capel and Collie	449,715,481
Bunbury, Dardanup and Manjimup	96,315,554
<b>Total</b>	<b>546,031,035</b>

<b>Gascoyne Region</b>	
Carnarvon	81,347,929
Exmouth, Shark Bay and Upper Gascoyne	36,421,561
<b>Total</b>	<b>117,769,490</b>

<b>Perth Metropolitan Region</b>	
Wanneroo	16,029,354
Kalamunda and Swan	8,854,737
Cockburn, Kwinana and Rockingham	15,077,572
<b>Total</b>	<b>39,961,663</b>

<b>Great Southern Region</b>	
Albany, Denmark and Plantagenet	6,833,674

**TABLE 7. VALUE OF MINERALS AND PETROLEUM BY REGION BY COMMODITY**

Pilbara Region	2011 Value
Iron Ore	60,299,259,089
Gold and Silver	1,006,350,527
Copper	643,177,118
Manganese and Salt	585,203,389
Construction Materials	71,714,696
Tantalite, Tin and Gems	59,601,079
<b>Total</b>	<b>62,665,305,898</b>

Offshore Petroleum	2011 Value
Crude Oil and Condensate	12,004,239,925
Liquefied Natural Gas	9,344,019,455
Natural Gas	1,400,884,445
LPG Butane and Propane	745,879,960
<b>Total</b>	<b>23,495,023,785</b>

Goldfields-Esperance Region	2011 Value
Gold	5,618,501,516
Nickel, Platinum and Palladium	2,786,240,699
Cobalt	113,771,995
Copper	73,610,886
Silver	32,223,283
Spodumene, Tantalite and Zinc	29,413,409
Gypsum and Limesand	8,946,604
Construction Materials and Gems	6,624,582
<b>Total</b>	<b>8,669,332,974</b>

Peel Region	2011 Value
Alumina	4,127,281,377
Gold, Silver and Copper	1,264,010,048
<b>Total</b>	<b>5,391,291,425</b>

Mid West Region	2011 Value
Gold	788,231,628
Iron ore	719,168,233
Nickel and Talc	384,185,234
Copper, Lead and Zinc	373,452,656
Heavy Mineral Sands, Chromite	196,256,769
Crude Oil and Condensate	19,479,930
Silver	31,541,144
Natural Gas	20,241,661
Other	4,324,335
<b>Total</b>	<b>2,536,881,590</b>

Wheatbelt Region	2011 Value
Iron ore	1,193,739,331
Nickel, Copper and Salt	622,235,128
Gold and Silver	279,726,642
Gypsum and Heavy Mineral Sands	319,888,044
Silica, Sand and Limesand-Limestone	5,365,798
<b>Total</b>	<b>2,420,954,943</b>

Kimberley Region	2011 Value
Iron Ore	574,217,644
Nickel, Copper, Cobalt and Crude	221,338,530
Gold, Silver and Diamonds	356,302,578
Other	7,422,878
<b>Total</b>	<b>1,159,281,630</b>

South West Region	2011 Value
Coal	283,529,571
Heavy Mineral Sands and Spodumene	262,136,047
Other	365,417
<b>Total</b>	<b>546,031,035</b>

Gascoyne Region	2011 Value
Salt and Gems	116,452,765
Gypsum and Limesand-Limestone	1,205,393
Construction Materials	111,332
<b>Total</b>	<b>117,769,490</b>

Perth Metropolitan Region	2011 Value
Construction Materials, Silica Sand, Limesand-Limestone	<b>39,961,663</b>

Great Southern Region	2011 Value
Spongolite, Silica Sand and Limesand	<b>6,833,674</b>

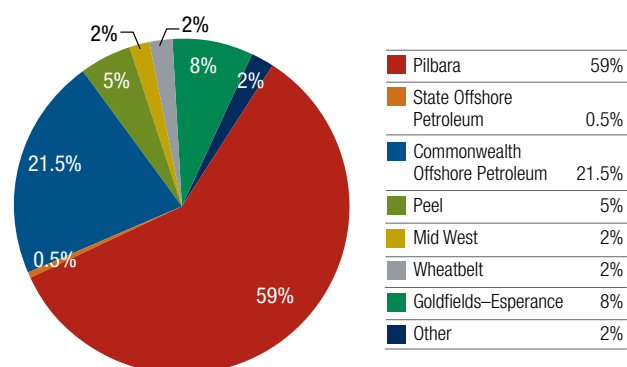


Figure 57. Value of Minerals and Petroleum by Region 2011  
Total \$107 billion Source: DMP

**TABLE 8. ROYALTY RECEIPTS 2010 AND 2011**

Commodity	2010	2011	2011 Growth	
	Total A\$	Total A\$	A\$	%
Alumina	64,564,846	68,402,559	3,837,713	6
Diamonds	15,818,955	13,509,606	-2,309,349	(15)
Gold	175,689,113	210,970,385	35,281,272	20
Heavy Mineral Sands	24,355,874	19,222,523	-5,133,351	(21)
Iron Ore	2,394,704,119	3,785,119,525	1,390,415,406	58
Nickel	100,736,613	103,020,310	2,283,697	2
Petroleum	985,080,488	949,111,456	-35,969,032	(4)
Other	106,028,016	139,401,002	33,372,986	31
<b>Total Revenue</b>	<b>3,866,978,023</b>	<b>5,288,757,366</b>	<b>1,421,779,343</b>	<b>37</b>

Note: All Royalty Receipts above are only those paid into the State's Consolidated Revenue Fund during the period plus the State's share of the North West Shelf project royalty payments. It does not include royalty receipts collected on behalf of the Commonwealth.

