Statistical Review 2010-2011

Victoria's Minerals, Petroleum and Extractive Industries

State Government Victoria

DEPARTMENT OF PRIMARY INDUSTRIES

earth resources

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Introduction

The 2010/2011 Statistical Report provides an overview of Victoria's earth resources industry – namely the petroleum, geothermal, minerals and extractive industries – and includes data on production, exploration, expenditure and licensing. The report is the most comprehensive public document available for these sectors in Victoria and is relevant to anyone involved in or interested in the earth resource industries.

In Victoria during 2010/2011, production returns were received from the following earth resource industries:

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

The Earth Resources Regulation Branch of the Department of Primary Industries is responsible for the regulation of the minerals, extractive, petroleum, pipelines, geothermal and carbon storage industries in Victoria and Off shore waters. The Branch provides a consistent and transparent tenement management regime, together with operational compliance and enforcement activities that ensure industry complies with their regulatory obligations and meets community expectations.

The Earth Resources Regulation Branch administers the following legislation:

- *Mineral Resources (Sustainable Development) Act 1990*
- *Off shore Petroleum and Greenhouse Gas Storage Act 2006* (as the Designated Authority under Commonwealth legislation)
- *Petroleum (Submerged Lands) Act 1982 (Vic)*
- *Petroleum Act 1998*
- *Pipelines Act 2005*
- *Geothermal Energy Resources Act 2005*
- *Greenhouse Gas Geological Sequestration Act 2008.*

Petroleum and Geothermal

Definition of Petroleum under the *Petroleum Act 1998* (Act No. 96/1998)

(1) Petroleum is:

(a) any naturally occurring hydrocarbon (whether in a gaseous, liquid or solid state); or

(b) any naturally occurring mixture of hydrocarbons (whether in a gaseous, liquid or solid state); or

(c) any naturally occurring mixture of one or more hydrocarbons (whether in a gaseous, liquid or solid state), and one or more of the following: hydrogen sulphide, nitrogen, helium or carbon dioxide.

(2) For the purpose of this Act:

(a) petroleum includes any petroleum as defined by sub-sections 1(a), (b) or (c), and any petroleum product specified by the regulations for the purposes of this section, that has been returned to a reservoir in Victoria; but

(b) petroleum does not include any naturally occurring hydrocarbon, or mixture of hydrocarbons, within a deposit of coal or oil shale.

2.1 Petroleum and Geothermal Tenements

2.1.1 Petroleum

Victoria's petroleum exploration and production is concentrated in the Otway and Gippsland Basins. The Gippsland Basin has produced approximately two thirds of Australia's cumulative oil production and one third of its gas production to date.

Work continued in 2010 -11 on the ExxonMobil/BHP Billiton Kipper, Tuna and Turrum fields in the Off shore Gippsland Basin. Nearly $3 billion is budgeted to the development of these fields. Together, they will develop approximately 1.6 trillion cubic feet of gas and 140 million barrels of hydrocarbon liquids.

ExxonMobil made a discovery in this period when LongTom South East -1 well intersected a hydrocarbon column in Vic/L9

In the April 2011 acreage release, the Victorian Minister for Energy and Resources offered for tender one area On shore and two areas Off shore in the Otway Basin and four areas Off shore in the Gippsland Basin. Tenders were scheduled to close for all areas on 13 October 2011.

2.1.2 Geothermal

In conjunction with Lakes Oil Greenearth Energy conducted a magneto-telluric (MT) geological survey across GEP's 12 and 13. The survey consisted of a total of 37 stations which made recordings at a spacing of approximately 1km running NNW to SSE across the Latrobe Valley from the north of Glengarry to the south of Gormandale. The survey was an attempt to better image the basin structure beneath the thick tertiary coals than had been previously possible.

Under the Rediscover Victoria drilling fund, Granite Power drilled a 400m hole in the On-Shore Gippsland Basin to investigate basal heatflow for potential Engineered Geothermal System resources in Geothermal Exploration Permit 11 West Gippsland.

Geothermal Exploration Permits (GEP) Application Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
GEP Application Received	Nil	11	Nil	Nil	Nil
GEP Granted	Nil	11	Nil	Nil	Nil

On shore Petroleum Exploration Permits (PEP) Application Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PEP Application Received	3	Nil	Nil	Nil	4
PEP Granted	2	1	Nil	Nil	1

Off shore Joint Authority Petroleum Exploration Permits (VIC/P) Application Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/P Application Received	4	1	Nil	Nil	Nil
VIC/P Granted	3	1	1	Nil	Nil

On shore Production Licences (PPL) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PPL Application Received	2	Nil	Nil	Nil	Nil
PPL Granted	2	Nil	Nil	Nil	Nil

Off shore Joint Authority Production Licences (VIC/L) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/L Application Received	2	2	Nil	Nil	Nil
VIC/L Granted	1	3	1	Nil	Nil

On shore Pipeline Licences (PL) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PL Application Received	4	1	Nil	Nil	2
PL Granted	4	2	1	Nil	Nil

Off shore Joint Authority Pipeline Licences (VIC/PL) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
(VIC/PL) Application Received	1	1	0	3	Nil
(VIC/PL) Granted	Nil	1	1	3	Nil

On shore Petroleum Retention Lease (PRL) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PRL Application Received	1	Nil	Nil	Nil	Nil
PRL Granted	2	Nil	1	Nil	Nil

Off shore Petroleum Retention Lease VIC/RL(V) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/RL(V) Application Received	Nil	1	Nil	Nil	Nil
VIC/RL(V) Granted	Nil	Nil	1	Nil	Nil

Off shore Joint Authority Petroleum Retention Lease VIC/RL Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/RL Application Received	Nil	Nil	Nil	Nil	Nil
VIC/RL Granted	Nil	Nil	Nil	Nil	Nil

On shore Special Access Authority (PSAA) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PSAA Application Received	2	Nil	Nil	1	Nil
PSAA Granted	2	Nil	Nil	1	Nil

Off shore Joint Authority Special Prospecting (VIC/SP) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/SP Application Received	1	Nil	Nil	Nil	Nil
VIC/SP Granted	1	Nil	Nil	Nil	Nil

Off shore Joint Authority Access Authority (VIC/AA) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
VIC/AA Application Received	9	3	Nil	2	Nil
VIC/AA Granted	9	3	Nil	2	Nil

On shore Special Drilling Authority (PSDA) Applications Received and Granted

2006/2007 - 2010/2011

	2006/07	2007/08	2008/09	2009/10	2010/11
PSDA Application Received	Nil	Nil	Nil	Nil	1
PSDA Granted	Nil	Nil	Nil	Nil	Nil

Current Petroleum and Geothermal Tenements as at 30 June 2011

Geothermal Exploration Permits (GEP)

Tenement	Number of GEP
GEP	23

Petroleum Tenements

Exploration Permits (P)

Tenement	Number of Permits
On shore	7
Off Shore (Vic)	Nil
Off Shore Joint authority	11

Pipeline Licences (PL)

Tenement	Number of Licences
On shore	214
Off Shore (Vic)	13
Off Shore Joint authority	39

Production Licences (L)

Tenement	Number of Licences
On shore	13
Off Shore (Vic)	nil
Off Shore Joint authority	29

Retention Leases (RL)

Tenement	Number of Leases
On shore	3
Off Shore (Vic)	2
Off Shore Joint authority	3

2.2 Exploration and Development

Petroleum activities through the financial year 2010/2011 are summarised below:

2.2.1 Drilling

On shore

No petroleum drilling activities took place On shore for the financial year 2010/2011.

