



The **thinking** behind  
our everyday essentials

Victoria's Minerals, Petroleum and Extractive Industries  
2006/07 Statistical Review

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# 1. Introduction

The Statistical Review provides an overview of Victoria's petroleum, minerals and extractive industries. It includes data on production, exploration and expenditure, as well as licensing and safety performance. This report is the most comprehensive public database available for these sectors in Victoria and is relevant to anyone involved in the petroleum, mining or extractive industries.

Victoria's earth resource industry production includes:

- oil and gas – from onshore and offshore
- brown coal – used almost exclusively for power generation
- gold
- industrial minerals – including gypsum, silica, feldspar, rutile, zircon, ilmenite and kaolin
- rock, sand and clay – used mainly for building and road construction

Minerals and Petroleum Regulation Branch Inspectors regulate under the following Acts:

- *Mineral Resources (Sustainable Development) Act 1990*
- *Extractive Industries Development Act 1995*
- *Petroleum (Submerged Lands) Act 1967* (as Designated Authority under this Commonwealth Act)
- *Petroleum (Submerged Lands) Act 1982*
- *Petroleum Act 1998*
- *Pipelines Act 1967*
- *Occupational Health and Safety Act 2004* and associated regulations (for mining and extractive sites until 31 December 2007)
- *Dangerous Goods Act 1985* and associated regulations (for mining and extractive sites until 31 December 2007)
- *Geothermal Energy Resources Act 2005*

In 2007 the Minister for Energy and Resources granted for the first time geothermal exploration permits (12 in total) under the *Geothermal Energy Resources Act 2005*.

## 2. Petroleum

### 2.1 Exploration and Development

Table 2.1 Seismic Surveys: 2006/07

#### 3D-Seismic

Region	Basin	Survey Name	Permit	Operator	Start	Area Sq km	Expenditure M\$
Offshore	Gippsland	GAP07A	VIC/P42	Apache	17/02/2007	503	20.1
Offshore	Gippsland	GAP07B	VIC/P59	Apache	4/04/2007	649	12.5
Offshore	Otway	OS07A	VIC/P44	Santos	2/05/2007	725	21.1
Offshore	Otway	OB07	VIC/P46	Beach Petroleum	17/05/2007	331	16.8
<b>Total</b>						<b>2208.0</b>	<b>70.5</b>

#### 2D-Seismic

Region	Basin	Survey Name	Permit	Operator	Start	Line km	Expenditure M\$
Offshore	Gippsland	GNS07	VIC/P49	Nexus Energy	13/06/2006	1699	4.4
Offshore	Otway	HOT07A	VIC/RL7	BHPBilliton	26/06/2007	50.0	0.8
<b>Total</b>						<b>1749.0</b>	<b>5.2</b>

#### Geophysical Survey

Region	Basin	Survey Name	Permit	Operator	Start	Area Sq km	Expenditure M\$
Offshore	Gippsland	GAP07C	VIC/P59	Apache	18/05/2007	928 (CSEM)*	9.0

Source: DPI

The above figures are collated from reports forwarded to the Department of Primary Industries by permit holder under the provisions of the *Petroleum Act 1985*

(CSEM)\* ----- Controlled Source Electromagnetic Survey.

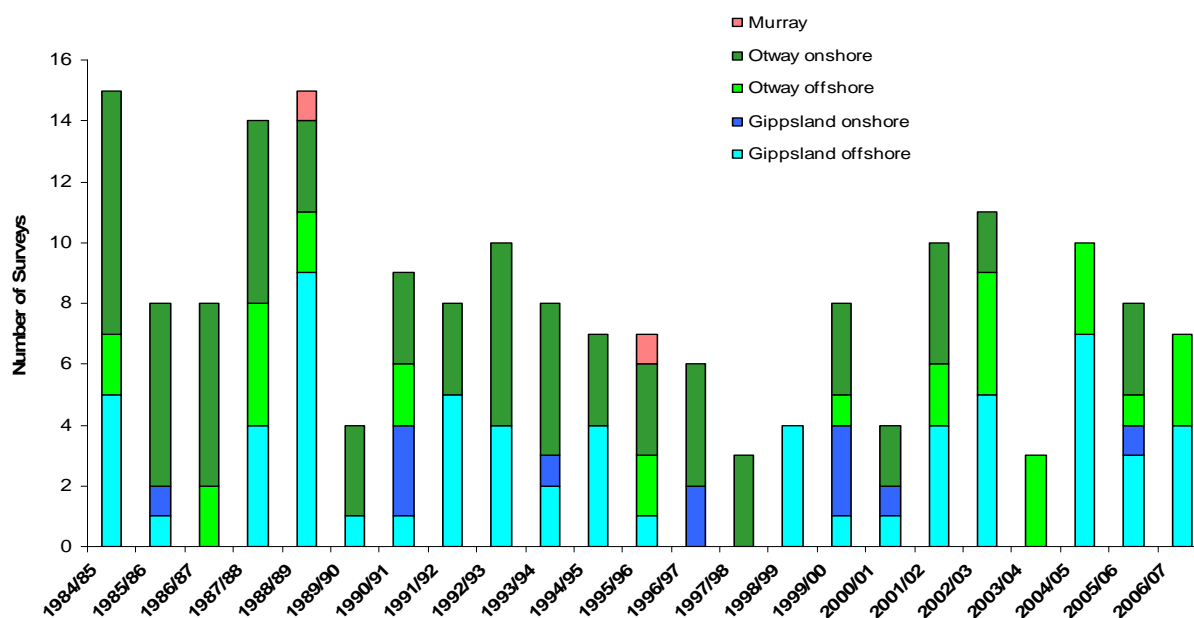
Table 2.2 Seismic Surveys (by basin): 1984/85 – 2006/07

Year	Offshore Basin		Onshore Basin			Total No. of Surveys
	Gippsland	Otway	Gippsland	Otway	Murray	
Pre 1984	54	23	33	60		170
1984/85	5	2	0	8		15
1985/86	1	0	1	6		8
1986/87	0	2	0	6		8
1987/88	4	4	0	6		14
1988/89	9	2	0	3	1	15
1989/90	1	0	0	3		4
1990/91	1	2	3	3		9
1991/92	5	0	0	3		8
1992/93	4	0	0	6		10
1993/94	2	0	1	5		8
1994/95	4	0	0	3		7
1995/96	1	2	0	3	1	7
1996/97	0	0	2	4		6
1997/98	0	0	0	3		3
1998/99	4	0	0	0		4
1999/00	1	1	3	3		8
2000/01	1	0	1	2		4
2001/02	4	2	0	4		10
2002/03	5	4	0	2		11
2003/04	0	3	0	0		3
2004/05	7	3	0	0		10
2005/06	3	1	1	3		8
2006/07	4	3	0	0		7
<b>Total</b>	<b>120</b>	<b>54</b>	<b>45</b>	<b>136</b>	<b>2</b>	<b>357</b>

Source: DPI



Graph 2.1 Seismic Surveys (by basin): 1984/85 – 2006/07



Source: DPI

Table 2.3 Exploration / Appraisal Wells: 2006/07

Region	Basin	Well Name	Start Date	Operator	Tenement	Status	Total Depth (m) MKB
Offshore	Gippsland	Longtom -3	11-Jul-06	Nexus Energy	Vic/P54	Gas Discovery	4674
Offshore (V)	Gippsland	Galloway-1	29-Jul-06	Santos	Vic/P39 (V)	P + A	2315
Onshore	Gippsland	Megascolides-1	01-Dec-06	Karoo Gas	PEP-162	P + A	1950
Onshore	Gippsland	Megascolides-2	04-Jan-07	Karoo Gas	PEP-162	P + A	1850
Onshore	Gippsland	Hazelwood-1	23-Feb-07	Lakes Oil	PEP-166	P + A	2081
Onshore	Gippsland	Boola Boola-2	02-Jun-07	Lakes Oil	PEP-166	P + A	1887
Onshore	Otway	Glenaire-1	08-Sep-06	Beach Petroleum	PEP-160	Suspended	3701
Onshore	Otway	CRC pilot hole	15-Feb-07	CRC	PPL13	Suspended	2249

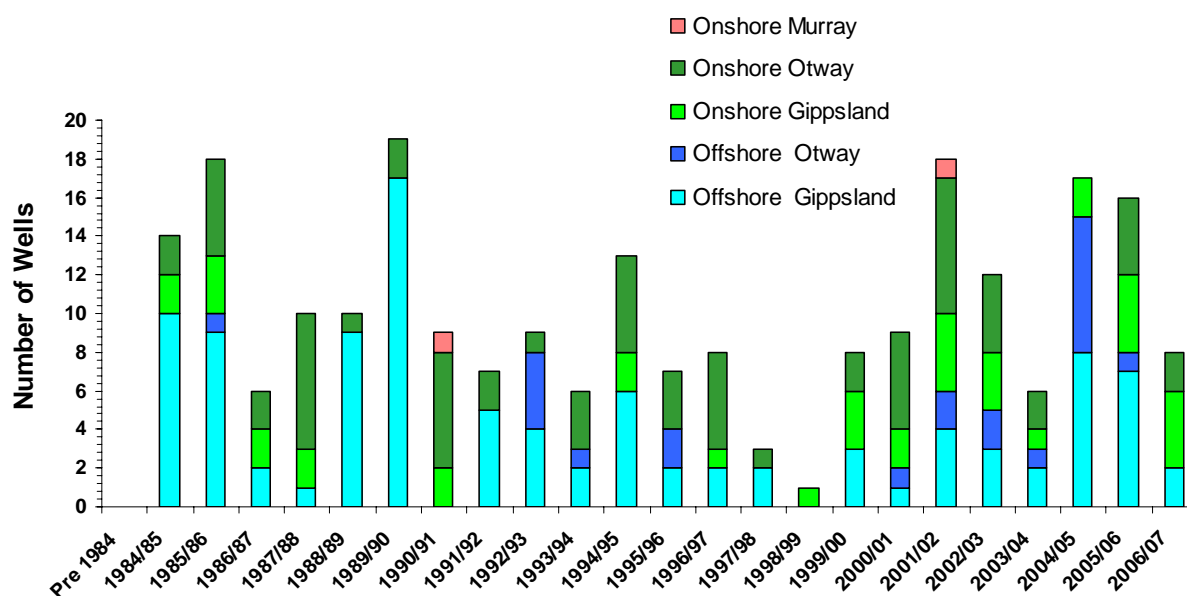
Source: DPI

Table 2.4 Historical Petroleum Exploration/Appraisal Wells: 1984/85 – 2006/07

Year	Offshore		Onshore			Total wells	Total drilled (m)
	Gippsland	Otway	Gippsland	Otway	Murray		
Pre 1984						381	
1984/85	10	0	2	2	0	14	29,223
1985/86	9	1	3	5	0	18	36,925
1986/87	2	0	2	2	0	6	9,282
1987/88	1	0	2	7	0	10	13,839
1988/89	9	0	0	1	0	10	29,871
1989/90	17	0	0	2	0	19	51,941
1990/91	0	0	2	6	1	9	9,893
1991/92	5	0	0	2	0	7	14,953
1992/93	4	4	0	1	0	9	21,255
1993/94	2	1	0	3	0	6	12,682
1994/95	6	0	2	5	0	13	27,563
1995/96	2	2	0	3	0	7	16,281
1996/97	2	0	1	5	0	8	17,112
1997/98	2	0	0	1	0	3	6,518
1998/99	0	0	1	0	0	1	1,743
1999/00	3	0	3	2	0	8	10,745
2000/01	1	1	2	5	0	9	17,712
2001/02	4	2	4	7	1	18	28,208
2002/03	3	2	3	4	0	12	17,463
2003/04	2	1	1	2	0	6	11,321
2004/05	8	7	2	0	0	17	43,680
2005/06	7	1	4	4	0	16	31,163
2006/07	2	0	4	2	0	8	20820
Total	101	22	38	71	2	615	480,193