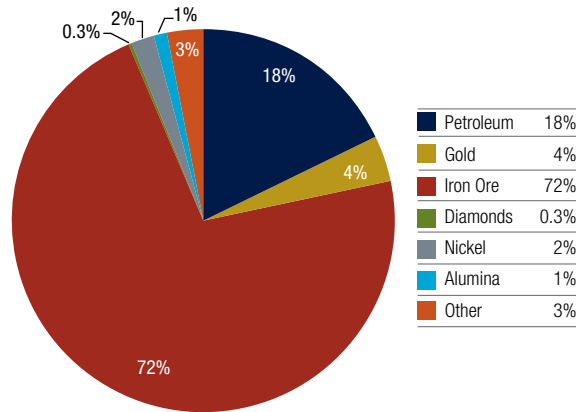


Figure 58. **Royalty Receipts 2011**  
Total \$5.3 Billion Source: DMP

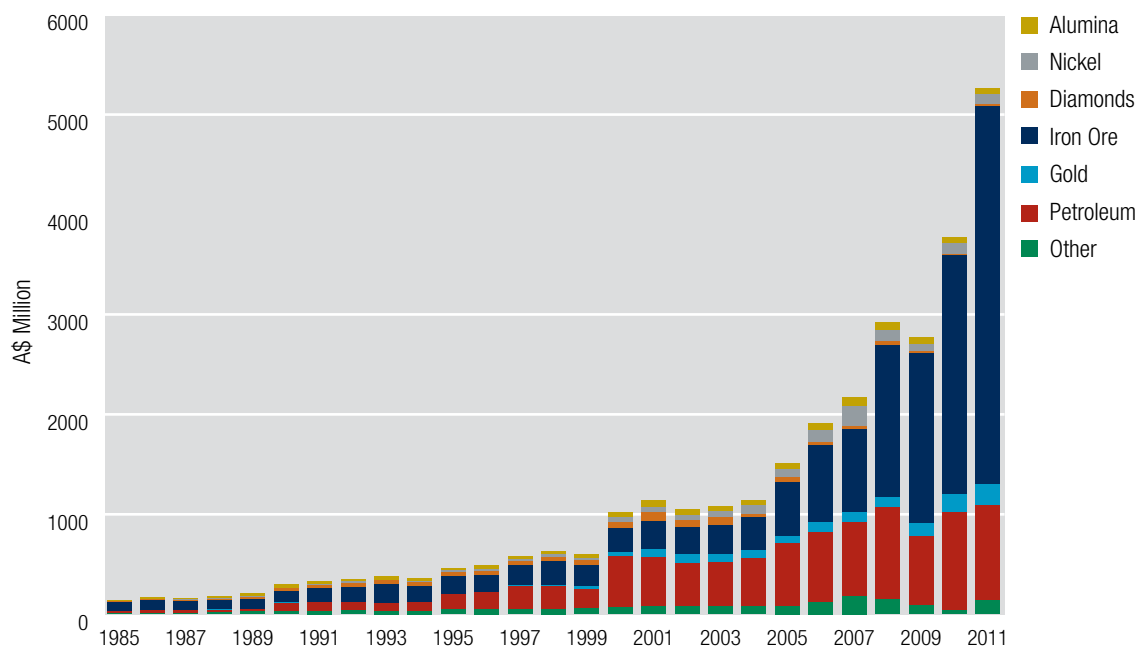


Figure 59. **Royalty Receipts by Commodity** Source: DMP

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

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	2011
<b>BAUXITE – ALUMINA</b>			
Doral Fused Materials Pty Ltd	Rockingham Fused Alumina Plant	96	101
Alcoa World Alumina Australia	Huntly	841	817
	Kwinana Alumina Refinery	1,331	1,314
	Pinjarra Refinery	1,561	1,658
	Wagerup Alumina Refinery	1,059	1,055
	Willowdale	402	327
Bauxite Resources Limited	Bindoon Bauxite Quarry	12	0
Worsley Alumina Pty Ltd	Boddington Bauxite	467	546
	Worsley Refinery	3,977	5,600
<b>TOTAL BAUXITE – ALUMINA</b>		<b>9,746</b>	<b>11,418</b>
<b>BASE METALS</b>			
Aditya Birla Minerals Ltd	Nifty	692	791
Jabiru Metals Ltd	Jaguar	296	348
Lennard Shelf Pty Ltd	Pillara	39	4
Magellan Metals Pty Ltd	Magellan	249	92
Minerals and Metals Group	Golden Grove	903	1,025
Sandfire Resources NL	DeGrussa Mine	0	320
Venturex Pilbara Pty Ltd	Whim Creek	20	21
<b>TOTAL BASE METALS</b>		<b>2,199</b>	<b>2,601</b>
<b>COAL</b>			
Griffin Coal Mining Co. Pty Ltd	Muja Open Cut	476	450
Wesfarmers Premier Coal Ltd	Premier	544	504
<b>TOTAL COAL</b>		<b>1,020</b>	<b>954</b>

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

MINERAL/Company	Operating Site	2010	2011
<b>DIAMONDS</b>			
Argyle Diamond Mines Pty Ltd	Argyle Diamond Mine	1,183	1,627
Kimberley Diamond Company NL	Ellendale/Kimberley Diamonds	316	312
North Australian Diamonds Limited	Wangarra Laboratory	4	4
<b>TOTAL DIAMONDS</b>		<b>1,503</b>	<b>1,943</b>
<b>GOLD</b>			
A1 Minerals Ltd	Brightstar-Mikado	45	32
Agnew Gold Mining Company Pty Limited	Agnew-Emu	408	491
AngloGold Ashanti Australia Ltd	Sunrise Dam	988	1,071
	Tropicana	0	57
Apex Gold Pty Ltd	Wiluna Group	392	252
Auzex Resources Limited	Bullabulling	5	23
Avoca Resources Ltd	Higginsville Gold Project	577	607
Barrick Gold of Australia Ltd	Darlot	455	480
	Granny Smith	655	853
	Kalgoorlie West / Barrick Kanowna	743	831
	Lawlers	386	424
	Plutonic	444	689
Central Norseman Gold Corporation Ltd	Central Norseman Group	286	306
Crescent Gold Limited	Laverton Gold Project	207	231
Diora – HBJ Minerals Pty Ltd	South Kal Operations	200	233
Evolution Mining Ltd	Edna May Gold Project	136	129
Focus Minerals Ltd	Coolgardie Group	102	0
	The Mount	6	53
	Three Mile Hill	90	161
	Tindals	57	135
FMR Investments Pty Ltd	Greenfields-Higginsville Plant	79	56
	Gordon Sirdar Project	0	51
Golden Stallion Resources Pty Ltd	Minjar Gold Project	23	0
Haoma Mining NL	Bamboo Creek	6	10
Integra Mining Ltd	Randalls	214	167
Intrepid Mines Limited	Paulsens	86	0
Jinka Minerals Ltd	Burnakura	1	7
Kalgoorlie Consolidated Gold Mines	Golden Mile – Super Pit	1,578	1,832
Kalgoorlie Mining Company (Bullant) Pty Ltd	Bullant Mine	0	50
La Mancha Resources Australia Pty Ltd	Frogs Legs Group	245	222
	White Foil	14	8
Mercator Gold Australia Pty Ltd	Meekatharra – Bluebird	2	4
Minjar Gold Pty Ltd	Minjar Gold Project	21	24
Mt Magnet Gold Pty Ltd	Mt Magnet	18	163
Mt Magnet South NL	Kirkalocka	0	9
Mulgabbie Mining Pty Ltd	Burbanks Group	4	2
Navigator (Bronzewing) Pty Ltd	Bronzewing	152	274
	Leonora	11	0
Newcrest Australia Ltd	Telfer	1,778	2,256
Newmont Boddington Gold Pty Ltd	Boddington	2,385	2,901
Newmont Yandal Operations Ltd	Jundee	570	660
Nex Metals Explorations Ltd	Orient Well	0	11
Norilsk Nickel Australia Pty Ltd	Bannockburn Gold Mine	7	0