Off shore

Exploration Wells

Two exploration wells were drilled through the financial year 2010/2011 in the areas administered by the Victorian Department of Primary industries compared to one well drilled during the same period last year.

Of the two exploration wells drilled in Gippsland Off shore areas, one intersected a gas column. The discovery is considered commercially sensitive. The other well was a dry well and is currently plugged and abandoned.

Development Wells

Two development wells were drilled in 2010/2011 compared to 17 wells drilled during the same period last year.

Table 2.1.1: Summary of Wells Drilled for the Year 2010/11

Activity	Exploration wells	Development wells	Total	Comments
Drilling	2	2	4	

Table 2.1.2: History of the Number of Exploration Wells Drilled from 1984

Year	Off shore		On shore			Total wells
	Gippsland	Otway	Gippsland	Otway	Murray	
Pre 1984	-	-	-	-	-	381
1984/85	10	0	2	2	0	14
1985/86	9	1	3	5	0	18
1986/87	2	0	2	2	0	6
1987/88	1	0	2	7	0	10
1988/89	9	0	0	1	0	10
1989/90	17	0	0	2	0	19
1990/91	0	0	2	6	1	9
1991/92	5	0	0	2	0	7
1992/93	4	4	0	1	0	9
1993/94	2	1	0	3	0	6
1994/95	6	0	2	5	0	13
1995/96	2	2	0	3	0	7
1996/97	2	0	1	5	0	8
1997/98	2	0	0	1	0	3
1998/99	0	0	1	0	0	1
1999/00	3	0	3	2	0	8
2000/01	1	1	2	5	0	9
2001/02	4	2	4	7	1	18
2002/03	3	2	3	4	0	12
2003/04	2	1	1	2	0	6
2004/05	8	7	2	0	0	17
2005/06	7	1	4	4	0	16
2006/07	2	0	4	2	0	8
2007/08	6	2	0	2	0	10
2008/09	5	1	0	1	0	7
2009/10	1	0	1	0	0	2
2010/11	2	0	0	0	0	2
Total 1984-2011	**115**	**25**	**39**	**74**	**2**	**255**
Grand Total						**636**

Table 2.1.3: History of the Number of Development Wells Drilled

Year	No. of Wells Drilled
Pre 1984	499
1984/85	28
1985/86	10
1986/87	16
1987/88	8
1988/89	14
1989/90	17
1990/91	6
1991/92	11
1992/93	8
1993/94	10
1994/95	17
1995/96	10
1996/97	33
1997/98	30
1998/99	44
1999/00	9
2000/01	4
2001/02	14
2002/03	14
2003/04	13
2004/05	15
2005/06	19
2006/07	14
2007/08	14
2008/09	9
2009/10	17
2010/11	2
Total	**905**

2.2.2 Geophysical Surveys

Two seismic surveys were planned to be undertaken through the financial year 2010/2011 in Victorian administered waters. One was undertaken and the other was cancelled due to environmental concerns relating to Blue Whales in survey the area.

Astrolabe 3D seismic survey

Origin Energy Resources Limited (Origen Energy) planned a 550 km2 3D seismic survey, Astrolabe, 30 km southwest of Cape Otway in the Otway Basin. The survey was planned for November – December 2011. It was halted for multiple business reasons. Among other reasons, environmental concerns relating to Blue Whales in the survey area which means restricted time of the year to acquire the survey, the survey did not commence.

Speculant 3D Transition Zone Seismic Survey

Origin Energy conducted the Speculant 3D transition zone seismic survey between November and December 2010. The survey included both marine and land seismic acquisition activities in the Otway Basin across a coastal area southeast of Warrnambool (Fig. 2.1.1).

Geokinetics, a global seismic service provider, was contracted to undertake the survey over an area of 35.8 km2. Figure 2.1.2 illustrates the final outline of the survey area in relation to permits VIC /RL2 (v) and SPA1(v) Off shore and PPL10 and PSAA5 On shore .

Figure 2.1.1: Proposed Speculant Survey Location with respect to regional townships and petroleum activities (image courtesy of Origin Energy).