Source: DPI

Graph 2.2 Exploration/Appraisal Wells: 1984/85 – 2006/07



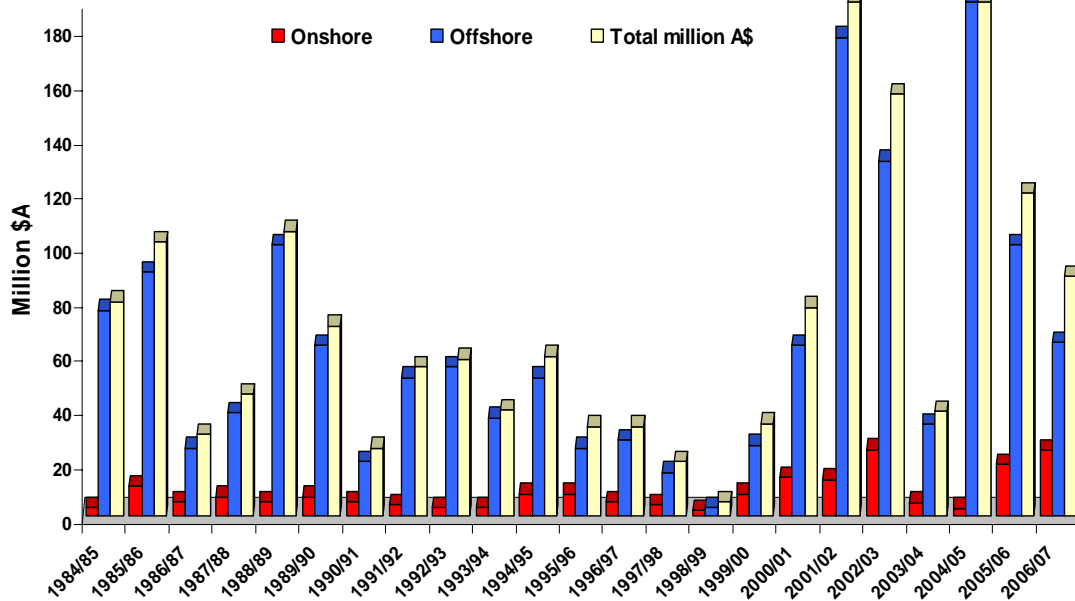
Source: DPI

Table 2.5 Exploration/Appraisal Drilling Expenditure (million \$A): 1984/85 – 2006/07

	Onshore	Offshore	Total
1984/85	3	76	79
1985/86	11	90	101
1986/87	5	25	30
1987/88	7	38	45
1988/89	5	100	105
1989/90	7	63	70
1990/91	5	20	25
1991/92	4	51	55
1992/93	3	55	58
1993/94	3	36	39
1994/95	8	51	59
1995/96	8	25	33
1996/97	5	28	33
1997/98	4	16	20
1998/99	2	3	5
1999/00	8	26	34
2000/01	14	63	77
2001/02	13	177	190
2002/03	25	131	156
2003/04	5	34	39
2004/05	3	193	195
2005/06	19	100	119
2006/07	24.3	64	88.3

Source: DPI

Graph 2.3 Petroleum Exploration/Appraisal Expenditure: 1984/85 – 2006/07



Source: DPI

Table 2.6 Development Wells (Offshore): July 2006 – June 2007

Region	Well	Field	Spud Date	Operator	Licence	Total Depth (m) MKB
Offshore Gippsland	WestKingfish 27A	WEST-KINGFISH	19-Jul-07	ESSO	VIC/L7	3,095
Offshore Gippsland	WestKingfish 21A	WEST-KINGFISH	15-Aug-06	ESSO	VIC/L7	2,952
Offshore Gippsland	WestKingfish W6A	WEST-KINGFISH	6-Sep-06	ESSO	VIC/L7	3,477
Offshore Gippsland	WestKingfish W23A	WEST-KINGFISH	11-Oct-06	ESSO	VIC/L7	3,338
Offshore Gippsland	Halibut A2B	HALIBUT	13-Dec-06	ESSO	VIC/L5	3,299
Offshore Gippsland	Halibut A24	HALIBUT	30-Jan-07	ESSO	VIC/L5	2,991
Offshore Gippsland	Halibut A16	HALIBUT	28-Feb-07	ESSO	VIC/L5	2,568
Offshore Gippsland	Halibut A23	HALIBUT	23-Mar-07	ESSO	VIC/L5	2,665
Offshore Gippsland	Halibut A5B	HALIBUT	24-Apr-07	ESSO	VIC/L5	3,006
Offshore Gippsland	Halibut A7A	HALIBUT	21-May-07	ESSO	VIC/L5	3,038
Offshore Gippsland	Fortescue A12A	FORTESCUE	13-Feb-07	ESSO	VIC/L5	4,040
Offshore Gippsland	Fortescue A10A	FORTESCUE	14-May-07	ESSO	VIC/L5	4,580
Offshore Gippsland	Fortescue A28B	FORTESCUE	12-Mar-07	ESSO	VIC/L5	4,021
Offshore Gippsland	Fortescue A6A	FORTESCUE	7-Jun-07	ESSO	VIC/L5	3,900
Total						46,970

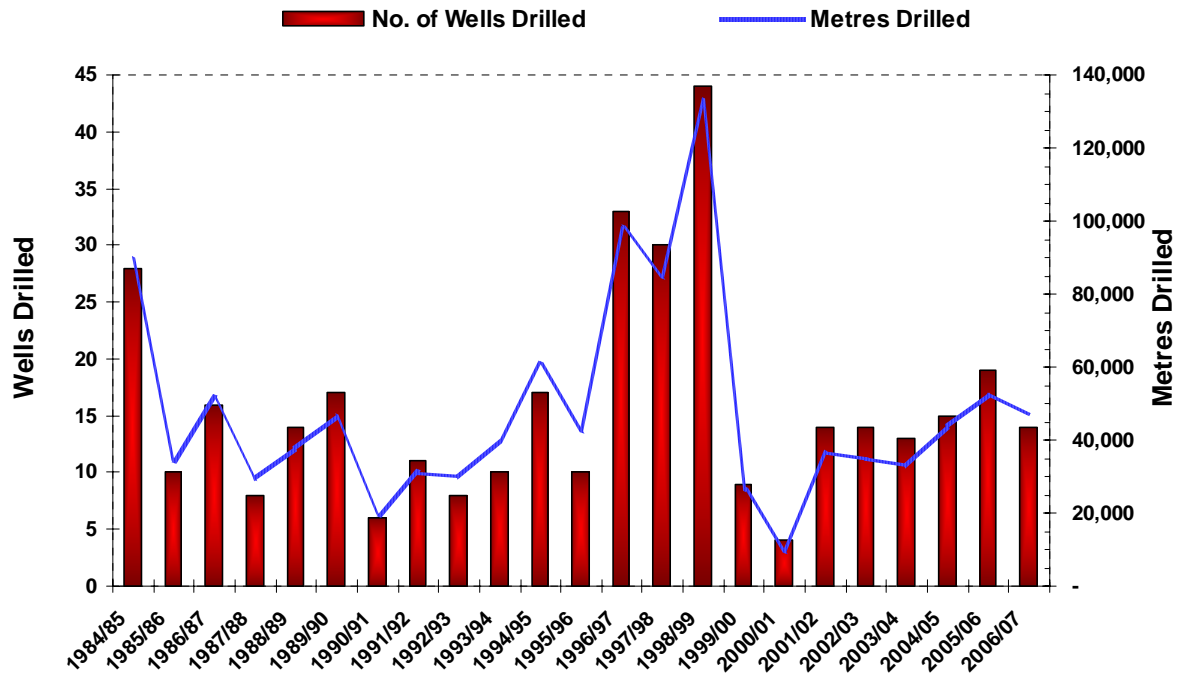
Source: DPI

**Table 2.7 Development Wells: 1984/85 – 2006/07**

<b>Year</b>	<b>No. of Wells Drilled</b>	<b>Annual Drilling (metres)</b>
Pre 1984	499	N/A
1984/85	28	89,664
1985/86	10	34,320
1986/87	16	51,221
1987/88	8	29,613
1988/89	14	37,783
1989/90	17	46,369
1990/91	6	19,551
1991/92	11	30,664
1992/93	8	30,021
1993/94	10	39,810
1994/95	17	60,469
1995/96	10	42,519
1996/97	33	97,678
1997/98	30	84,823
1998/99	44	133,166
1999/00	9	25,915
2000/01	4	9,644
2001/02	14	36,429
2002/03	14	34,600
2003/04	13	33,220
2004/05	15	43,966
2005/06	19	52,610
2006/07	14	46,970
<b>Total</b>	<b>834</b>	<b>1,111,025</b>