MINERAL/Company	Operating Site	2010	2011
Northern Star Resources Ltd	Paulsens	73	201
Paddington Gold Pty Ltd	Paddington Gold	500	470
	Binduli	115	198
Ramelius Milling Services Pty Ltd	Burbanks Treatment Plant	18	18
Ramelius Resources Ltd	Wattle Dam	72	66
	Hill 50 – Mt Magnet Group	8	0
Range River Gold Ltd	Indee Group	7	5
	Mt Morgans	86	46
Reed Resources Ltd	Sand Queen	15	1
	Nimbus	6	0
Regis Resources Ltd	Moolart Well – Duketon Group	127	166
	Garden Well	0	70
Silver Lake Resources Ltd	Christmas Flat	6	0
	Daisy-Milano	130	194
	Lakewood – Fintails Plant	50	58
Saracen Gold Mines Pty Ltd	Carosue Dam	296	297
St Barbara Mines Ltd	Southern Cross – Marvel Loch	412	400
	Leonora Operations – Sons of Gwalia	515	489
	King of the Hills Underground	17	114
St Ives Gold Mining Company Pty Ltd	Kambalda/St Ives	1,613	1,661
Swan Gold Mining Ltd	Davyhurst	7	2
	Mt Ida Group	4	2
	Coyote Group	195	196
Tanami Gold NL	Coyote Group	195	196
The Perth Mint	Perth Mint	96	99
Troy Resources Ltd	Sandstone Group	36	4
Other	Various	23	19
<b>TOTAL GOLD</b>		<b>17,803</b>	<b>20,541</b>
<b>HEAVY MINERAL SANDS</b>			
BHP Titanium Minerals Pty Ltd	Beenup	3	5
Bemax Resources Limited	Bunbury	171	145
Doral Mineral Sands Pty Ltd	Dardanup	261	289
Mintech Chemical Industries Pty Ltd	Rockingham Zirconia Plant	25	36
GMA Garnet Pty Ltd	Narngulu Garnet Plant	30	32
	Port Gregory	31	31
Iluka Resources Limited	Capel	255	492
	Eneabba	103	77
	Narngulu Synthetic Rutile Plants	280	308
TiWest Pty Ltd	Gingin/Iluka	3	11
	Chandala-Muchea	393	369
	Cooljarloo	198	197
	Bunbury Port	14	11
<b>TOTAL HEAVY MINERAL SANDS</b>		<b>1,767</b>	<b>2,003</b>
<b>IRON ORE</b>			
Atlas Iron Ltd	Pardoo	101	88
	Wodgina	46	81
BC Iron Limited	Nullagine	59	325
BHP Billiton Iron Ore Pty Ltd	RGP4/5 Port Hedland Pace Project	126	375
	Boodarie HBI Plant	55	72
	Eastern Ridge Operation	0	334

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

MINERAL/Company	Operating Site	2010	2011
<b>IRON ORE (continued)</b>	Mining Area C	1,507	1,881
	Mt Whaleback	1,702	1,832
	Nelson Point	1,432	1,434
	Yandi – Marillana Creek Group	0	440
	Yandi 3 Rail Loop Ore Handling Plant	0	37
Calibre Engenium Joint Venture Pty Ltd	Mesa A Rail Construction	24	0
Calibre Projects Pty Ltd	Western Turner Syncline	0	35
	Brockman 4 – Phase 2	0	105
Citic Pacific Mining Management Pty Ltd	Sino Iron Project	531	611
Cliffs Natural Resources Pty Ltd	Koolyanobbing	754	992
Crosslands Resources Ltd	Cuddingwarra	55	82
	Geraldton Port Storage Facility	54	59
	Jack Hills	123	113
Downer EDI Works Pty Ltd	Warrambo Project	0	28
	Newman Switchyard	5	0
Ferro Metals Australia Pty Ltd	Balla Balla Group	3	2
Fortescue Metals Group Ltd	Anderson Point Port Facility	299	609
	Christmas Creek	696	1,947
	Cloudbreak	3,100	3,401
	Rail Ballast Quarry	8	17
Hamersley HMS Pty Ltd	Hope Downs	1,238	1,393
Hamersley Iron Pty Ltd	Brockman	599	615
	Dampier Port Operations and Power Plant	1,820	2,384
	Hismelt Kwinana	93	57
	Marandoo	382	389
	Paraburdoo/Channar/Eastern Range	1,357	1,458
	Tom Price	1,910	2,083
	Yandicoogina	1,040	1,151
Henry Walker Eltin Cockatoo Pty Ltd	Cockatoo Island	143	185
Henry Walker Eltin Contracting Pty Ltd	Eastern Ridge Operation	445	405
	Yandi – Marillana Creek Group	1,031	961
Karara Mining Limited	Karara	29	135
Kimberley Metals Group Pty Ltd	Ridges Iron Ore	0	68
MacMahon Holdings Pty Ltd	Orebody 18 – Wheelarra	460	438
Mt Gibson Mining Limited	Extension Hill – Hematite	82	199
	Geraldton Port Storage Facility	22	24
	Koolan Island	521	594
	Perenjori Siding	0	5
	Ruvidini Rail Terminal	83	82
	Tallering Peak	299	336
Ngarda Civil and Mining Pty Ltd.	Yarrie Nimingarra	388	406
Polaris Metals Pty Ltd	Carina Iron Ore Mine	0	298
Process Minerals International Pty Ltd	Boodarie RSI	30	27
	Poondano Iron Ore Project	0	49
Rio Tinto Iron Ore Pty Ltd	Brockman 4 Operations	553	944
	Cape Lambert Power Station	58	64
	Cape Lambert Expansion	99	114
	Dampier Fuel Wharf	0	107
	Kangaroo Hill Village	0	13