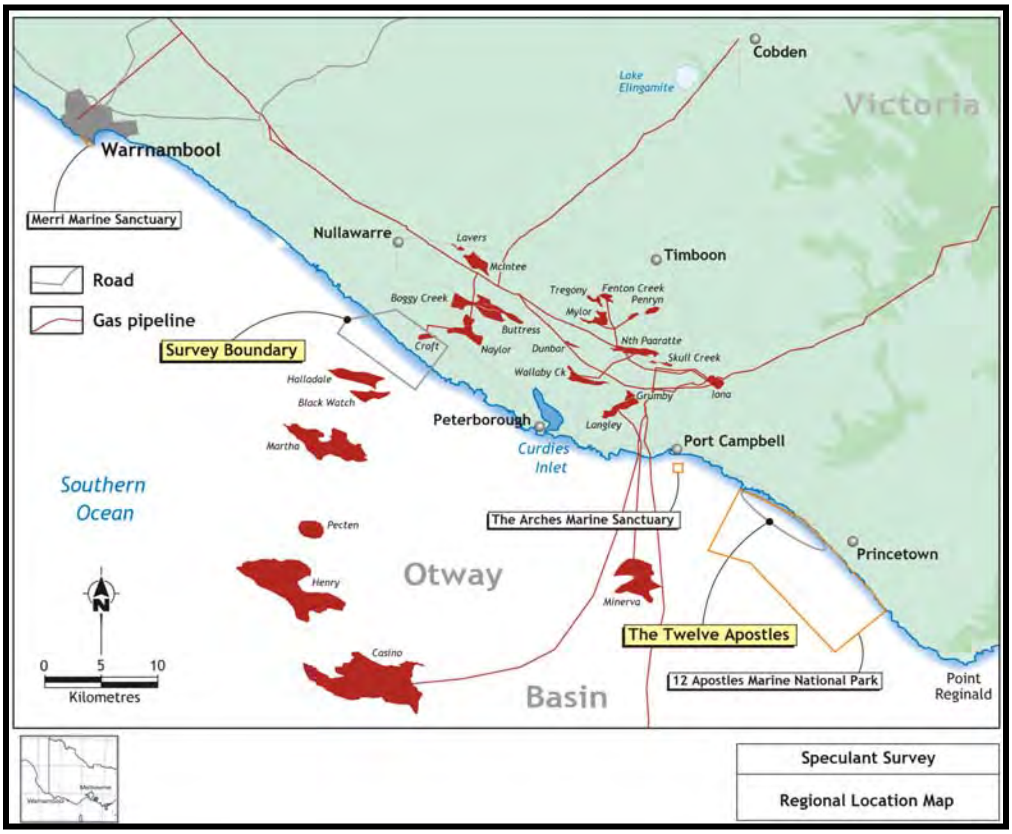
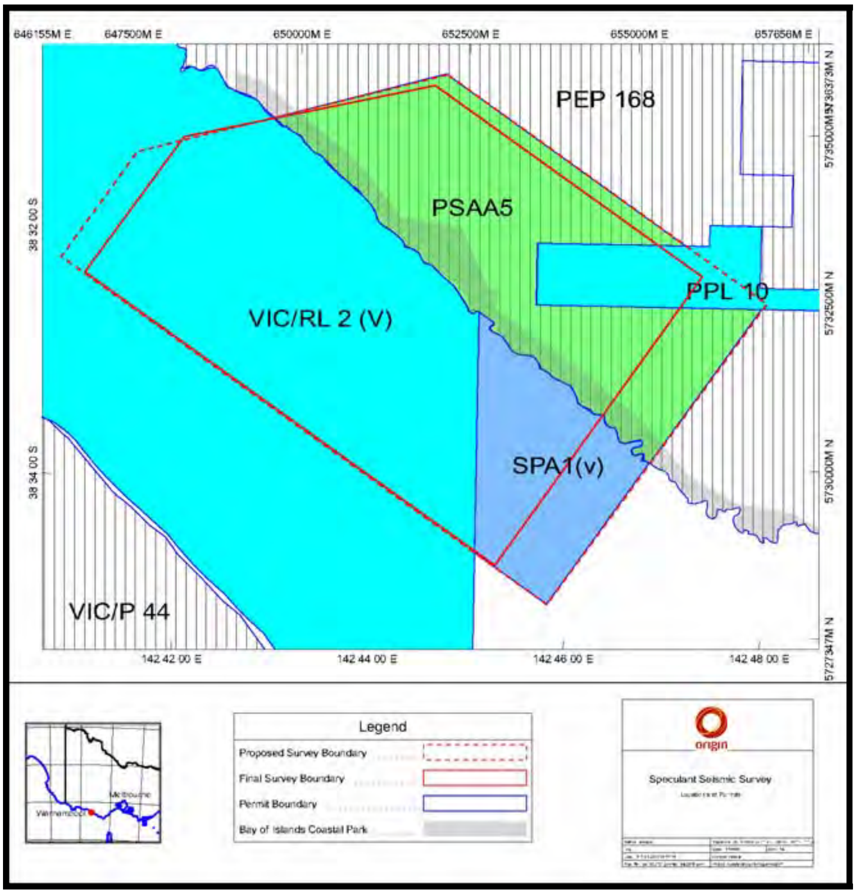


Figure 2.1.2: Speculant Survey permit areas (image courtesy of Origin Energy).



2.2.3 Major Petroleum Activities

ExxonMobil

Undertook the following activities in Off shore Gippsland:

- Kipper Tuna Turrum Project is currently one of the largest domestic gas Developments. The $4 billion project will develop cleaner-burning natural gas supplies to help secure Victoria's energy future, The Kipper facility construction is expected to be complete in 2012, while Turrum is expected to be completed in 2013.
  - The Kipper field will be developed via subsea facilities tied back to the existing West Tuna platform.
  - The Turrum field will be developed via new platform, Marlin B, will be constructed and linked by a bridge to the existing Marlin A platform.
  - The Tuna field, which has been producing for many years, will be further developed to produce gas and associated liquids.
- Six major workovers
- Two plug and abandonments
- 104 wire-line intervention activities
- Drilled two exploration wells and two development wells

- Undertook production activities from Production Licences it operates in Bass Strait.

TRUenergy

Undertook the following activities:

- A workover to repair the safety valve in Iona-2
- Two bottom hole water samples were collected from Iona Obs-1 and Obs-2.
- Recoding of flowing bottom hole pressure in NP-4.

Beach Energy

Undertook an extended flow test on Wombat-2

- The test started with an initial rate of approximately 2 MMscf/d. Over the twelve day period the flow rate declined to a final flow of 0.5 MMscf/d against a flowing wellhead pressure of 45psia prior to shut in on 29 December 2010.
- During the test a total of 9 million standard cubic feet of gas was flared during the flow period.

Bass Strait Oil Company Ltd

Undertook the following activities over the period July 2010 to June 2011:

- Vic/P41 Simultaneous Inversion of the Oscar 3D seismic volume; Basin Modelling project
- Vic/P42 seismic interpretation and mapping to prepare prospects and leads inventory and prepare for seismic reprocessing
- Vic/P47 preparation to reprocess (Simultaneous Seismic Inversion) the Moby and a portion of the Northern Fields 3D seismic volumes
- Vic/P66 Basin Modelling project
- PEP167 seismic interpretation of the Windermere 3D and preparation of the Windermere-3 Operations Plan

Rock Oil Company Limited

Conducted the following activities:

- Field shut-in August 2010
- The Floating, Production, Storage and Off take Facility FPSO Crystal Ocean departed the field in April 2011 following preparation work for the non production phase
- Basker Spirit Shuttle Tanker had been previously demobilised plans are proceeding for subsea deconstruct activities at the end of 2011 or early 2012, when the floating equipment will be removed from the field together with any equipment not planned to be used in any future field development.

2.2.4 Hydrocarbon Discovery

The wild cat well South East LongTom-1 on Vic/L9 intersected a hydrocarbon column; it was spudded on 5th November 2010 by ExxonMobil Australia Pty Ltd.

This discovery is considered commercially sensitive by the parent company, ExxonMobil, and therefore no details are given in this report.

2.3 Production

2.3.1 Hydrocarbon Production

The production of crude oil and condensate from the Gippsland Basin has been declining for almost three decades; this is associated with a gradual increase in the water cut. This profile is expected because of the extensive production and natural depletion of the reservoirs.

Hydrocarbon production from Gippsland Basin remained strong, though there was a decrease compared to the previous financial year:

- Crude oil and condensate production was 3.34 GL compared to 4.00 GL produced during the same period of the previous financial year.
- LPG is 1.50 GL compared to 1.62 GL produced during the previous financial year.
- Gas produced 7.27 Gm3 compared to 5.50 Gm3 during previous financial year.

The hydrocarbon production remains strong in Gippsland due to continuous infill drilling in the developed fields to replace old wells and work over undertaken to renew the down hole equipment of old wells and open new zones.

Major gas fields continue to produce after four decades with noticeable potential for the discovery of new hydrocarbon resources or the development of known reservoirs.