Source: DPI

Graph 2.4 Development Wells: 1984/85 – 2006/07



Source: DPI

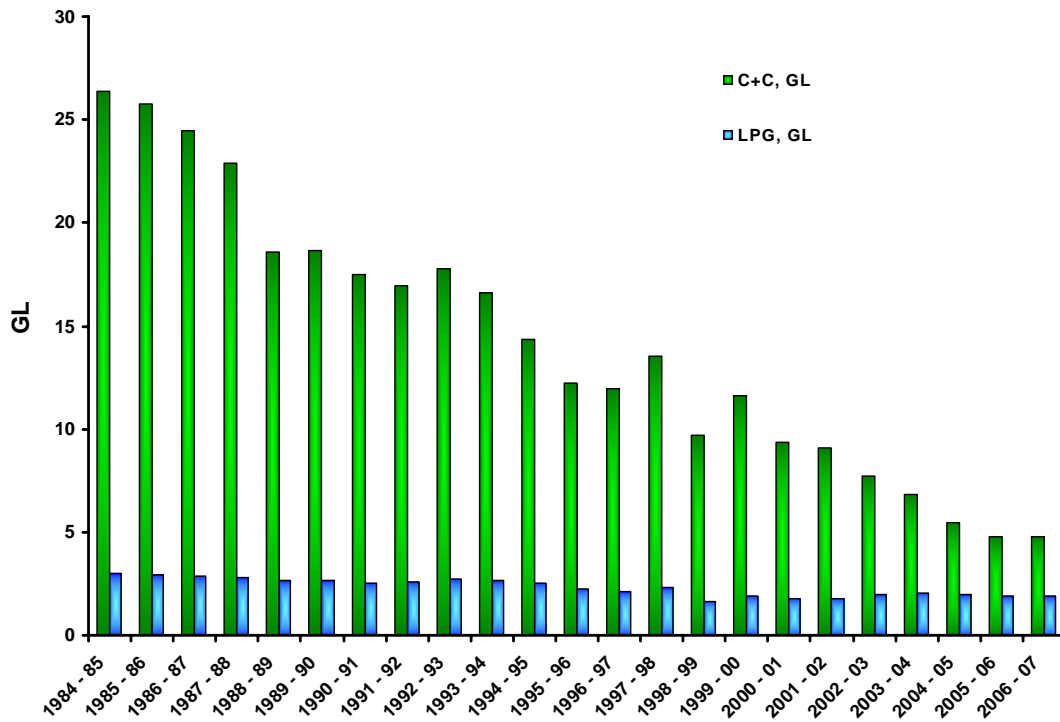
## 2.2 Production and Revenue

**Table 2.8 Annual Gippsland Basin Petroleum Production: 1968 – 2006/07**

Year	C+C	LPG	Gas
	GL	GL	Gm <sup>3</sup>
Prior 1984	290.20	34.30	51.20
1984 - 85	26.40	3.00	6.00
1985 - 86	25.78	2.97	5.79
1986 - 87	24.44	2.88	5.69
1987 - 88	22.87	2.83	5.65
1988 - 89	18.61	2.68	5.91
1989 - 90	18.68	2.69	6.71
1990 - 91	17.48	2.50	6.01
1991 - 92	16.97	2.57	6.26
1992 - 93	17.80	2.74	6.14
1993 - 94	16.60	2.66	6.05
1994 - 95	14.35	2.56	6.77
1995 - 96	12.26	2.25	6.65
1996 - 97	11.93	2.12	6.01
1997 - 98	13.56	2.29	6.12
1998 - 99	9.73	1.63	5.66
1999 - 00	11.60	1.89	5.56
2000 - 01	9.40	1.75	6.44
2001 - 02	9.06	1.80	6.49
2002 - 03	7.70	1.97	6.57
2003 - 04	6.83	2.04	7.67
2004 - 05	5.46	1.98	7.93
2005 - 06	4.81	1.92	7.20
2006 - 07	4.61	1.89	7.33
<b>Total</b>	<b>617.14</b>	<b>86.02</b>	<b>197.82</b>

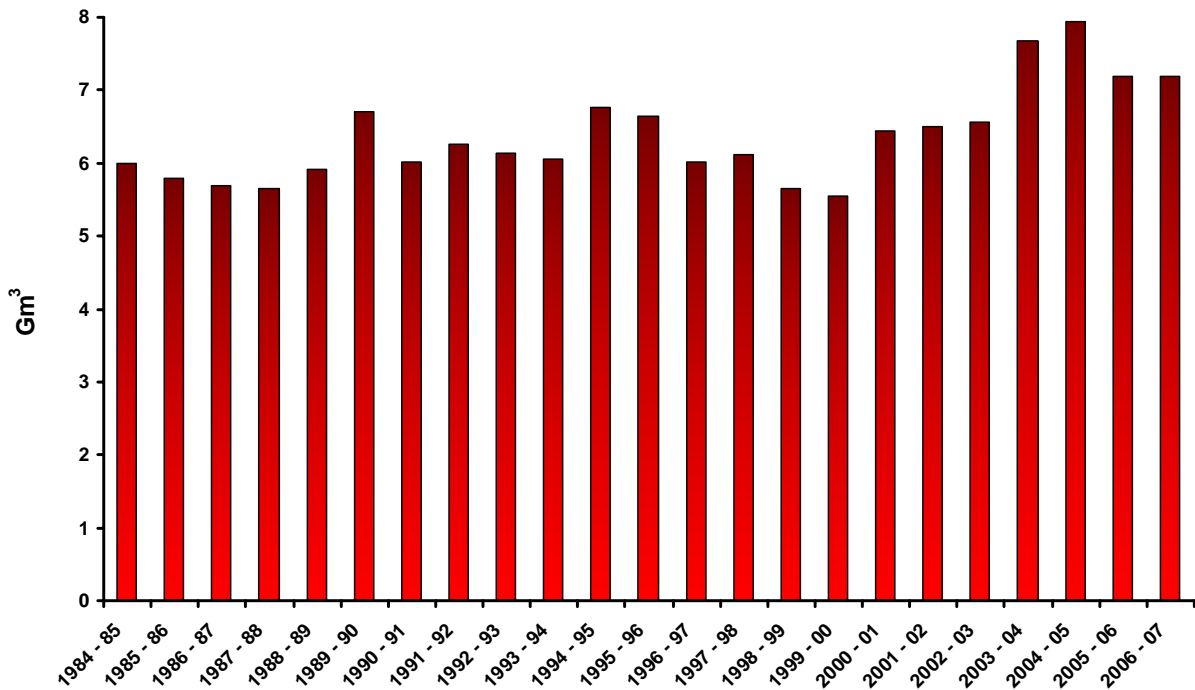
Source: Esso-BHPBilliton, OMV Australia Pty Ltd.

Graph 2.5 Gippsland Basin Historical Petroleum Production (excl. gas): 1984/85 – 2006/07



Source: DPI

Graph 2.6 Gippsland Basin Historical Gas Production: 1984/85 – 2006/07



Source: DPI



Table 2.9 Gross Gippsland Basin Petroleum Production: 2005/06 – 2006/07

ESSO / BHP Billiton Fields	2005/2006			2006/2007		
	C+C, GL	LPG, GL	Gas, Gm3	C+C, GL	LPG, GL	Gas, Gm3
Barracouta	0.073	0.158	0.885	0.089	0.190	1.080
Blackback	0.032	0.006	0.614	0.028	0.006	0.017
Bream	0.680	0.304	0.919	0.056	0.352	1.076
Cobia	0.282	0.018	0.003	0.260	0.016	0.002
Dolphin	0.084	0.006	0.003	0.067	0.005	0.003
Flounder	0.405	0.241	0.488	0.379	0.211	0.548
Fortescue	0.179	0.011	0.002	0.254	0.016	0.003
Halibut	0.308	0.019	0.005	0.460	0.027	0.006
Kingfish	0.304	0.029	0.014	0.314	0.033	0.015
Mackerel	0.131	0.017	0.003	0.166	0.021	0.003
Marlin	0.458	0.651	2.359	0.371	0.517	2.074
Moonfish	0.042	0.002	0.009	0.041	0.002	0.009
Perch	0.015	0.000	0.000	0.010	0.000	0.000
Seahorse	0.128	0.022	0.015	0.117	0.020	0.012
Snapper	0.249	0.281	1.855	0.299	0.343	2.327
S. Mackerel	0.000	0.000	0.000	0.000	0.000	0.000
Tarwhine	0.040	0.014	0.006	0.021	0.007	0.003
Tuna	0.503	0.050	0.011	0.390	0.043	0.091
Turrum	0.041	0.004	0.012	0.015	0.001	0.002
W. Kingfish	0.286	0.028	0.012	0.298	0.027	0.01
W. Tuna	0.572	0.056	0.053	0.480	0.052	0.047
<b>TOTAL</b>	<b>4.812</b>	<b>1.917</b>	<b>7.268</b>	<b>4.115</b>	<b>1.889</b>	<b>7.328</b>

Source : Esso-BHPBilliton

Table 2.10 Offshore Gippsland Oil and Gas Value 1995 – 2007

Year	Oil Production Rate (bbl/d)	Oil Yearly Production (Mbbl)	Oil Price US\$/bbl	Exchange Rates	Oil Price A\$/bbl	Oil Value (\$m)	Gas Production Rate (Mcf/d)	Gas Yearly Production (Bscf)	Gas Price A\$/GJ	Gas Value (\$m)	Oil and Gas Value (\$m)
1995	247,743.50	90.43	15.00	0.76	19.66	1,777.91	680.19	248.27	2.70	737.36	2,515.27
1996	210,908.47	76.98	17.00	0.78	21.78	1,676.42	683.31	249.41	2.70	740.74	2,417.17
1997	205,339.46	74.95	20.00	0.68	29.52	2,212.46	665.83	243.03	2.70	721.80	2,934.25
1998	233,480.71	85.22	18.00	0.62	28.81	2,455.56	687.70	251.01	2.70	745.50	3,201.06
1999	168,112.88	61.36	13.00	0.63	20.80	1,276.23	544.84	198.87	2.70	590.64	1,866.87
2000	200,053.58	73.02	17.00	0.53	31.98	2,335.27	538.78	196.66	2.70	584.07	2,919.34
2001	161,896.17	59.09	20.00	0.52	38.13	2,253.20	623.62	227.62	3.00	751.14	3,004.35
2002	156,174.75	57.00	25.00	0.59	42.46	2,420.58	628.27	229.32	3.00	756.75	3,177.33
2003	132,754.50	48.46	28.57	0.67	42.68	2,068.08	635.63	232.00	3.00	765.62	2,833.69
2004	117,785.50	42.99	32.00	0.71	45.07	1,937.65	734.73	268.18	3.00	884.99	2,822.64
2005	94,052.50	34.33	50.00	0.75	66.67	2,288.61	733.49	267.72	3.00	883.49	3,172.10
2006	83,000.00	30.30	65.00	0.74	87.84	2,661.05	750.00	273.75	3.00	903.38	3,564.42
2007	77,847.00	28.41	63.00	0.75	84.00	2,386.79	697.74	254.68	3.00	840.43	3,227.22

Price Source: (1995 - 2002) BP Statistical Review ([www.bp.com statistical review](http://www.bp.com/statistical-review))  
(2003) Australia Bureau of Agricultural and Resources Economics - Australian Commodity Statistics.

(2004) Estimated from South East Asia :[www.aseanenergy.org](http://www.aseanenergy.org) (Australian 42)

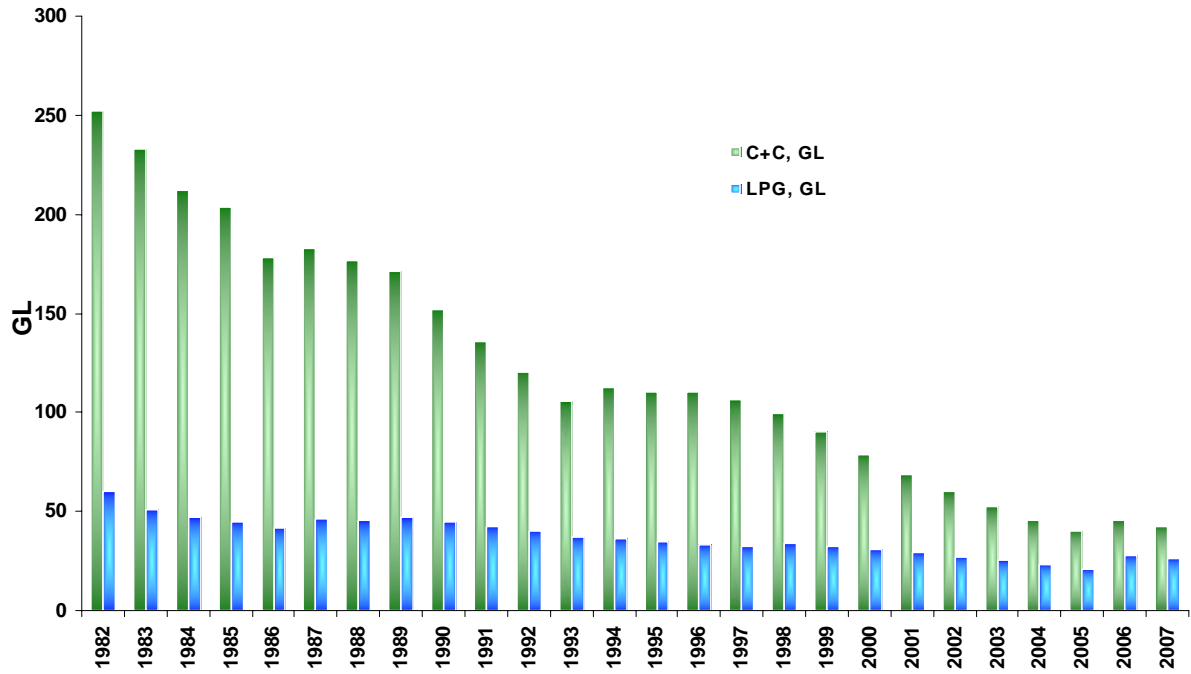
(2005) WTRG Economics

Note: The revenue figures are estimates based on the value of the petroleum using reference prices multiplied by production.