MINERAL/Company	Operating Site	2010	2011
Robe River Mining Co. Pty Ltd	Cape Lambert Port Operations	1,220	1,426
	Pannawonica	631	673
	West Angelas	1,173	1,239
Roy Hill Iron Ore Pty Ltd	Roy Hill	0	8
Sinosteel Midwest Corporation Ltd	Koolanooka	54	115
<b>TOTAL IRON ORE</b>		<b>26,440</b>	<b>33,345</b>
<b>MANGANESE</b>			
Auvex Resources Limited	Ant and Sunday Hill	2	
Pilbara Manganese Pty Ltd	Woodie Woodie	762	805
Process Minerals International	Peak Hill	46	6
	Nicholas Downs	20	18
	Woodie Woodie Tailings Treatment Plant	30	25
<b>TOTAL MANGANESE</b>		<b>860</b>	<b>854</b>
<b>NICKEL</b>			
BHP Billiton Minerals Pty Ltd	Ravensthorpe	3	0
BHP Billiton (Nickel West)	Cliffs	255	274
	Kalgoorlie Nickel Smelter	603	649
	Kambalda	204	196
	Kwinana Refinery	457	576
	Leinster	1,111	1,027
	Mt Keith	1,300	1,575
Consolidated Nickel Pty Ltd	Beta-Hunt Nickel Group	5	4
First Quantum Minerals (Australia) Pty Limited	Ravensthorpe	235	1,069
Focus Minerals Ltd	Nepean	1	1
Fox Radio Hill Pty Ltd	Radio Hill	27	29
Lake Johnston Ltd	Emily Ann	24	180
Lightning Nickel Pty Ltd	Long Shaft	198	203
	Carnilya Hill	50	24
	Mincor Operations	230	204
	Otter Juan	145	136
Norilsk Nickel Avalon Pty Ltd	Avalon-Bulong Plant	11	13
	Black Swan	27	17
	Cawse	15	15
	Waterloo	8	8
Murrin Murrin Operations Pty Ltd	Murrin Murrin	1,746	1,584
Panoramic Resources Limited	Lanfranchi	267	308
	Savannah Group	327	354
Poseidon Nickel Ltd	Windarra Group	6	24
Xstrata Nickel Australasia Operations Pty Ltd	Cosmos	275	293
	Sinclair	72	104
Southern Cross Energy	Southern Cross Energy Power Group	82	92
Western Areas NL	Forrestania	485	537
<b>TOTAL NICKEL</b>		<b>8,169</b>	<b>9,496</b>
<b>SALT</b>			
Dampier Salt Ltd	Dampier	677	396
	Lake MacLeod	205	248
	Port Hedland	167	172
WA Salt Supply Koolyanobbing Pty Ltd	Lake Deborah	13	9
Onslow Solar Salt Pty Ltd	Onslow	100	127

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

MINERAL/Company	Operating Site	2010	2011
<b>SALT (continued)</b>			
Shark Bay Salt JV	Useless Loop	127	108
Western Salt Refinery Pty Ltd	Pink Lake	4	1
<b>TOTAL SALT</b>		<b>1,293</b>	<b>1,061</b>
<b>TIN, TANTALUM AND LITHIUM</b>			
Galaxy Resources Ltd	Mt Catlin (Spodumene)	163	146
Global Advanced Metals Greenbushes Pty Ltd	Greenbushes	4	60
	Wodgina	12	215
Haddington Resources Limited	Bald Hill West	1	0
Nagrom and Co.	Kelmscott	61	77
Talisson Minerals Pty Ltd	Greenbushes	180	203
	Wodgina	42	0
<b>TOTAL TIN, TANTALUM AND LITHIUM</b>		<b>463</b>	<b>701</b>
TOTAL CHROMITE		88	94
TOTAL CLAYS		101	102
TOTAL CONSTRUCTION MATERIALS		661	786
TOTAL DIMENSION STONE		134	127
TOTAL INDUSTRIAL PEGMATITE MINERALS		34	24
TOTAL LIMESTONE – LIMESAND		165	178
TOTAL MINERAL EXPLORATION		3,198	3,938
TOTAL PHOSPHATE		144	169
TOTAL RARE EARTHS		65	134
TOTAL SILICA – SILICA SAND		285	553
TOTAL SILVER		0	15
TOTAL TALC		77	56
TOTAL TUNGSTEN AND MOLYBDENUM		51	90
TOTAL VANADIUM		19	283
TOTAL VARIOUS PORTS		613	852
ALL OTHER MATERIALS		23	23
<b>TOTAL MINERALS</b>		<b>76,921</b>	<b>92,341</b>

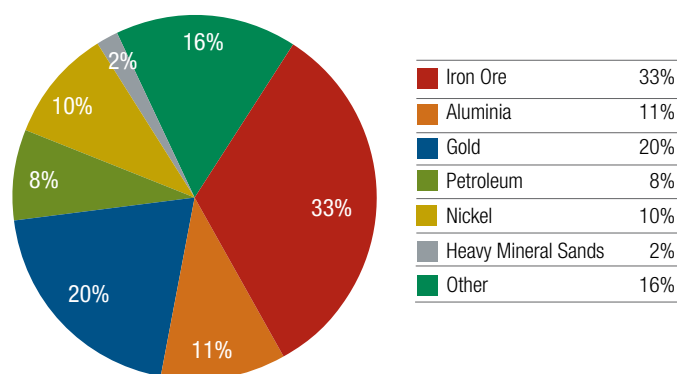


Figure 60. Minerals and Petroleum Employment 2011  
Total 100,641 Source: DMP and Petroleum Producing Companies

**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 APRIL 2012**

**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)

**Minmetals Australia Pty Ltd,**  
Level 8,  
564 St Kilda Road,  
Melbourne Vic 3004,  
(03) 9520 6800,  
Golden Grove.  
[www.minmetals.com/index.jsp](http://www.minmetals.com/index.jsp)

**Jabiru Metals Limited,**  
Ground Floor,  
1205 Hay Street,  
West Perth WA 6005,  
(08) 9426 8300,  
Jaguar.  
[www.jabirumetals.com.au](http://www.jabirumetals.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 Gold Pty Ltd,**  
Post Office Box 48,  
BODDINGTON WA 6390  
(08) 9883 3400,  
Boddington.  
[www.newmont.com](http://www.newmont.com)

**BAUXITE–ALUMINA**

**ALUMINA**

**Alcoa of Australia Limited,**  
181–205 Davy Street,  
Booragoon WA 6154,  
(08) 9316 5111,  
Del Park, Willowdale, Huntly.  
[www.alcoa.com.au](http://www.alcoa.com.au)

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

**The Griffin Coal Mining Company  
Pty Limited,**  
Level 15, 28 The Esplanade,  
Perth WA 6000,  
(08) 9261 2800,  
Collie.  
[www.griffincoal.com.au](http://www.griffincoal.com.au)

**SAPONITE**

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

**COAL**

**The Griffin Coal Mining Company  
Pty Limited,**  
Level 15, 28 The Esplanade,  
Perth WA 6000,  
(08) 9261 2800,  
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/GRAVEL/SAND/ROCK**

**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)

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

**Northern Transport Company Pty Ltd,**  
Lot 550 Onslow Road,  
Onslow WA 6710,  
(08) 9184 6291,  
Onslow.  
[www.ntc.net.au](http://www.ntc.net.au)

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

**Tuma Holdings Pty Ltd,**  
T/as Action Sand Supplies  
42 Noel Road,  
Gooseberry Hill WA 6076,  
(08) 9275 1100,  
Mobile: 0408 923 801,  
Chidlow.