Table 2.2.1: Summary of Gippsland Off shore Production figures for the Year 2010/11

Operators	Oil + Condensate (bbl)	Gas (MMscf)	LPG (bbl)	Comments
Anzon	21,333.00	1,120.00		Basker, Manta and Gummy
LongTom	136,380.00	13,022.00		
ExxonMobil	21,006,686.18	256,823.65	9,436,347.92	see table 7 for ExxonMobil fields
Basin Total	**21,164,399.18**	**270,965.65**	**9,436,347.92**	**-**

Table 2.2.2: Summary of Otway Off shore Production figures for the Year 2010/11

Field	Condensate (bbl)	Gas (MMscf)	LPG (bbl)	Comments
Casino	7,053	11,844	-	-
Henry	5,493	4,138		
Netherby	18,626	22,709		
Minerva	57,249	21,893	-	-
Basin Total	**88,421**	**60,584**	**-**	**-**

Table 2.2.3: Summary of Otway On shore Production and Injection figures for the Year 2010/11

Field	Condensate (bbl)	Gas Prod. (MMscf)	Gas Inj. (MMscf)	Comments
Iona	1537.91	7,620.10	7072.96	Gas storage
Boggy Creek	Negligible	569.35		CO2
Basin Total	**1,537.91**	**8,189.45**	**7,072.96**	

Table 2.2.4: Gippsland Production and Injection Figures for the Financial Year 2010/11 – ExxonMobil

Platform	Oil & Cond (bbl)	GAS (MMscf)	LPG (bbl)	WATER (bbl)
Blackback	0.00	0.00	0.00	0.00
Bream A	1,338,089.29	22,255.03	881,976.83	1,982,118.79
Bream B	1,533,093.89	13,154.66	581,713.20	613,655.33
Barracouta	543,154.87	38,379.90	1,140,306.84	1,115.25
Cobia	2,066,076.63	141.77	124,464.81	23,681,360.67
Dolphin	107,247.24	26.78	7,139.70	2,094,515.08
Flounder	1,366,353.24	10,209.30	669,028.78	12,665,837.83
Fortescue	874,379.57	77.29	44,465.10	18,260,897.05
Halibut	917,301.38	69.37	52,101.07	15,588,180.42
Kingfish A	582,045.98	86.86	60,280.10	18,447,161.40
Kingfish B	701,578.38	211.69	72,254.13	21,085,414.65
Moonfish	941,600.45	988.28	42,720.83	1,210,802.64
Mackeral	688,454.75	100.52	81,733.01	19,387,626.21
Marlin	2,132,727.36	72,029.25	2,967,150.53	0.00
Perch	101,442.25	15.76	1,502.09	1,655,234.07
Seahorse	172,427.67	10.32	8,465.77	840,632.69
South Mackeral	0.00	0.00	0.00	0.00
Snapper	2,334,099.18	95,294.75	2,268,567.37	3,159,015.64
Tuna	1,704,526.13	2,376.95	166,786.81	8,665,680.52
Turrum	80,601.85	23.60	3,427.53	9,350.95
West kingfish	1,171,865.27	210.76	126,085.46	15,848,715.17
Whiting	0.00	0.00	0.00	0.00
West tuna	1,649,620.81	1,160.82	136,177.94	5,154,340.48
ExxonMobil total	**21,006,686.18**	**256,823.65**	**9,436,347.92**	**170,351,654.87**

Table 2.2.5: ExxonMobil total injection figures for Gippsland Fields for the financial year 2010/2011

Platform	Oil & Cond (bbl)	GAS (MMscf)	LPG (bbl)	WATER (bbl)
Mackeral - inj	0.00	0.00	0.00	0.00
Tuna - inj	0.00	3900.26	0.00	0.00
Turrum - inj	0.00	4335.46	0.00	0.00
West tuna - inj	0.00	39031.30	0.00	0.00
Bta - inj	0.00	0.00	0.00	0.00
ExxonMobil total - inj	**0.00**	**47267.02**	**0.00**	**0.00**

Table 2.2.6: History of Gippsland Annual Petroleum Production Figures - ExxonMobil

Year	O+C, GL	LPG, GL	Gas, Gm3
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
2007 - 08	4.50	1.88	7.29
2008 - 09	4.35	1.63	7.23
2009- 10	4.00	1.62	5.50
2010-11	3.34	1.50	7.27

Figure 2.2.1: History of the Total Annual Production for Bass Strait of Crude & Condensate, Liquid Petroleum Gas and Gas

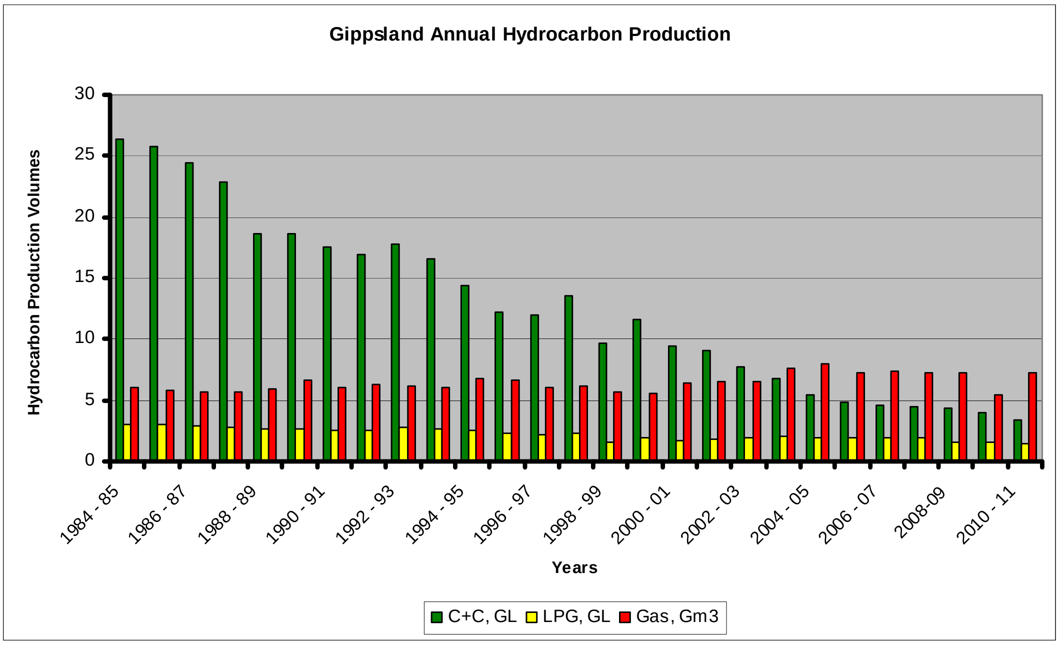
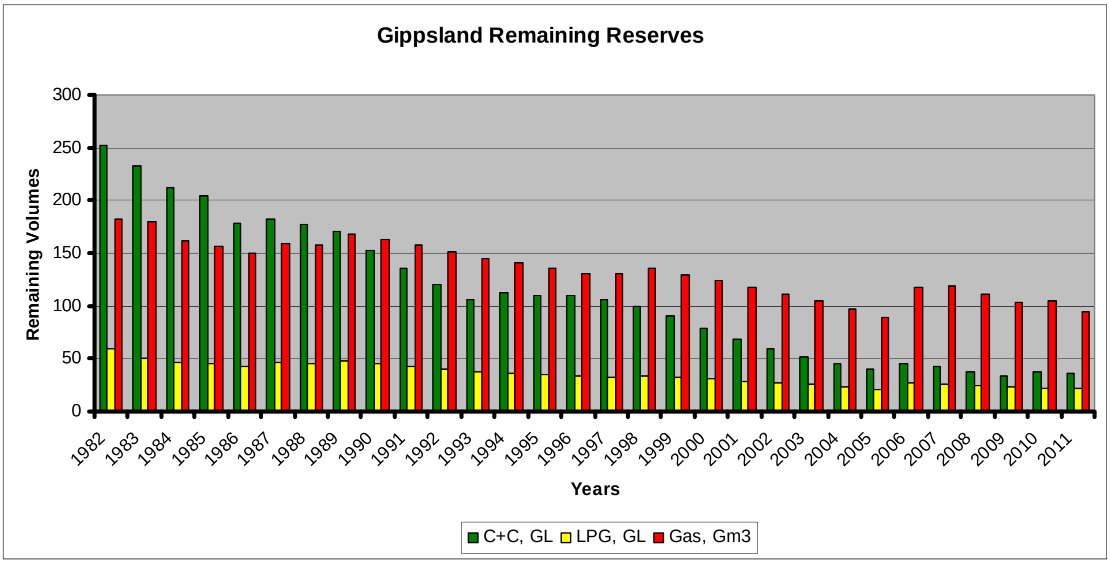