They are not used for taxation purposes.

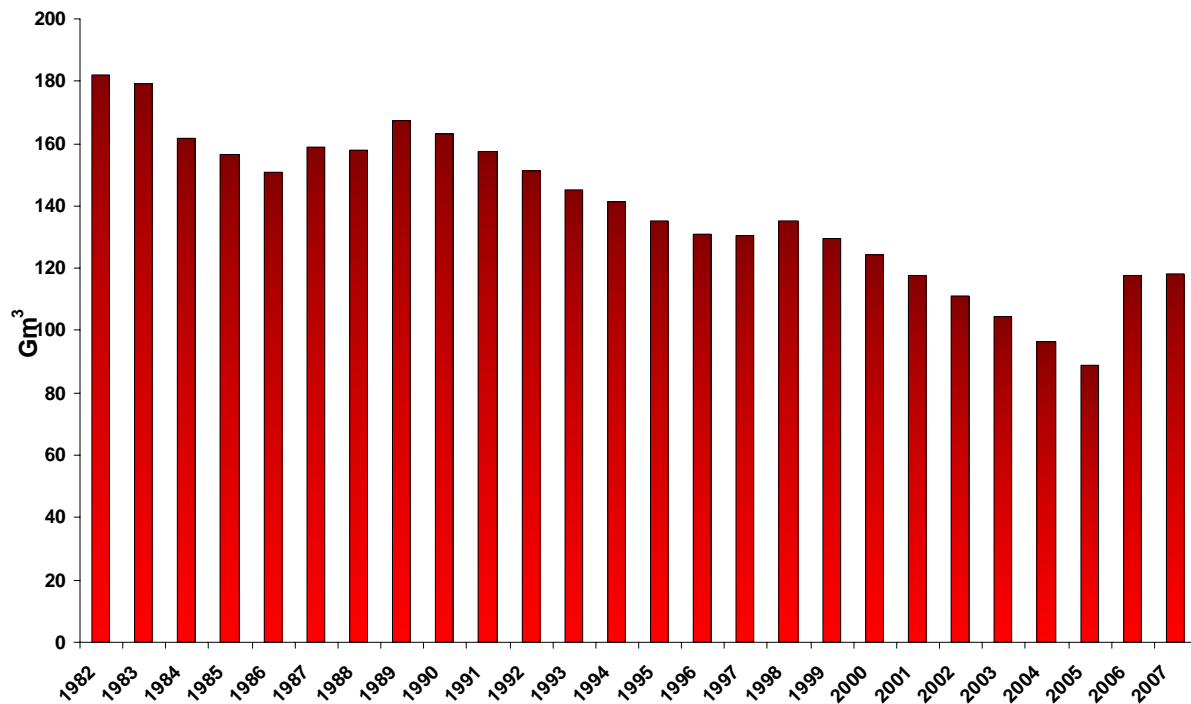
Exchange Rates Source: [http://www.rba.gov.au/Statistics/Bulletin/index.html#table\\_f](http://www.rba.gov.au/Statistics/Bulletin/index.html#table_f)

Graph 2.7 Gippsland Basin – Remaining Petroleum Reserves (excluding gas): 1982 – 2007



Source: DPI

Graph 2.8 Gippsland Basin – Remaining Gas Reserves: 1982 – 2007



Source: DPI

**Table 2.11a Gippsland Basin Cumulative Production And Remaining Reserves**

ESSO / BHP Billiton  Year	Initial Recoverable Reserves			Cumulative Production			Remaining Reserves		
	C+C, GL	LPG, GL	Gas, Gm3	C+C, GL	LPG, GL	Gas, Gm3	C+C, GL	LPG, GL	Gas, Gm3
1982	498.00	88.20	220.90	246.00	28.10	38.90	252.00	60.10	182.00
1983	499.10	81.70	224.20	266.30	31.10	44.90	232.80	50.60	179.30
1984	502.60	81.40	212.90	290.20	34.30	51.20	212.40	47.10	161.70
1985	520.40	82.30	213.60	316.60	37.30	57.20	203.80	45.00	156.40
1986	520.40	82.30	213.60	342.38	40.27	62.99	178.02	42.03	150.61
1987	549.70	89.10	227.50	366.82	43.15	68.68	182.88	45.95	158.82
1988	566.20	91.70	232.40	389.69	45.98	74.33	176.51	45.72	158.07
1989	579.50	95.90	247.70	408.30	48.66	80.24	171.20	47.24	167.46
1990	579.10	96.20	250.20	426.98	51.35	86.95	152.12	44.85	163.25
1991	580.00	96.40	250.50	444.46	53.85	92.96	135.54	42.55	157.54
1992	581.80	96.40	250.30	461.43	56.42	99.22	120.37	39.98	151.08
1993	585.20	96.20	250.50	479.23	59.16	105.36	105.97	37.04	145.14
1994	608.60	98.30	252.70	495.83	61.82	111.41	112.77	36.48	141.29
1995	620.20	99.30	253.50	510.18	64.38	118.18	110.02	34.92	135.32
1996	632.60	100.10	255.60	522.44	66.63	124.83	110.16	33.47	130.77
1997	640.60	101.10	261.50	534.37	68.75	130.84	106.23	32.35	130.66
1998	647.60	105.30	272.30	547.93	71.04	136.96	99.67	34.26	135.34
1999	647.60	105.30	272.30	557.69	72.67	142.60	89.91	32.63	129.70
2000	647.60	105.30	272.30	569.29	74.55	148.15	78.31	30.75	124.15
2001	647.60	105.30	272.30	578.66	76.31	154.62	68.94	28.99	117.68
2002	647.60	105.30	272.30	587.72	78.11	161.11	59.88	27.19	111.19
2003	647.60	105.30	272.30	595.43	80.08	167.76	52.17	25.22	104.54
2004	647.60	105.30	272.30	602.26	82.12	175.69	45.34	23.18	96.61
2005	647.60	105.30	272.30	607.72	84.10	183.62	39.88	21.20	88.68
2006	656.40	113.60	306.70	610.60	86.00	186.60	45.80	27.60	117.80
2007	657.70	114.10	311.90	615.10	87.90	193.50	42.60	26.20	118.40

Source: Esso - BHP

During 2005/06, the estimated Bass Strait oil, condensate, LPG and gas original reserves have all increased since 1982, with the discovery of some new reserves in existing and new fields. However, this increase in the original reserves has been modest, with an increase of 28% for crude oil and condensate, 14% for LPG and 18% for gas, as seen, when compared with the 1997 figures.

**Table 2.11b Gippsland Basin Cumulative Production And Remaining Reserves**

Baleen / Patricia	Initial Recoverable Reserves			Cumulative Production			Remaining Reserves		
	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3
2003 - 2004	0.00	0.00	1.30	0.00	0.00	0.43	0.00	0.00	0.87
2004 - 2005	0.00	0.00		0.00	0.00	0.33	0.00	0.00	0.54
2005 - 2006	0.00	0.00		0.00	0.00	0.19	0.00	0.00	0.35
2006 - 2007	0.00	0.00		0.00	0.00	0.16	0.00	0.00	0.19

Source: Santos Ltd.

**Table 2.11c Gippsland Basin Cumulative Production And Remaining Reserves**

Anzon Astralia Ltd Basker / Manta	Initial Recoverable Reserves			Cumulative Production			Remaining Reserves		
	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3
2005 -2006	9408.00	0.00	9.03	138.00	0.00	0.00	9270.0	0.00	9.03
2006 -2007				252.00	0.00	0.17	9018.0	0.00	8.84

Source: Anzon Australia Ltd

**Table 2.12 Onshore Otway Gas/Condensate, CO2 Production and CO2 Revenue: 2002 - 2007**

Year	Field Cum. Production Mm3	Condensate Production m3	Gas Production Mm3	Sales Gas Mm3	Tonnes of CO2 Sold	Revenue (Royalty) (A\$)
2003/04	144.8	9.6	19.8	10.0	18613.3	102,186.00
2004/05	164.6	9.6	19.2	11.4	21219.2	104,042.00
2005/06	184.1	9.6	19.5	13.4	24941.8	105,718.01
2006/07	203.7	2.2	19.6	15.5	28861.8	113,352.39

Source: DPI

Production: BOC Limited (CO<sub>2</sub>)

rc: DPI

**Table 2.13 Onshore Otway Basin CO2 Gas Reserves Status: June 2007**

Licence Area	Initial Reserves (Mm3)	Cumulative Production (Mm3)	Remaining Reserves (Mm3)
Boggy Creek (CO2 Producer)	396.4	203.7	192.7

Source: DPI

Note : Current Producing fields in the Port Campbell area consist of Boggy Creek and Iona.

The total gas inplace for undeveloped offshore gas fields - excluding Tasmanian fields - ( La Bella, Henry, Black Watch, Halladel, Martha and Geograph) is estimated at about 1090.9 billion cubic feet (Bcf) or 30.90 billion cubic metres (B m<sup>3</sup>), and including Tasmania fields (Thylacine, Yolla and white Ibris) 2940.0 Bcf or 83.3 Bm<sup>3</sup>.

\*\* Boggy Creek is primarily a CO2 producer.

**Table 2.14a Offshore Otway Basin Production & Remaining Reserves**

BHP Billiton  Minerva	Initial Recoverable Reserves			Production			Remaining Reserves		
	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3	C+C, ML	LPG, ML	Gas, Gm3
2005 -2006	0.00	0.20	8.39	0.00	0.03	1.46	0.00	0.17	6.93
2006 - 2007				0.00	0.04	1.08	0.00	0.13	5.85

Source: BHP Billiton

**Table 2.14b Offshore Otway Basin Production & Remaining Reserves**

Santos Ltd.  Casino	Initial Recoverable Reserves			Production			Remaining Reserves		
	C+C, ML	LPG, ML	Gas,Gm3	C+C, ML	LPG, ML	Gas, Gm3	C+C, kL	LPG, ML	Gas, Gm3
2005 - 2006	0.00	0.00	2.66	0.00	0.00	0.42	0.00	0.00	2.24
2006 - 2007						1.20	0.00	0.00	1.04

Source: Santos Ltd.