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

## DIAMONDS

**Argyle Diamonds Australia**  
2 Kings Park Road,  
West Perth WA 6005,  
(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)

## DIMENSION STONE GRANITE

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

## FELDSPAR

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

## GOLD

**A1 Minerals Limited,**  
Suite 34, 25 Walters Drive,  
Osborne Park WA 6017,  
(08) 9244 1400,  
Brightstar.  
[www.a1minerals.com.au](http://www.a1minerals.com.au)

**Agnew Gold Mining Co Pty Ltd,**  
PMB 10,  
Leinster WA 6437,  
(08) 9088 3822,  
Agnew.  
[www.goldfields.co.za](http://www.goldfields.co.za)

**AngloGold Australia Ltd,**  
Level 13, St Martins Tower,  
44 St Georges Terrace,  
Perth WA 6000,  
(08) 9425 4600,  
Sunrise Dam.  
[www.anglogoldashanti.com](http://www.anglogoldashanti.com)

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

**Alacer Gold Corp,**  
Level 3, 18 Parliament Place,  
West Perth WA 6005,  
(08) 9226 0625,  
Higginsville, South Kal Mines.  
[www.avocaresources.com.au](http://www.avocaresources.com.au)

**Barrick Gold of Australia Limited,**  
Level 10, 2 Mill Street,  
Perth WA 6000,  
(08) 9212 5777,  
Darlot, Lawlers, Plutonic, Granny Smith,  
Kanowna Belle, East Kundana, Kalgoorlie.  
[www.barrick.com](http://www.barrick.com)

**Catalpa Resources Ltd,**  
Level 1, 9 Havelock Street,  
West Perth WA 6005,  
(08) 9216 9700,  
Edna May.  
[www.catalparesources.com.au](http://www.catalparesources.com.au)

**Crescent Gold Limited,**  
Level 2, 40 Subiaco Square,  
Subiaco WA 6008,  
(08) 6380 7100,  
Laverton.  
[www.crescentgold.com](http://www.crescentgold.com)

**Focus Minerals Limited,**  
Level 10, Exchange House,  
68 St Georges Terrace,  
Perth WA 6000,  
(08) 9215 7888,  
Coolgardie—Redemption,  
Laverton, The Mount, Tindals.  
[www.focusminerals.com.au](http://www.focusminerals.com.au)

**Integra Mining Limited,**  
168 Stirling Highway,  
Nedlands WA 6009,  
(08) 9423 5920,  
Aldiss—Randalls.  
[www.integramining.com.au](http://www.integramining.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](http://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](http://www.lamancha.ca)

**Navigator Resources Limited,**  
45 Richardson Street,  
West Perth WA 6005,  
(08) 9226 5311,  
Bronzewing,  
[www.navigatorresources.com.au](http://www.navigatorresources.com.au)

**Norseman Gold plc,**  
Suite 1D, Ground Floor,  
21 Teddington Road,  
Burswood WA 6100,  
(08) 9473 2299,  
Central Norseman.  
[www.norsemangoldplc.com](http://www.norsemangoldplc.com)

**Northern Star Resources,**  
Level 1, 24 Mumford Place,  
Balcatta WA 6021,  
(08) 6241 1888,  
Paulsens.  
[www.nsr ltd.com](http://www.nsr ltd.com)

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

**Newmont Mining Corporation,**  
Level 1, 388 Hay Street,  
Subiaco WA 6008,  
(08) 9423 6100,  
Boddington, Jundee, Kalgoorlie.  
[www.newmont.com](http://www.newmont.com)

**Norseman Gold Plc,**  
Suite 1D, 21 Teddington Road,  
Burswood WA 6100,  
(08) 9473 2222,  
Norseman.  
[www.norsemangoldplc.com](http://www.norsemangoldplc.com)

**Paddington Gold Pty Ltd,**  
Menzies Highway,  
PO Box 1653,  
Kalgoorlie WA 6430,  
(08) 9080 6800,  
Paddington, Navajo—Chief.  
[www.nortongoldfields.com.au](http://www.nortongoldfields.com.au)

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE APRIL 2012**

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

**Regis Resources Limited,**  
Level 1, 1 Alvan Street,  
Subiaco WA 6008,  
(08) 9442 2290,  
Moolart Well–Duketon.  
[www.regisresources.com](http://www.regisresources.com)

**Saracen Mineral Holdings Limited,**  
Level 5, 89 St Georges Terrace,  
Perth WA 6000,  
(08) 9212 4100,  
Porphyry.  
[www.saracen.com.au](http://www.saracen.com.au)

**Silver Lake Resources Limited,**  
31 Malcolm Street,  
West Perth WA 6005,  
(08) 6313 3800,  
Mt Monger–Silver Lake.  
[www.silverlakeresources.com.au](http://www.silverlakeresources.com.au)

**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](http://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](http://www.goldfields.co.za)

**Tanami Gold NL,**  
Level 4, 50 Colin Street,  
West Perth WA 6005,  
(08) 9212 5999,  
Tanami Coyote.  
[www.tanami.com.au](http://www.tanami.com.au)

**GYPSUM**

**Dampier Salt Pty Ltd,**  
37 Belmont Avenue,  
Belmont WA 6104,  
(08) 9270 9270,  
Lake MacLeod.  
[www.dampiersalt.com.au](http://www.dampiersalt.com.au)

**Gypsum Industries,**  
Suite 1, 110 Robinson Avenue,  
Belmont WA 6104,  
1800 644 951,  
Lake Cowcowing.  
[www.aglime.com.au](http://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.

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

**HEAVY MINERAL SANDS  
GARNET SAND**

**GMA Garnet Pty Ltd,**  
Level 18 Exchange Plaza,  
2 The Esplanade  
Perth WA 6000,  
(08) 9287 3200,  
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, Eneabba.  
[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,**  
Level 9, Alluvion,  
58 Mounts Bay Road,  
West Perth WA 6005.  
(08) 9476 7900,  
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.bcion.com.au](http://www.bcion.com.au)

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

**BHP Billiton Iron Ore Ltd,**  
225 St Georges Terrace,  
Perth WA 6000,  
(08) 6224 4444,  
Jimblebar, 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,  
Cockatoo Island, 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.  
[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 2327,  
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 C5, 1 The Esplanade,  
Mt Pleasant WA 6153,  
(08) 9364 2699,  
Ridges.  
[www.kmetgroup.com](http://www.kmetgroup.com)

**Mineral Resources Limited,**  
1 Sleat Road,  
Applecross WA 6153,  
(08) 9329 3600,  
Poondano, Carina.  
[www.mineralresources.com.au](http://www.mineralresources.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,**  
1st Floor,  
7 Havelock Street,  
West Perth WA 6005,  
(08) 9426 7500,  
Mt Gibson Iron,  
Koolan Island, Talling Peak.  
[www.mtgibsoniron.com.au](http://www.mtgibsoniron.com.au)

**Murchison Metals Ltd,**  
Level 1, 5 Ord Street,  
West Perth WA 6005,  
(08) 9492 2600,  
Jack Hills.  
[www.mml.net.au](http://www.mml.net.au)

**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)

## **LIMESAND–LIMESTONE**

**Cockburn Cement Ltd,**  
Lot 242, Russell Road,  
Munster WA 6163,  
(08) 9411 1000,  
Cockburn, Denison, Ledge Point,  
Wanneroo.  
[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 0022,  
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 3800,  
Woodie Woodie, Nickolas Downs.  
[www.processminerals.com.au](http://www.processminerals.com.au)