Table 2.2.7: Gippsland Basin Cumulative Production And Remaining Reserves – ExxonMobil

EXXONMOBIL / BHP Billiton	Initial Recoverable Reserves			Cumulative Production			Remaining Reserves		
Year	**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
2008	657.70	114.10	311.90	619.60	89.78	200.79	38.10	24.32	111.11
2009	657.70	114.10	311.90	623.95	91.41	208.02	33.81	22.69	103.89
2010	665.40	115.60	318.00	627.95	93.03	213.52	37.45	22.57	104.48
2011	666.30	115.70	318.00	630.20	94.20	224.1	36.10	21.50	94.00

Figure 2.2.2: History of the Total Crude & Condensate, Liquid Petroleum Gas and Gas Reserves Remaining for Gippsland



Note 1: A market value for the Victorian petroleum production was intentionally not included. Oil price fluctuates within very wide domain and any average value will not be credible.

Note 2: Gas contracts are normally addressing caloric values (Petajoule (PJ) etc.). Conversion factors from volumes depend upon gas composition. The reported volumes of gas from multiple fields are different mixtures of gases thus no common conversion factors are available.

Additional information:

One barrel = 0.158987 cubic metres

One cubic meter = 35.31466 cubic feet

One cubic meter = 1000 Litres

GL = Giga litres = 1,000,000,000 Litres = 109 litres

Gm3= Giga cubic metres =1,000,000,000 meters = 109 metres

Kscf = Kilo standard cubic feet

MMscf = million standard cubic feet

MMscm = million standard cubic metres

bbl = barrels

O+C = Oil plus Condensate

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Minerals

Victorian mineral production which in the past was dominated by brown coal and gold changed somewhat in 2010/11, when gold production dropped and heavy mineral sands more than doubled. The production of gold fell by 23%, although the fall in value was not as marked because of the rise in the gold price over the period. This was more than offset by the rise in the production of heavy minerals sands by slightly over 100%, with the value rising by close to 100%.

Gold production in the year has been 186,146 ounces, a large drop from the previous year's production of 241,965 ounces. The three larger gold mines all showed reductions in production from the previous year. Ballarat Goldfields licence went into care and maintenance in 2010/11 so their production was nil for that year. AGD Operations showed a marked decrease in their production of gold from their Costerfield mine, but an increase of over 100% in antimony production for the same period

Gypsum, kaolin and feldspar are the other significant contributors to mineral production. Gypsum production fell by about 8% in the 2010/11 financial year, probably as a result of the floods in the agricultural areas of the state. Feldspar production went up by 12%.

It was in the production of heavy minerals sands (mainly rutile, zircon and ilmenite) that the largest rise came, with a 100% rise in production. This is as a result of the Kulwin mines production more than doubling and the Basin Minerals Holdings Echo Project going up by more than 450% in the year to 30 June 2011.

Definition of Minerals under Section 4 of the *Mineral Resources (Sustainable Development) Act 1990*

'Mineral' means any substance which occurs naturally as part of the earth's crust

(1) Including:

oil shale and coal; and

hydrocarbons and mineral oils contained in oil shale or coal or extracted from oil shale or coal by chemical or industrial processes; and

bentonite, fine clay, kaolin, lignite, minerals in alluvial form including those of titanium, zirconium, rare earth elements and platinoid group elements, quartz crystals and zeolite.

(2) Excluding water, stone, peat or petroleum.

3.1 Minerals Tenements

In 2010/11, 177 applications were received for grant or renewal of minerals related licences under the MRSDA. Approximately 78% of these were for exploration licences. In the same period 176 exploration and mining licences were granted or renewed, with about 76% of these being exploration licences. It should be noted that while an application may be received in one financial year, it may not be determined within that financial year.

Table 3.1.1 New and Renewal Applications for Exploration and Mining Licences: 2010/11

	Received	Granted or Renewed	Withdrawn	Refused
New Exploration Licence Applications	74	73	8	0
Renewal Exploration Licence Applications	64	60	0	0
Sub Total Exploration Licence Applications	138	133	8	0
New Mining Licence Applications	13	20	4	0
Renewal Mining Licence Applications	26	23	0	0
Sub Total Mining Licence Applications	39	43	4	0
Total Licences	**177**	**176**	**12**	**0**

Source: DPI

Table 3.1.2 Exploration and Mining Licences – Granted and Renewed over time: 2004/05 – 2010/11