## 3. Minerals

### 3.1 Tenements

**Table 3.1 Exploration and Mining Licence Applications: 2006/07**

	Received	Granted	Withdrawn	Refused
New Exploration Licence Applications	96	89	1	11
Renewal Exploration Licence Applications	45	59	0	0
<b>Total Exploration Licence Applications</b>	<b>141</b>	<b>148</b>	<b>1</b>	<b>11</b>
New Mining Licence Applications	22	19	2	1
Renewal Mining Licence Applications	35	56	0	0
<b>Total Mining Licence Applications</b>	<b>57</b>	<b>75</b>	<b>2</b>	<b>1</b>

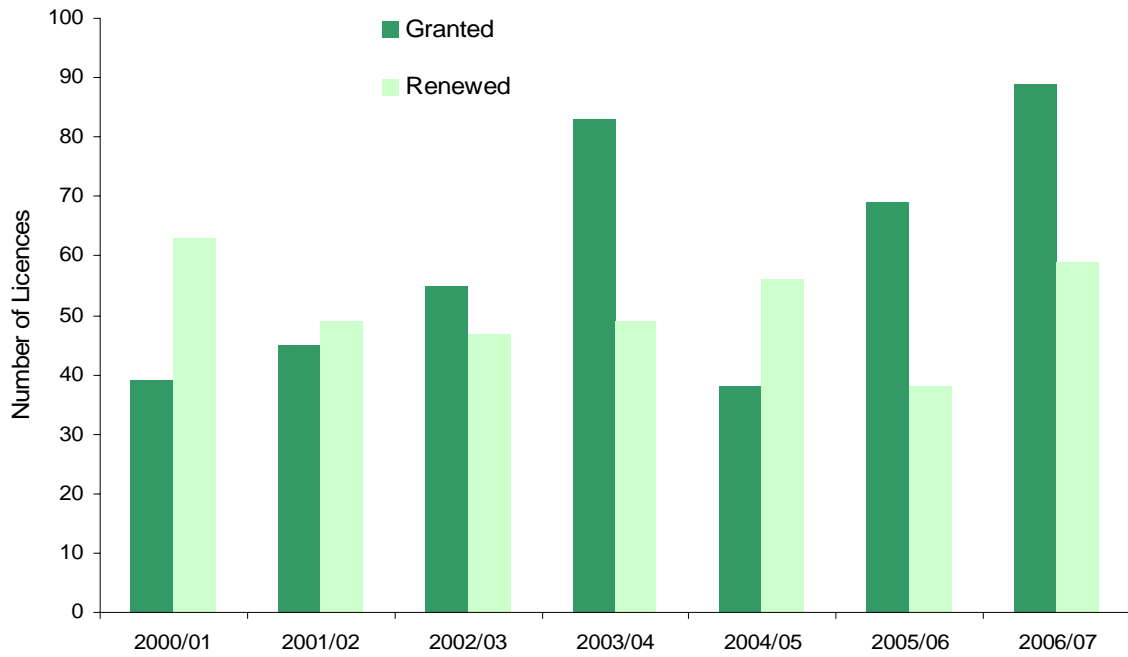
Source: DPI

**Table 3.2 Exploration and Mining Licences – Granted and Renewed: 2000/01 – 2006/07**

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Granted	39	45	55	83	38	69	89
Renewed	63	49	47	49	56	38	59
<b>Total Exploration Licences Granted and Renewed</b>	<b>102</b>	<b>94</b>	<b>102</b>	<b>132</b>	<b>94</b>	<b>107</b>	<b>148</b>
Granted	12	24	13	17	20	13	19
Renewed	22	25	26	39	29	22	56
<b>Total Mining Licences Granted and Renewed</b>	<b>34</b>	<b>49</b>	<b>39</b>	<b>56</b>	<b>49</b>	<b>35</b>	<b>75</b>

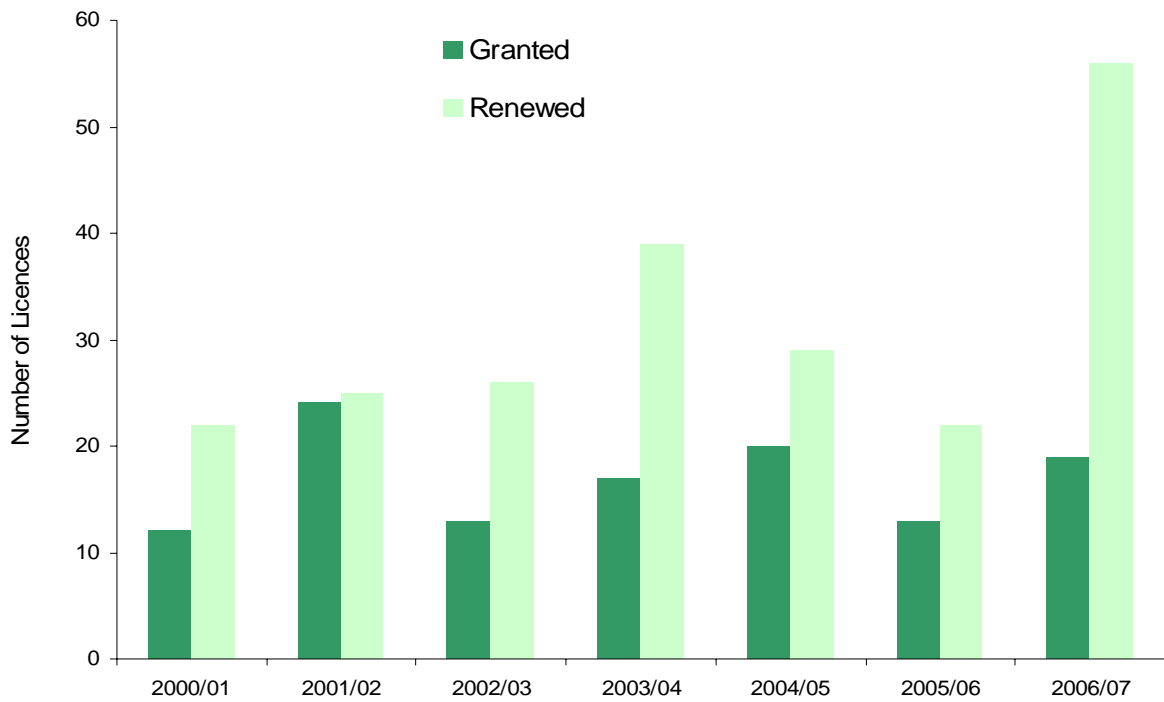
Source: DPI

**Graph 3.1 Exploration Licence Grants: 2000/01 – 2006/07**



Source: DPI

**Graph 3.2 Mining Licence Grants: 2000/01 – 2006/07**



Source: DPI

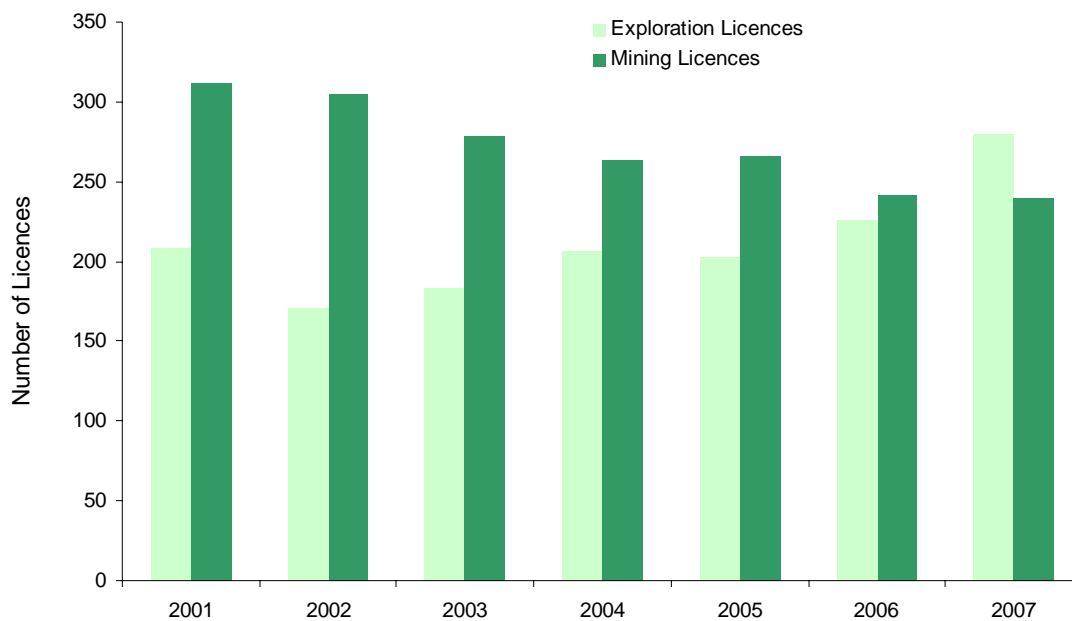


**Table 3.3 Current Exploration and Mining Licences at 30 June each year: 2001 – 2007**

Tenement	2001	2002	2003	2004	2005	2006	2007
Exploration Licences	209	170	184	207	203	226	280
Mining Licences	312	305	279	264	266	242	240
<b>Totals</b>	<b>521</b>	<b>475</b>	<b>463</b>	<b>471</b>	<b>469</b>	<b>468</b>	<b>520</b>

Source: DPI

The total areas covered by mining and exploration licences as at 30 June 2007 were 646 km<sup>2</sup> and 91,500 km<sup>2</sup> respectively.

**Graph 3.3 Current Exploration and Mining Licences as at 30 June each year: 2001 – 2007**

Source: DPI

### 3.2 Mineral Exploration and Mining Expenditure

The Australian Bureau of Statistics (ABS) reports quarterly on private mineral exploration expenditure for all the States and the Northern Territory (NT). Victorian mineral exploration and mining expenditure is also reported in accordance with the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA). The ABS exploration expenditure statistics can vary significantly from expenditure reported under the MRSDA. However, the ABS statistics are the only basis for comparison of Victorian expenditure with that of other States/NT and are generally preferred as a guide to exploration expenditure trends.

**Table 3.4 Expenditure on Mineral Exploration and Mining Development (\$A million):  
1998/99 – 2006/07**

	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
<b>Exploration (ABS)</b>	37.0	33.8	32.7	33.9	46.2	53.5	51.5	74.1	82.5
<b>Exploration (MRSDA)</b>	38.0	35.8	43.4	39.3	43.3	50.2	52.2	88.2	105.4
<b>Mining Development (MRSDA)</b>	174.0	188.3	195.5	213.5	258.2	274.4	469.9	553.0	527.8

Source: Figures collated from six monthly reports forwarded to DPI required by the MRSDA, and ABS: Actual and Expected Private Mineral Exploration (Catalogue No. 8412.0).

Notes: The MRSDA mining expenditure figures represent total expenditure; ie capital and operating; by commercial entities engaged in exploration and mining activity during the relevant periods.