## **NICKEL**

**BHP Billiton (Nickel West),**  
191 Great Eastern Highway,  
Belmont WA 6104,  
(08) 6272 3000,  
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 1, 183 Great Eastern Highway,  
Belmont WA 6104,  
(08) 9479 1777,  
Long Nickel.  
[www.independencgroup.com.au](http://www.independencgroup.com.au)

**Minara Resources Limited,**  
Level 4, 30 The Esplanade,  
Perth WA 6805,  
(08) 9226 1099,  
Murrin Murrin.  
[www.minara.com.au](http://www.minara.com.au)

**TABLE 11. PRINCIPAL MINERAL AND PETROLEUM PRODUCERS EFFECTIVE APRIL 2012**

**Mincor Resources NL,**  
Level 1, 56 Ord Street,  
West Perth WA 6005,  
(08) 9476 7200,  
Carnilya Hill, Coronet,  
McMahon, Mariners,  
Miitel, 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) 9225 0999,  
Savannah, Lanfranchi Tramways.  
[www.panoramicresources.com](http://www.panoramicresources.com)

**Western Areas NL,**  
Level 1, 11 Ventnor Avenue,  
West Perth WA 6005,  
(08) 9334 7777,  
Forrestania, Flying Fox,  
Lounge Lizard, Spotted Quoll.  
[www.westernareas.com.au](http://www.westernareas.com.au)

**Xstrata Nickel Australasia,**  
Level 3, 24 Outram Street,  
West Perth WA 6005,  
(08) 9213 1588,  
Cosmos, Sinclair.  
[www.xstrata.com](http://www.xstrata.com)

## **PALLADIUM**

**BHP Billiton (Nickel West),**  
191 Great Eastern Highway,  
Belmont WA 6104,  
(08) 9479 0500,  
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,**  
Level 16, 40 Mount Street,  
North Sydney NSW 2060,  
(02) 8912 8000,  
Apium, Corbyas, Hovea–Eremia, Mt Horner,  
Dongara, Woodada, Xyris, Yardarino.  
<http://www.awexp.com.au/irm/content/home.html>

**Buru Energy Limited,**  
Level 2, 97 William Street,  
Perth WA 6000,  
Freecall: 1800 337 330,  
Blina, Lloyd.  
[www.buruenergy.com.au](http://www.buruenergy.com.au)

**BHP Billiton Petroleum (North West Shelf) Pty Ltd,**  
Level 42, Central Park,  
152–158 St Georges Terrace,  
Perth WA 6000,  
(08) 9338 4888,  
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,**  
Level 3, 40 Kings Park Road,  
West Perth WA 6005,  
(08) 9320 1111,  
Blacktip, Woollybutt.

**Origin Energy Resources Ltd,**  
34 Colin Street,  
West Perth WA 6005,  
(08) 9324 6111,  
Beharra Springs, Jingemba.  
[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)

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

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

## **PLATINUM**

**BHP Billiton (Nickel West)**  
191 Great Eastern Highway,  
Belmont WA 6104,  
(08) 6272 3000,  
Kambalda.  
[www.bhpbilliton.com](http://www.bhpbilliton.com)

## **SALT**

**Dampier Salt Pty 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,**  
Cockburn Road,  
Hamilton Hill 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](http://www.luzenac.com)

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

## **TIN–TANTALUM–LITHIUM SPODUMENE**

**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)

**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**

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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,**  
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Greenbushes, Wodgina.  
[www.globaladvancedmetals.com](http://www.globaladvancedmetals.com)