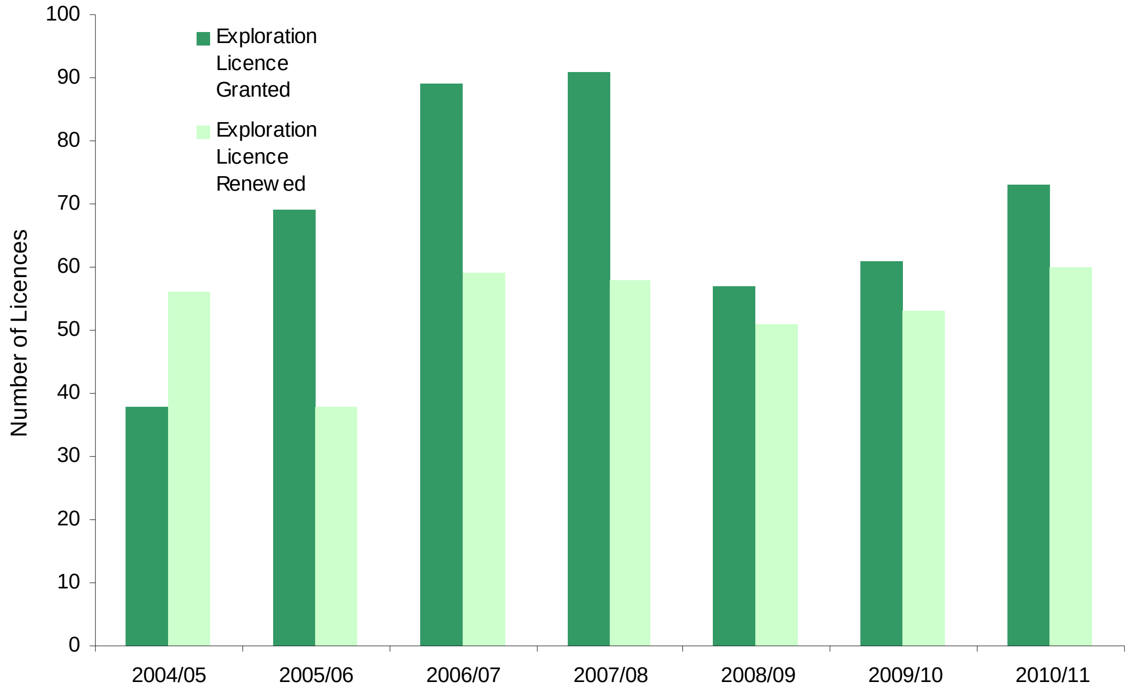
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Exploration Licence Granted	38	69	89	91	57	61	73
Exploration Licence Renewed	56	38	59	58	51	55	60
Subtotal Exploration Licences Granted and Renewed	94	107	148	149	108	116	133
Mining Licence Granted	20	13	19	11	14	15	20
Mining Licence Renewed	29	22	56	21	41	30	23
Sub Total Mining Licences Granted and Renewed	49	35	75	32	55	45	43
Total Licences	143	142	223	181	163	161	176

Source: DPI

Note: The total number of exploration and mining licences granted is a broad indicator of exploration and mining activity.

In 2010/11 the number of exploration licences granted/renewed was 133, compared to the previous year figure of 116. The total number of mining licences granted/renewed in 2010/11 decreased to 43 from the previous year of 45 in 2009/10 primarily due to a drop of number of renewals in that year.

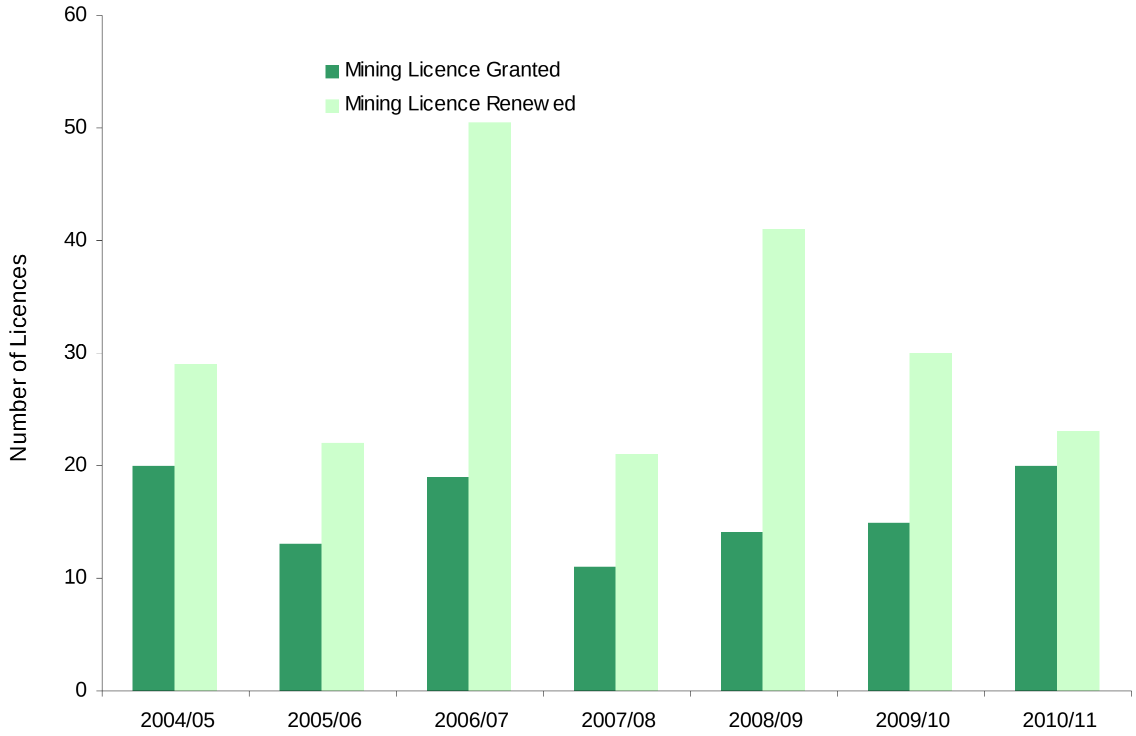
Figure 3.1.1 Exploration Licence Grants and Renewals: 2004/05 to 2010/11



Source: DPI

There is a cyclical trend in the level of activity associated with exploration licences (grants and renewals). The Global Financial Crisis which began in October 2008 curtailed the preceding upward trend.

Figure 3.1.2 Mining Licence Grants and Renewals: 2004/05 to 2010/11



Source: DPI

Table 3.1.3 Current Exploration and Mining Licences at 30 June each year: 2004 – 2011