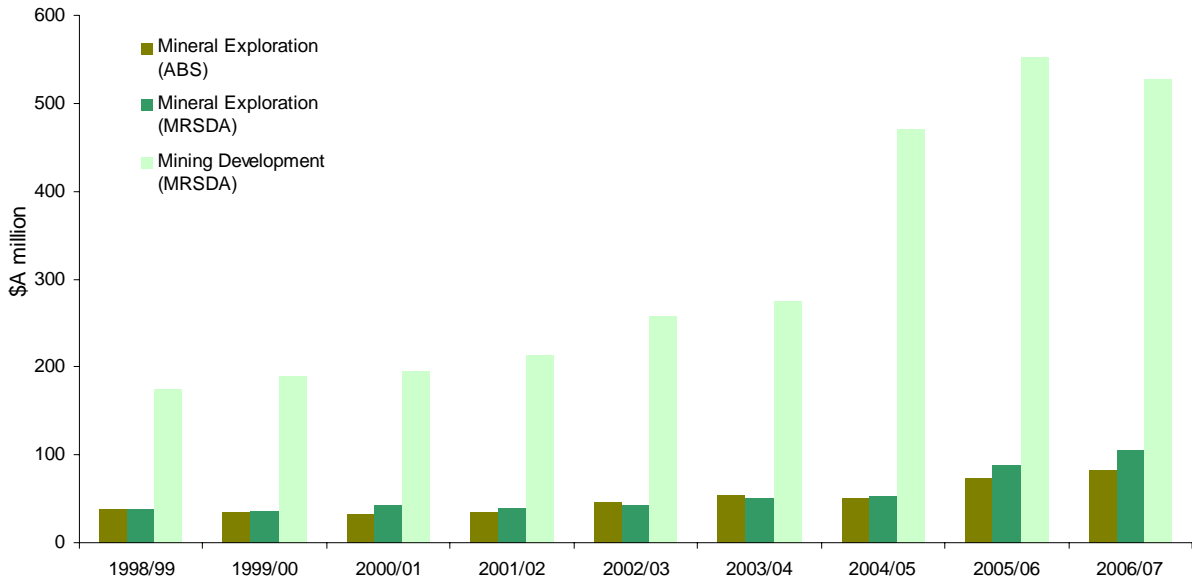
The MRSDA exploration expenditure figures include exploration expenditure on mining and exploration licences.

**Table 3.5 Mineral Exploration and Mining Development Expenditure by Sector (MRSDA):  
2006/07**

<b>Sector</b>	<b>Exploration (\$A million)</b>	<b>Mining Development (\$A million)</b>
<b>Brown Coal</b>	42	189.9
<b>Gold</b>	52	285.5
<b>Mineral Sands</b>	5.9	46.6
<b>Other</b>	5.5	5.8
<b>Total</b>	<b>105.4</b>	<b>527.8</b>

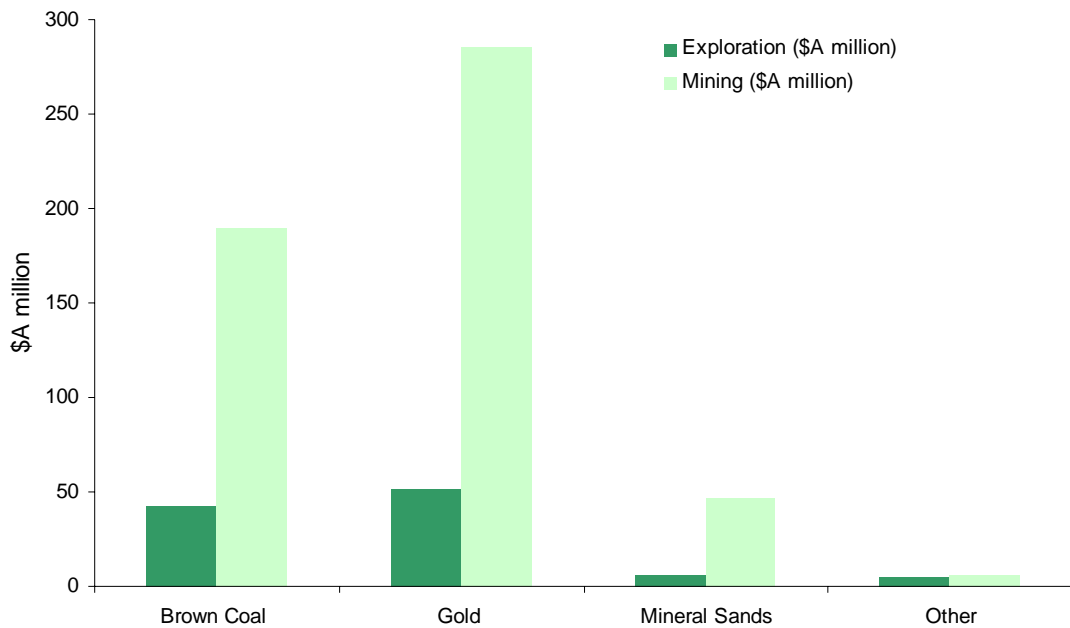
Source: DPI

**Graph 3.4 Expenditure on Mineral Exploration and Mining Development: 1998/99 – 2006/07**



Source: DPI

**Graph 3.5 Mineral Exploration and Mining Development Expenditure by Sector (MRSDA): 2006/07**



Source: DPI

### 3.3 Production

**Table 3.6 Mineral Production: 1984/85 – 2006/07**

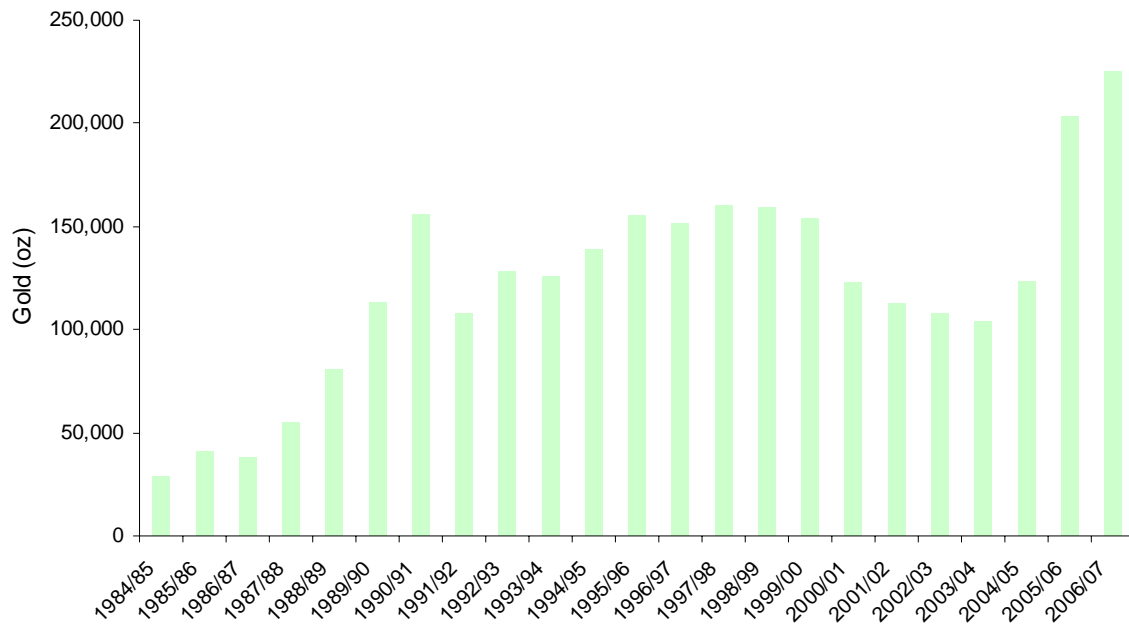
Year	Fuel Minerals	Metallic Minerals				Heavy Mineral Sands			Industrial Minerals		
	Brown Coal ('000 tonnes)	Gold (kg)	Gold (oz)	Copper Concentrate (tonnes)	Zinc Concentrate (tonnes)	Zircon (tonnes)	Rutile (tonnes)	Ilmenite (tonnes)	Feldspar (tonnes)	Gypsum (cubic metres)	Kaolin (tonnes)
1984/85	38,379	902	29,004	-	-	-	-	-	-	247,300	88,100
1985/86	36,069	1,272	40,901	-	-	-	-	-	-	138,800	35,900
1986/87	41,806	1,179	37,911	-	-	-	-	-	-	187,700	41,100
1987/88	44,288	1,719	55,274	-	-	-	-	-	-	203,100	100,800
1988/89	48,653	2,512	80,773	-	-	-	-	-	-	241,400	117,300
1989/90	45,960	3,515	113,025	-	-	-	-	-	-	301,500	168,900
1990/91	49,388	4,863	156,370	-	-	-	-	-	-	49,200	145,800
1991/92	50,717	3,346	107,591	-	-	-	-	-	-	53,100	87,800
1992/93	47,898	3,993	128,395	-	-	-	-	-	-	180,200	114,600
1993/94	49,683	3,917	125,960	16,287	1,012	-	-	-	-	176,800	105,400
1994/95	49,922	4,319	138,876	13,163	5,947	-	-	-	-	193,100	79,500
1995/96	54,281	4,838	155,550	1,338	6,384	-	-	-	-	198,667	55,065
1996/97	60,795	4,710	151,229	nil	nil	-	-	-	-	501,495	114,778
1997/98	65,274	4,979	160,122	nil	nil	-	-	-	25,703	479,820	166,100
1998/99	66,648	4,947	159,088	nil	nil	-	-	-	45,293	404,917	180,634
1999/00	67,363	4,790	154,043	nil	nil	-	-	-	46,162	462,806	201,436
2000/01	64,958	3,814	122,632	nil	nil	1,307	5,921	-	53,148	437,694	203,753
2001/02	66,661	3,492	112,283	nil	nil	4,043	21,328	30,627	56,757	600,931	202,370
2002/03	66,809	3,345	107,544	nil	nil	10,841	28,329	50,984	68,198	420,293	248,692
2003/04	66,343	3,240	104,188	nil	nil	4,645	11,239	19,978	69,552	439,906	251,392
2004/05	67,152	3,835	123,308	nil	nil	nil	nil	nil	75,683	346,522	189,237
2005/06	67,737	6,324	203,352	nil	nil	nil	nil	nil	69,876	416,294	149,218
2006/07	65,613	6,995	224,927	nil	nil	12,532	10,996	nil	76,187	235,266	170,727

Source: DPI – statutory returns under the MRSDA.

**Table 3.7 Mineral Production Values: 2006/07**

Mineral	Value (\$A million)
Brown Coal	1,016.3
Gold	176.6
Heavy Mineral Sands	19.4
Feldspar	5.8
Gypsum	3.2
Kaolin	3.7
<b>Total</b>	<b>1,225.0</b>

Source: DPI base on the Schedule 15 statutory reports supplied by Licensees.

**Graph 3.6 Gold Production: 1984/85 – 2006/07**

Source: DPI

**Table 3.8 Gold Producers (Production more than 100 kg): 2006/067**

Producer	Location	Licence	Production (kg)	Production (oz)	Estimated Value (\$A)*
Leviathan Resources Ltd	Stawell	MIN 5260	3,498	112,486	88,301,510
Perseverance Exploration Pty Ltd	Fosterville	MIN 5404	2,385	76,704	60,212,640
Bendigo Mining Ltd	Kangaroo Flat	MIN 5344	929	29,857	23,437,745
AGD Operations Pty Ltd	Costerfield	MIN 4644	156	5,002	3,926,570
<b>Total</b>			<b>6,968</b>	<b>224,049</b>	<b>175,878,465</b>
Other			27	878	689,230
<b>Total Production</b>			<b>6,995</b>	<b>224,927</b>	<b>176,567,695</b>

Source: DPI – statutory returns under the MRSDA.

Note: \*Based on the estimated gold price of \$A785/oz.