## 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
bbbl	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

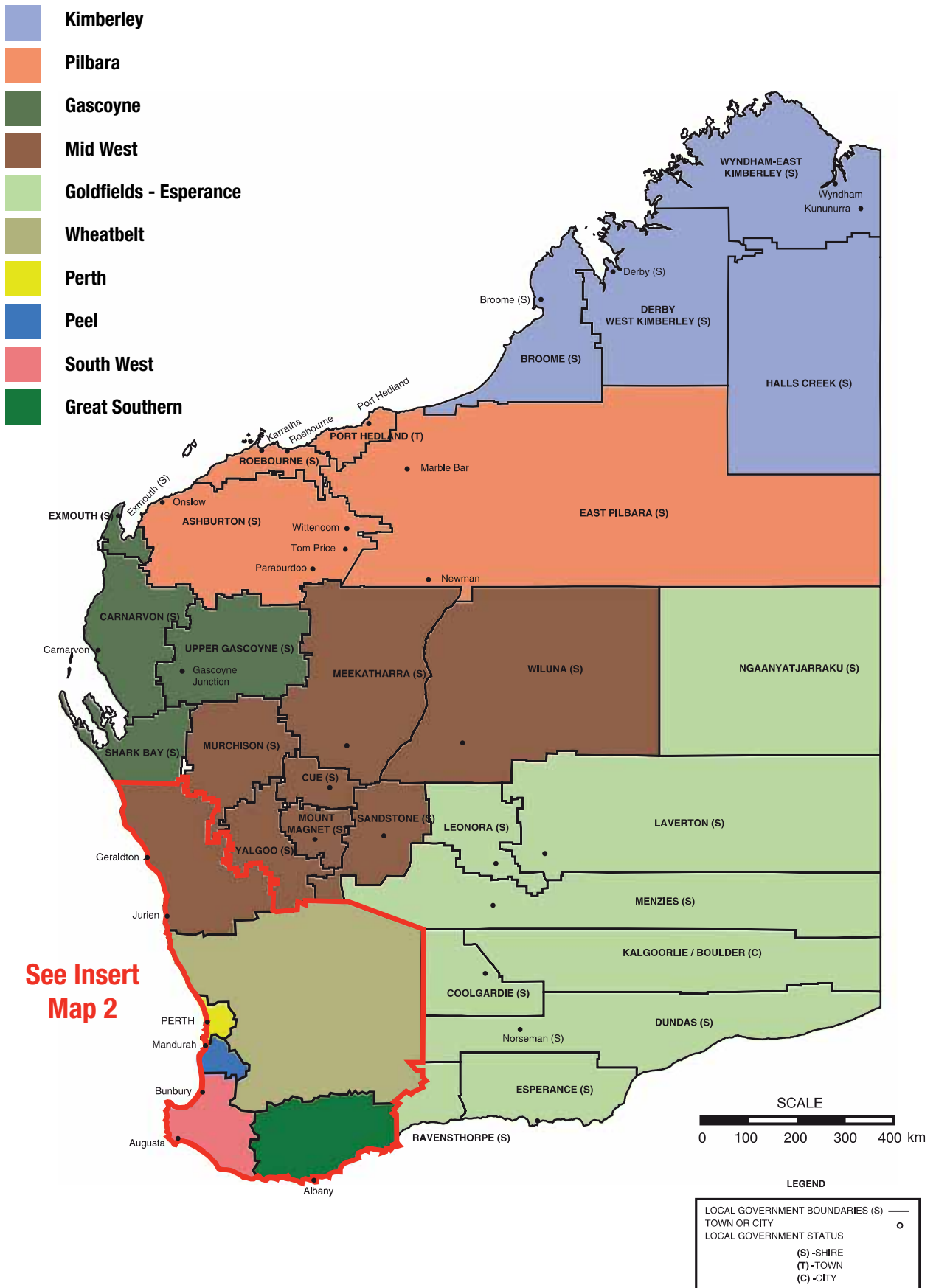
## WEIGHTS AND MEASURES

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

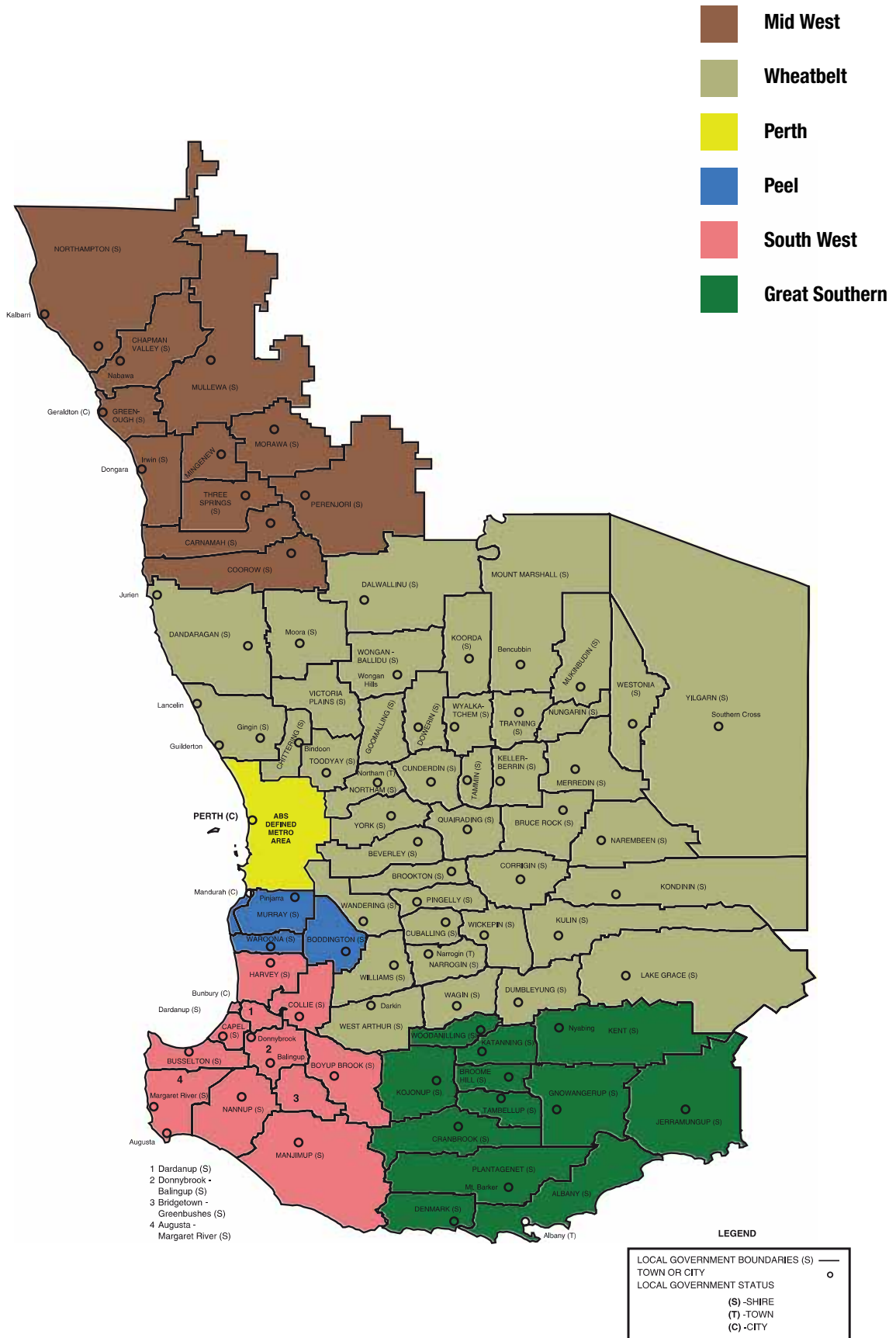
## UNITS AND CONVERSION FACTORS

	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)		