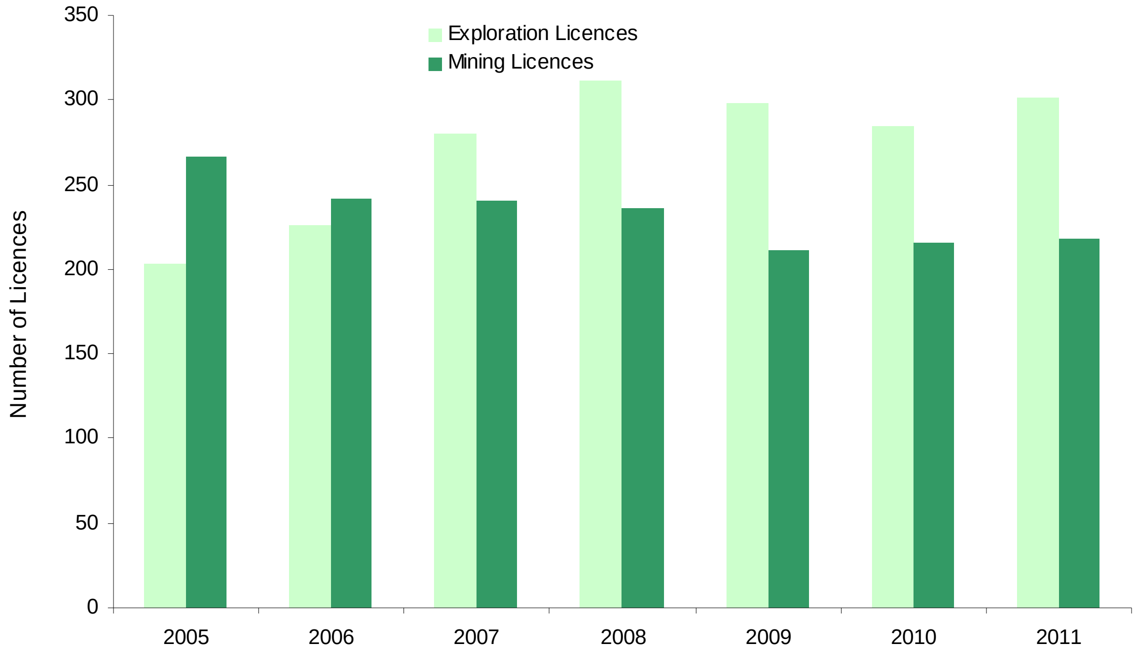
Tenement	2005	2006	2007	2008	2009	2010	2011
Exploration Licences	203	226	280	326	298	285	302
Mining Licences	266	242	240	236	211	216	218
Totals	469	468	520	562	509	501	520

Source: DPI

The total available area of the state covered by exploration licences in 2010/11 was 75,753km2 (the total area covered by mining licences gives no idea of the extent of mining in the state, so is irrelevant). The number of mining licences had steadily fallen over the seven years to 2008/09, but this trend changed in 2009/10 with a slight increase of 5 from the previous year, and in 2010/11 to another slight increase of 2 from the previous year.

After a decrease in 2009/10 of 13 exploration licences from the previous year, this was reversed in 2010/11 with an increase of 17 from the previous year. The amount of exploration licences at the end of 2010/11 was the second highest amount since the end of 2003/04.

Figure 3.1.3 Current Exploration and Mining Licences as at 30 June each year: 2005 - 2011



Source: DPI

3.2 Mineral Exploration and Mining Expenditure

The Australian Bureau of Statistics (ABS) reports quarterly on private mineral exploration expenditure for all Australian 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 3.2.1 Expenditure on Mineral Exploration and Mining Development ($A million): 2001/02 - 2010/11

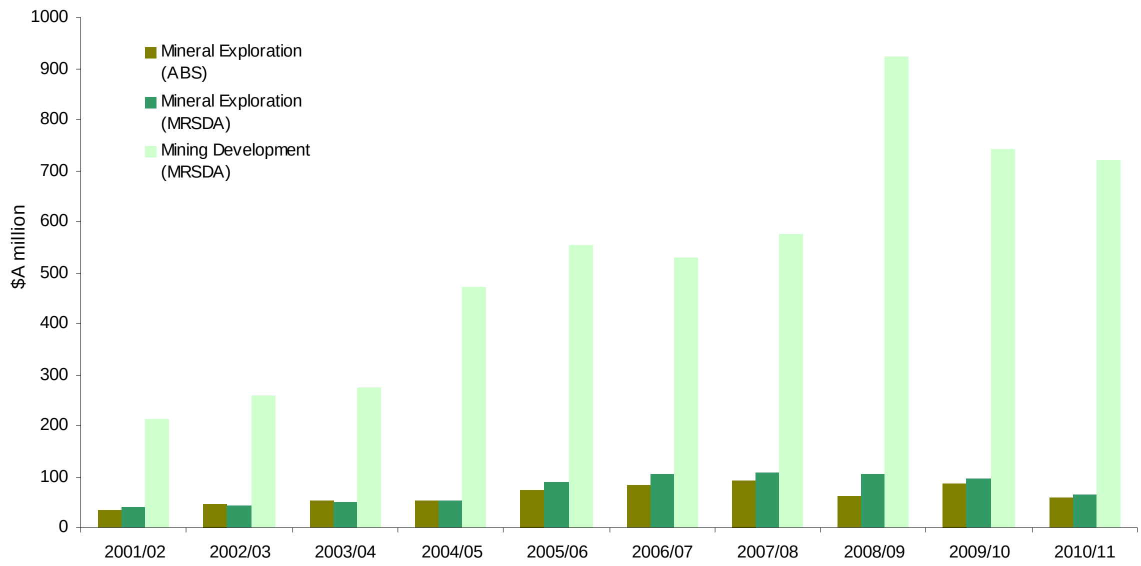
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Mineral Exploration (ABS)	33.9	46.2	53.5	51.5	74.1	82.5	93.7	62.2	84.8	57.4
MRSDA Exploration	39.3	43.3	50.2	52.2	88.2	105.4	107.8	103.3	94.3	64.6
MRSDA Mining	213.5	258.2	274.4	469.9	553.0	527.8	576.6	923.3	742.0	719.2

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 figures represent total mining expenditure i.e. capital and operating; by commercial entities engaged in mining activity during the relevant periods and does not include exploration on mining licences.

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

Figure 3.2.1 Expenditure on Mineral Exploration and Mining Development: 2001/02 - 2010/11



Source: DPI

Mineral exploration expenditure is a lead indicator of mineral industry activity. ABS data shows a growth trend of exploration expenditure from 2001/02 to 2007/08, with a slight decline in 2004/05. According to ABS data this trend has fluctuated since 2008/09 with a decrease in 2010/11. This change was not observed as strongly in the MRSDA data. The difference in these two exploration expenditure data sets is considered to be mainly due to the difference in methodologies for data collection, and the inclusion of the exploration expenditure on mining licences in the MRSDA figure.

Expenditure on mining was on an upward trend from 2000/01 to 2008/09. This trend reversed in 2009/10 and continues in 2010/11.

There had been a gradual and significant increase in mining development expenditure since 00/01 (almost by a factor of 5 or 500%).

The dip in 2009/10 was as the result of a significant decrease in expenditure by one company which had been expending large amounts on plant and equipment in previous years. This trend has been carried on into the 2010/11 reporting period.