Table 3.9 Brown Coal Production (thousand tonnes): 1983/84 – 2006/07

YEAR	Maddingley Brown Coal Co. Bacchus Marsh	Alcoa Anglesea	SECV	Loy Yang	Yallourn	Hazelwood	Annual Total	Production Value* (\$A)
1983/84	80	1,066	32,052	-	-	-	33,198	-
1984/85	89	1,205	37,085	-	-	-	38,379	-
1985/86	60	1,119	34,890	-	-	-	36,069	-
1986/87	43	1,272	40,491	-	-	-	41,806	-
1987/88	45	1,173	43,070	-	-	-	44,288	-
1988/89	47	1,253	47,353	-	-	-	48,653	-
1989/90	22	1,067	44,871	-	-	-	45,960	-
1990/91	40	1,179	48,169	-	-	-	49,388	-
1991/92	40	1,175	49,502	-	-	-	50,717	-
1992/93	36	1,084	46,778	-	-	-	47,898	-
1993/94	31	1,093	48,559	-	-	-	49,683	-
1994/95	43	1,162	48,717	-	-	-	49,922	-
1995/96	40	836	-	25,000	17,460	10,945	54,281	434,248,000
1996/97	39	1,005	-	27,808	17,083	14,860	60,795	486,360,000
1997/98	28	1,030	-	29,766	17,924	16,525	65,274	522,192,000
1998/99	22	1,091	-	30,510	17,350	17,675	66,648	533,184,000
1999/00	4	926	-	30,865	16,098	19,470	67,363	538,904,000
2000/01	11	963	-	28,686	16,234	19,063	64,958	519,664,000
2001/02	10	1,069	-	30,949	15,650	18,982	66,661	533,287,000
2002/03	15	1,051	-	29,017	17,515	19,210	66,809	534,472,000
2003/04	18	1,107	-	29,577	16,585	19,056	66,343	530,744,000
2004/05	19	943	-	29,826	17,663	18,701	67,152	843,429,000
2005/06	22	1,101	-	30,937	16,933	18,743	67,737	850,776,720
2006/07	15	1,049	-	29,146	16,090	19,313	65,613	1,016,345,000

Source: DPI

Notes: \* Estimated value of \$A8/tonne has been used until 2003/04. In 2004/05 this value was re-assessed as \$A12.56/tonne. In 2006/07 the value has been estimated to be \$15.49/tonne.

## 4. Extractive Industry

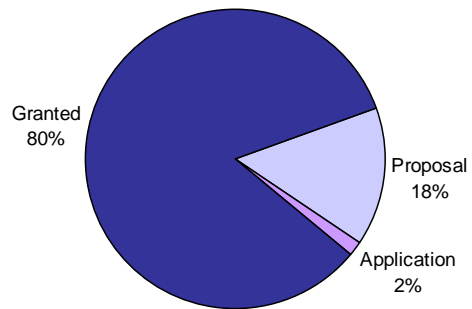
### 4.1 Work Authorities

Table and Graph 4.1 Status of Extractive Industry Work Authorities at 30 June 2007

Tenement	Proposal	Application	Granted
Work Authority	156	17	865

Source: DPI

Note: A Work Authority is granted under the *Extractive Industries Development Act 1995*.



### 4.2 Production

Table 4.2 Extractive Industries Production and Sales by Rock Type: 2006/07

Product Group	Product Type	Sales - volume (tonnes)	Sales - value (\$A)
Hard Rock	Basalt	17,216,938	237,183,257
	Dolerite	406,681	4,690,698
	Gneiss	1,642	31,806
	Granite	5,347,328	70,357,599
	Hornfels	4,300,388	61,609,053
	Quartzite	192,262	1,598,922
	Rhyodacite	2,402,117	34,782,671
	Schist	182,760	2,332,328
	Sedimentary	2,674,658	12,821,985
	Slate	13,771	470,033
<b>Hard Rock Total</b>		<b>32,738,544</b>	<b>425,878,352</b>
Soft Rock	Clay & clay shale	2,486,927	10,062,826
	Limestone	2,480,311	35,593,480
	Sand & gravel	13,070,237	163,474,328
	Scoria	1,055,381	16,292,081
	Soil	27,921	124,107
	Tuff	435,039	2,940,656
<b>Soft Rock Total</b>		<b>19,555,815</b>	<b>228,487,478</b>
<b>GRAND TOTAL</b>		<b>52,294,359</b>	<b>654,365,830</b>

Source: DPI – statutory returns under the *Extractive Industries Development Act 1995*.

Note: An estimated value is used where no data is supplied by the operator.

Only operations reporting under the *Extractive Industries Development Act 1995* are included in these figures.



Table 4.3 Extractive Industries Production and Sales by Products: 2006/07

Product Group	Product Type	Sales - volume (tonnes)	Sales - value (\$A)
Single size products	Aggregate	14,443,834	249,195,356
	Armour	367,967	5,065,617
<b>Single size products total</b>		<b>14,811,801</b>	<b>254,260,973</b>
Multi size products	Road base	7,824,400	105,372,634
	Road sub-base	10,217,503	88,750,830
	Fill	6,202,070	27,044,531
<b>Multi size products total</b>		<b>24,243,973</b>	<b>221,167,996</b>
Sand products	Concrete sand	6,943,599	104,484,711
	Foundry sand	137,065	4,003,300
	Fine sand	2,155,148	21,694,359
	Industrial	34,555	306,339
	Glass sand	200,000	6,000,000
<b>Sand products total</b>		<b>9,470,367</b>	<b>136,488,709</b>
Limestone Products	Cement	984,381	8,049,070
	Agriculture	485,613	11,600,756
	Lime	93,519	6,770,834
	Flux	1,920	47,000
<b>Limestone products total</b>		<b>1,565,433</b>	<b>26,467,660</b>
Clay products	Brick	1,012,498	3,754,217
	Firebricks	190	1,900
	Stoneware	1,744	34,880
	Tile/pipe	52,517	201,691
<b>Clay products total</b>		<b>1,066,949</b>	<b>3,992,688</b>
Miscellaneous	Dimension stone	33,170	1,398,638
	Unspecified	1,102,666	10,589,167
<b>Miscellaneous total</b>		<b>1,135,836</b>	<b>11,987,805</b>
<b>GRAND Total</b>		<b>52,294,359</b>	<b>654,365,830</b>

Source: DPI – Statutory returns under the *Extractive Industries Development Act 1995*.

Note: Only operations reporting under the *Extractive Industries Development Act 1995* are included in tables 4.2 and 4.3.

**Table 4.4 Dimension Stone Production: 1998/99 – 2006/07**

	1998/99 (tonnes)	1999/00 (tonnes)	2000/01 (tonnes)	2001/02 (tonnes)	2002/03 (tonnes)	2003/04 (tonnes)	2004/05 (tonnes)	2005/06 (tonnes)	2006/07 (tonnes)
Basalt	0	19,063	20,868	18,803	12,419	13,864	13,875	21,552	27,280
Granite	2,572	3,462	943	1,058	1,993	1,600	879	636	797
Sandstone	1,295	343	103	492	185	258	1090	5,059	4,214
Slate	1,058	538	938	613	617	548	2,382	334	879
<b>TOTAL</b>	<b>4,925</b>	<b>23,406</b>	<b>22,852</b>	<b>20,966</b>	<b>15,214</b>	<b>16,270</b>	<b>18,226</b>	<b>27,581</b>	<b>33,170</b>

Sources: Operators, DPI records and statutory returns under the *Extractive Industries Development Act 1995*.

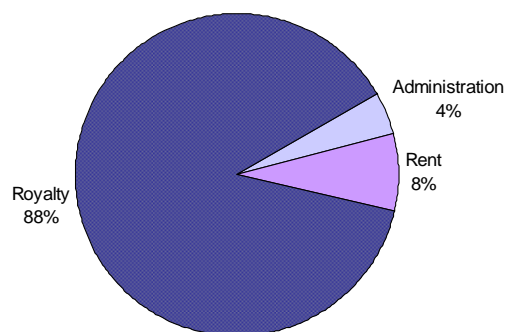
Note: In 2006/07 dimension stone production increased to 33,170 tonnes which is largely due to increases in basalt production.

## 5. Governance

### 5.1 Regulation, Revenue and Enforcement

Table and Graph 5.1 Minerals, Extractive and Petroleum Revenue: 2006/07

Revenue Stream	Revenue (\$A million)
Administration fees	1.8
Rent	3.3
Royalty	37.7
<b>Total</b>	<b>42.8</b>

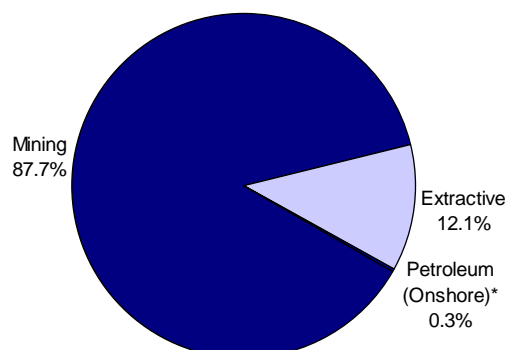


Source: DPI

Note: Royalty collected for the production/sales reported in the year ending 30/6/07.

Table and Graph 5.2 Minerals, Extractive and Petroleum Royalty – by Sector: 2006/07

Sector	Revenue (\$A million)
Mining	33.04
Extractive	4.55
Petroleum (Onshore)*	0.10
<b>Total</b>	<b>37.69</b>



Source: DPI

\*Includes some calendar year payments.

Table 5.3 Rehabilitation Bonds by Sector – Value (\$A million): June 2000 – June 2007

Date	Mineral Exploration	Mining	Extractive	Total
Jun-00	1.3	53.3	22.8	77.3
Jun-01	1.2	57.4	31.4	90.1
Jun-02	1.1	57.5	34.5	93.1
Jun-03	1.1	57.0	37.5	95.7
Jun-04	1.2	65.6	39.2	105.9
Jun-05	1.8	66.3	47.5	115.5
Jun-06	2.3	66.7	49.4	118.5
Jun-07	2.8	73.7	57.5	134.0

Source: DPI

**Table 5.4 Rehabilitation Bond Reviews: 2006/07**

Number of Bonds Reviewed	Result of Bond Review		
	Bond Increase	No Change	Bond Decrease
258	65	190	3

Source: DPI

Note: DPI has a program of regular bond review for active sites. Bonds are reviewed every one to six years depending on the risk associated with the operation.

**Table 5.5 Mines and Quarries Explosives and HCDG Licence and Permit Applications and Grants: 2001 – 2007**

	2001	2002	2003	2004	2005	2006	2007
Licence to Use Applications	40	28	38	21	164*	57	75
Licence to Use Issued	21	17	29	30	119*	57	75
Licence to Store Applications	66	8	8	4	2	23	28
Licence to Store Issued	67	10	6	3	2	23	28
Licence to Manufacture Applications	4	11	4	1	1	0	4
Licence to Manufacture Issued	11	12	3	0	1	0	4
HCDG Licence Applications	N/a	N/a	N/a	N/a	N/a	1	6
HCDG Licence Issued	N/a	N/a	N/a	N/a	N/a	1	6
Permit UAHCDG Applications	N/a	N/a	N/a	N/a	N/a	7	39
Permit UAHCDG Issued	N/a	N/a	N/a	N/a	N/a	7	39

indicate industry demands for various types of explosives licences.

Source: DPI

\*Include a number of licences renewed under the new *Dangerous Goods (Explosives) Regulations 2000* (reg. 704).

**Table 5.6 Enforcement and Compliance Activities 2006/07**

Site Visits	1225
Inspections	256
Completed Compliance Audits	274
Complaints Received	107
OH&S Act Improvement Notices Issued	45
EIDA Notices Issued	39
Investigations Initiated	93
OH&S Act Prohibition Notices Issued	21
MRDA Notices Issued	3
Work plans & Variations Administration	198
Management of Rehabilitation Liabilities (inc Bond Reviews)	335

Source: DPI

Notes:

Notices/Directions and Improvement Notices: Legal directions issued to an employer (operator), that require actions to be undertaken within a specified time.