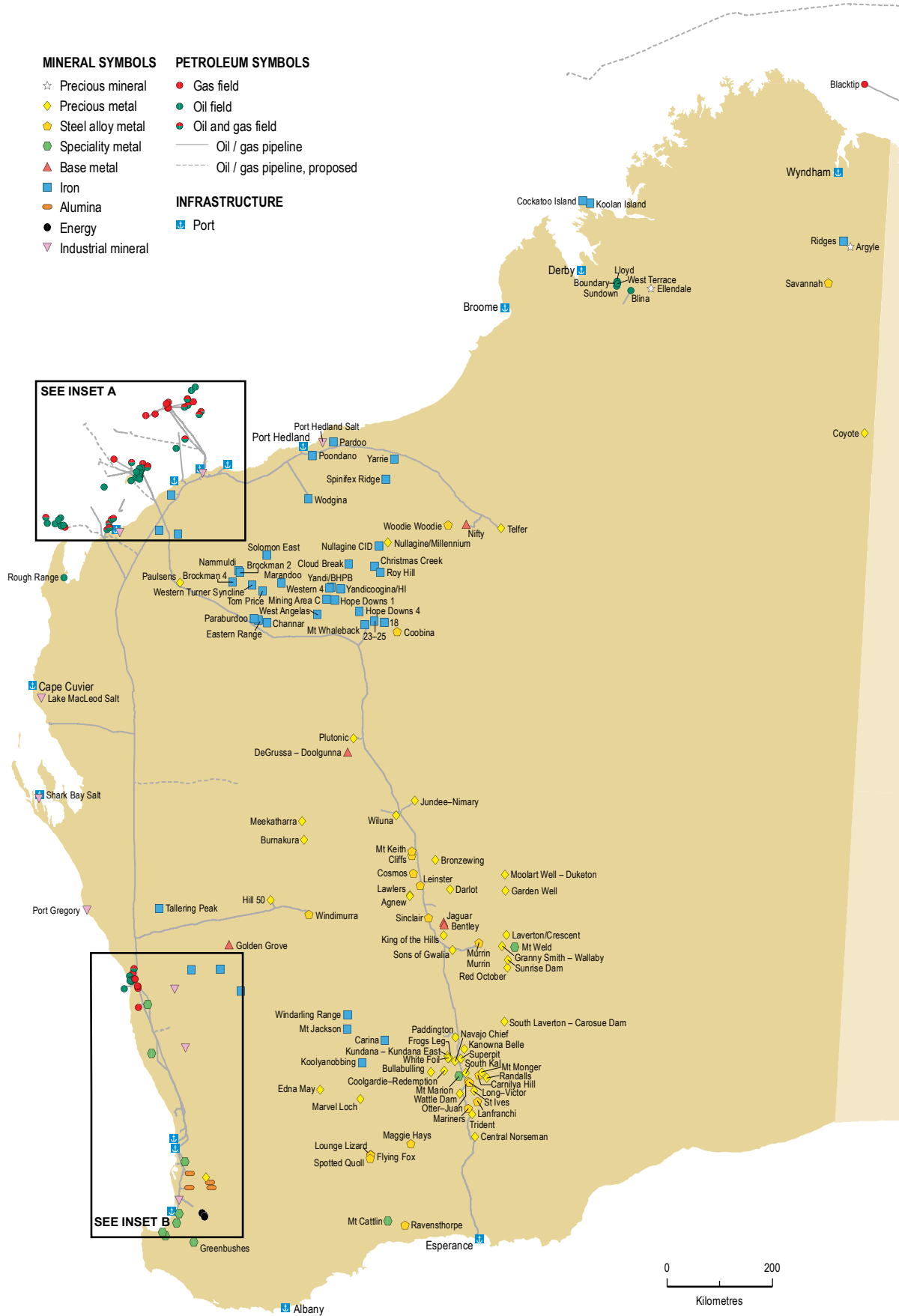
# MAP 1. LOCAL GOVERNMENT BOUNDARIES



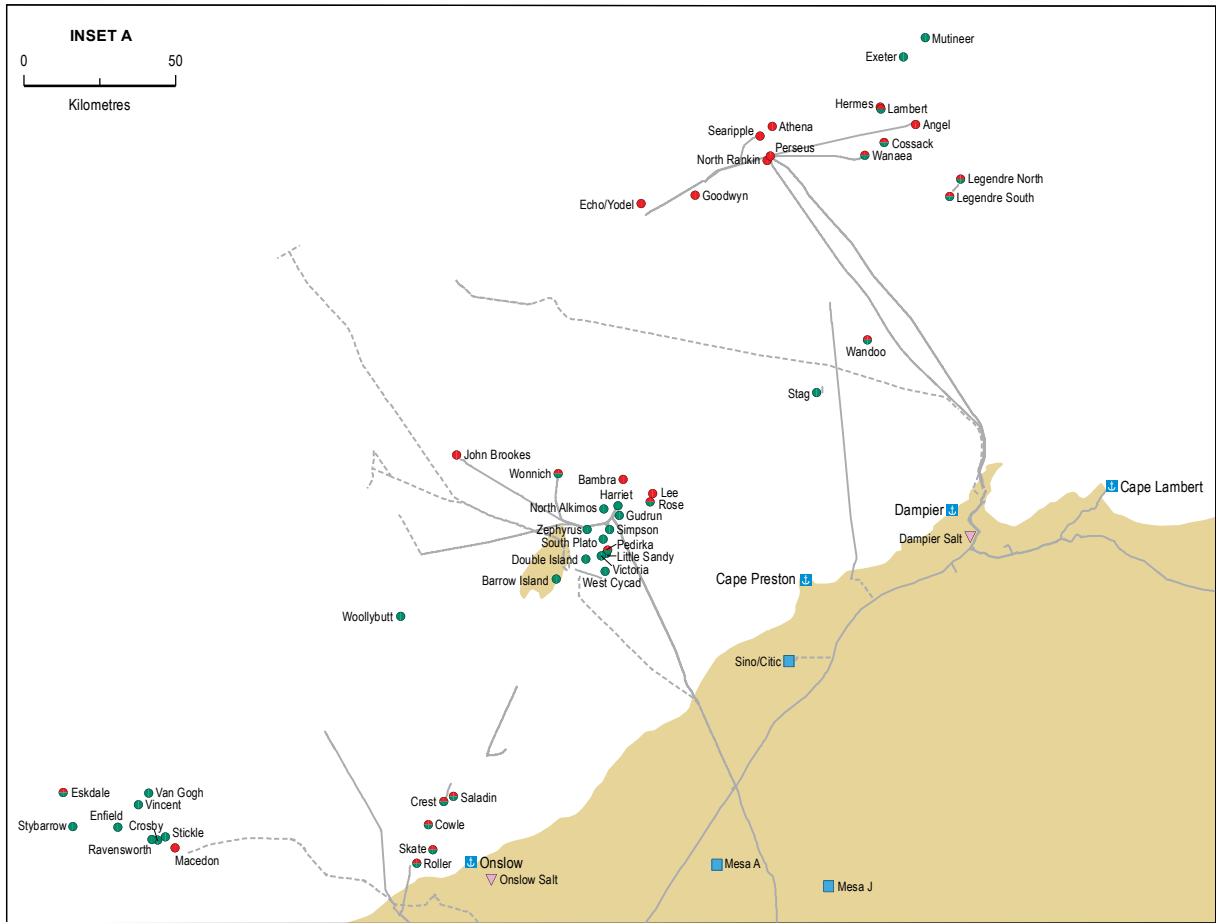
# MAP 2. LOCAL GOVERNMENT BOUNDARIES



# 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**

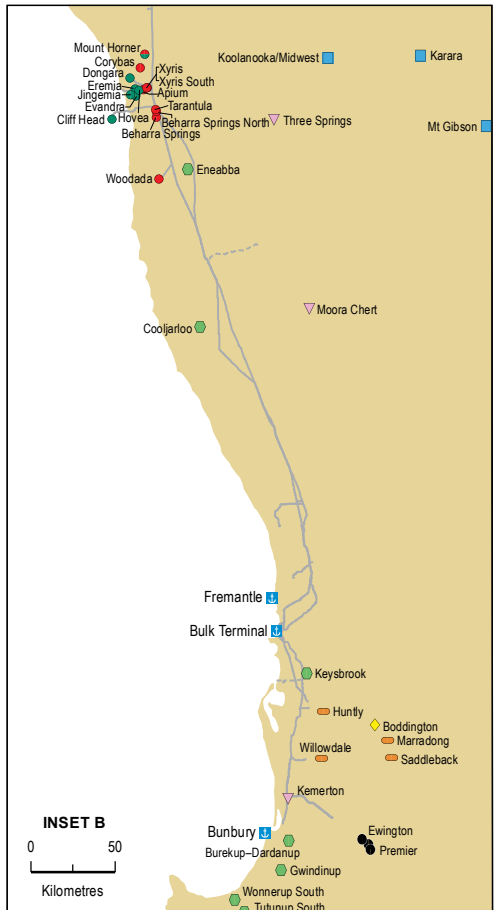
- ◆ Precious metal
- Speciality metal
- Iron
- Alumina
- Energy
- ▽ Industrial mineral

**PETROLEUM SYMBOLS**

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

**INFRASTRUCTURE**

- Port



**INSET B**

0 50  
Kilometres

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