Prohibition Notices: Legal directions issued to an employer, prohibiting specified activity until issue is remedied.

## 5.2 Occupational Health and Safety

**Table 5.7 Minerals Safety Statistics by Sector: 2006/07**

Sector	Employed*	Hours Worked	Days Lost	Lost Time Injuries (LTIs)	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
Metalliferous O/C	270	399,422	53	3	8.0	1.1	17.7	132.69	
Metalliferous U/G	1,409	2,130,749	149	16	8.0	1.1	9.3	69.93	
Non Metalliferous	639	408,006	0	0	0	0	0	0	
Coal	968	1,516,340	163	7	5.0	0.7	23.3	107.50	1
Exploration	347	255,882	7	2	8.0	0.6	3.5	27.36	1
Extractive	3,504	3,810,874	145	12	3.1	0.3	12.1	38	
<b>Total</b>	<b>7,137</b>	<b>8,521,272</b>	<b>517</b>	<b>40</b>	<b>4.7</b>	<b>0.6</b>	<b>12.9</b>	<b>61</b>	<b>2</b>

Source: DPI – returns made under the MRSDA.

Notes:

O/C – Open Cut

U/G – Underground

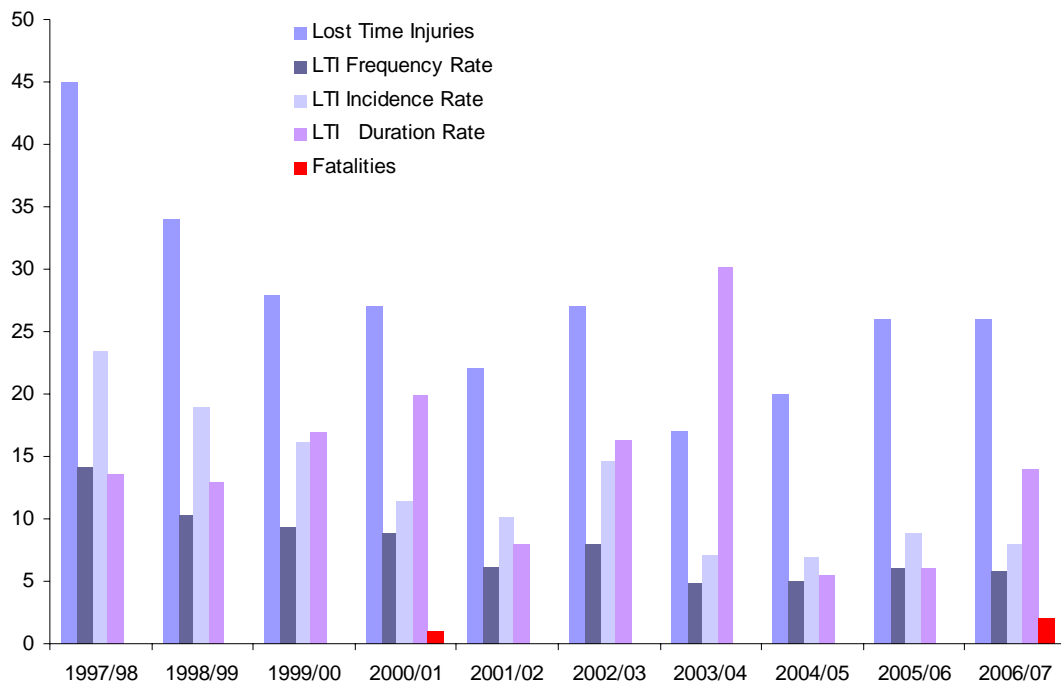
\* Annual average number of person employed as reported.

**Table 5.8 Mining Safety Statistics: 1994/95 – 2006/07**

Operation	Lost Time injuries (LTI's)	Employed*	Days Lost	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
1994/95	24	-	-	18.7	-	-	-	0
1995/96	26	-	-	20.0	-	-	-	0
1996/97	50	-	-	16.0	-	-	-	0
1997/98	45	-	612	14.1	23.4	13.6	192.2	0
1998/99	34	1782	444	10.2	19.0	13.0	133.1	0
1999/00	28	1742	474	9.4	16.1	16.9	158.0	0
2000/01	27	2365	537	8.8	11.4	19.9	176.4	1
2001/02	22	2175	176	6.1	10.1	8.0	48.7	0
2002/03	27	1855	440	8.0	14.6	16.3	130.6	0
2003/04	17	2395	482	4.9	7.1	30.1	144.0	0
2004/05	20	2902	109	5.0	6.9	5.5	27.3	0
2005/06	26	2930	148	6.0	8.9	6.0	33.9	0
2006/07	26	3286	365	5.8	7.9	14.0	81.9	2

Source: DPI – returns made under the *Mineral Resources (Sustainable Development) Act 1990*.

Note: \*Annual average number of persons employed as reported.

**Graph 5.3 Mining Lost Time Injury and Fatality Statistics: 1997/98 – 2006/07**

The mining industry recorded 26 Lost Time Injuries with a LTIFR of 5.8 in 2006/07, almost identical to that achieved in the previous year. Two fatalities were recorded in this period.

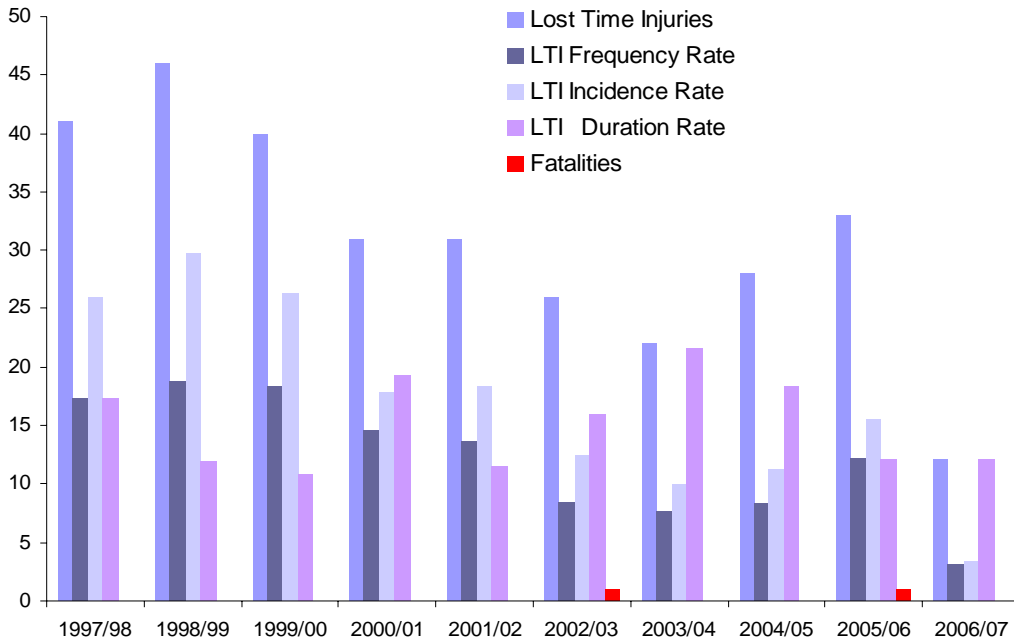
**Table 5.9 Extractive Industry Safety Statistics: 1994/95 – 2006/07**

Year	Lost Time injuries (LTI's)	Employed*	Days Lost	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
1994/95	32	-	-	20.2	-	-	-	nil
1995/96	28	-	-	13.4	-	-	-	nil
1996/97	30	-	-	20.6	-	-	-	nil
1997/98	41	-	710	17.3	26	17.3	282	nil
1998/99	46	1542	550	18.7	29.8	11.9	223.7	nil
1999/00	40	1520	436	18.4	26.3	10.9	200.8	nil
2000/01	31	1741	597	14.6	17.8	19.3	281.2	nil
2001/02	31	1690	355	13.7	18.3	11.5	156.5	nil
2002/03	26	2096	417	8.5	12.4	16	137.2	1
2003/04	22	2218	475	7.7	9.9	21.6	165.7	nil
2004/05	28	2472	512	8.3	11.3	18.3	151.4	nil
2005/06	33	2110	397	12.2	15.6	12	146.4	1
2006/07	12	3504	145	3.1	3.4	12.1	38	nil

Source: DPI

Note: \* Annual average number of person employed as reported.

**Graph 5.4 Extractive Industry Safety Statistics: 1997/98– 2006/07**



The mining industry recorded 12 Lost Time Injuries with a LTIFR of 3.1 in 2006/07. This is a big improvement from previous years.

## Appendix A: Glossary

**ABS:** Australian Bureau of Statistics

**EIDA:** *Extractive Industries Development Act 1995*

**Employment:** Annual average of number of person employed as reported by title holders

**HCDG:** high consequence dangerous goods

**Lost Time Injuries (LTI):** Occurrences that resulted in a fatality, permanent disability or time lost from work of one day/shift or more

**Lost Time Injury Frequency Rate (LTIFR):** The number of occurrences of lost time injury for each one million hours worked

**Lost Time Injury Incidence Rate:** The number of lost time injuries per thousand employees

**Lost Time Injury Duration Rate:** The average days lost for every lost time injury

**MRSDA:** *Mineral Resources (Sustainable Development) Act 1990*

**OHS Act 2004:** *Occupational Health and Safety Act 2004*

**PSLA 1967:** *Petroleum (Submerged Lands) Act 1967 (Commonwealth)*

**PSLA 1982:** *Petroleum (Submerged Lands) Act 1982 (Victoria)*

**Severity Rate:** The number of days lost for each one million hours worked

**Work authority:** A title granted under the *Extractive Industries Development Act 1995*

## Appendix B: Abbreviations, Symbols and Conversions

<b>\$A</b>	dollar (Australian)
<b>\$A/GJ</b>	dollar (Australian) per gigajoule
<b>\$m</b>	million dollars (Australian)
<b>\$US</b>	dollar (United States)
<b>bbl</b>	barrel ( 42 US Gallons; 158.987 L)
<b>bbl/d</b>	barrels per day
<b>Bm<sup>3</sup></b>	billion (10 <sup>9</sup> ) cubic metres
<b>Bscf</b>	billion (10 <sup>9</sup> ) cubic feet (0.0283 Gm <sup>3</sup> )
<b>C+C</b>	crude oil and condensate
<b>cond.</b>	condensate
<b>GL</b>	gigalitre (10 <sup>9</sup> L; 6.29 Mbbbl)
<b>Gm<sup>3</sup></b>	billion (10 <sup>9</sup> ) cubic metres (35.336 Bscf)
<b>kL</b>	kilolitre (10 <sup>3</sup> L)
<b>L</b>	litre
<b>LPG</b>	Liquefied petroleum gas
<b>ML</b>	megalitre (10 <sup>6</sup> L)
<b>Mbbl</b>	million barrels
<b>Mcf/d</b>	Million cubic feet per day
<b>MIN</b>	Mining licence granted under the <i>Mineral Resources (Sustainable Development) Act 1990</i>
<b>Mm<sup>3</sup></b>	million cubic metres
<b>oz</b>	Troy ounce (31.1 g)