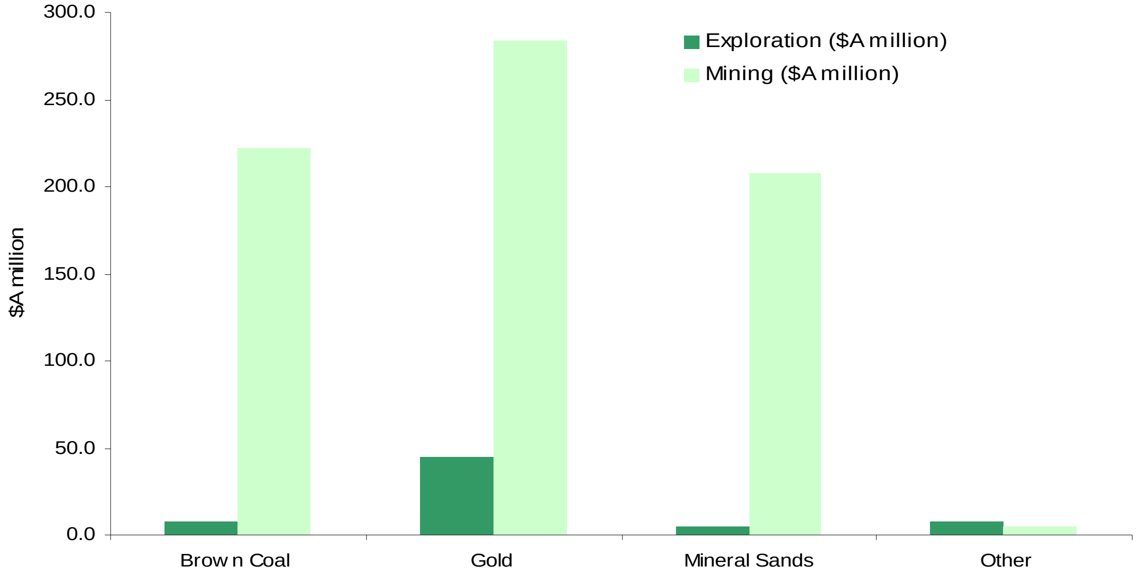
Table 3.2.2 Mineral Exploration and Mining Development Expenditure by Sector (MRSDA): 2010/11

Sector	Exploration ($A million)	Mining ($A million)
Brown Coal	7.9	221.8
Gold	44.4	284.2
Mineral Sands	5.1	208.1
Other	7.2	5.1
Total	**64.6**	**719.2**

Source: DPI

PLEASE NOTE: The exploration licence figures include exploration on mining licences. The mining figures due not include exploration on mining licences.

Figure 3.2.2 Mineral Exploration and Mining Development Expenditure by Sector (MRSDA): 2010/11



Source: DPI

3.3 Production

Table 3.3.1 Mineral Production: 1986/87 – 2010/11

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)
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	3,702	16,805	28,123	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	48,636	22,263	nil	76,187	235,266	170,727
2007/08	66,033	5,632	181,100	nil	nil	140,853	72,166	13,503	75,384	395,717	151,669
2008/09	68,252	7,741	248,918	nil	nil	102,123	80,317	nil	73,893	313,145	90,553
2009/10	68,751	7,526	241,965	nil	nil	90,671	117,314	27,904	66,507	315,509	92,862
2010/11	66,733	5,789	186,146	nil	nil	188,663	209,919	82,075	74,806	289,528	31,683

*other. Source: DPI – statutory returns under the MRSDA.

Table 3.3.2 Mineral Production Values: 2010/11

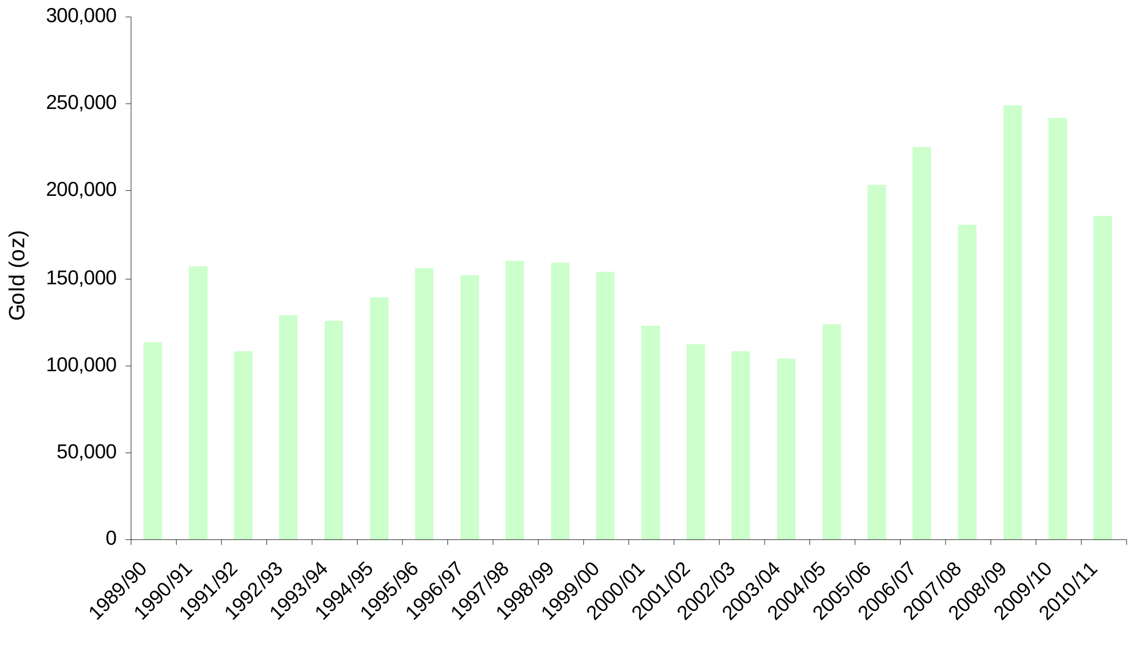
Mineral	Value ($A million)
Brown Coal	Not available
Gold	254.9
Heavy Mineral Sands	376.8*
Feldspar	4.5
Gypsum	4.2
Kaolin	2.2
Total	642.6

Source: DPI

*Sold

Note: Unit value for Brown Coal is not available and the values of other minerals are as reported by tenement holders.

Figure 3.3.1 Gold Production (ounces) : 1989/90 - 2010/11



Source: DPI

Table 3.3.3 Gold Producers (Production more than 100 kg): 2010/11

Producer	Location	Licence	Production (kg)	Production (oz)	Estimated Value ($A)*
Fosterville Gold Mine Pty Ltd (formerly Perseverance Exploration Pty Ltd)	Fosterville	MIN 5404	2,965	95,357	132,967,224
Stawell Gold Mines Pty Ltd (formerly Leviathan Resources Ltd)	Stawell	MIN 5260	2,045	65,771	91,107,000
Unity Mining Limited (formerly Bendigo Mining Limited)	Kangaroo Flat	MIN 5344	713	22,948	27,943,000
Total			5,723	184,076	252,017,224
Other			66	2068	2,925,630
Total Production			**5,789**	**186,144**	**254,942,854**

Source: DPI - statutory returns under the MRSDA.

Note: *based on the reported average gold price of $1,369.60/oz.1

Most of Victoria's gold production in 2010/11 was from mines owned by Fosterville Gold Mines Pty Ltd (formerly Perseverance Exploration Pty Ltd), Stawell Gold Mines Pty Ltd, (formerly Leviathan Resources Ltd) and Unity Mining Limited (formerly Bendigo Mining Limited). In the 2009/10 year production was also reported by Ballarat Goldfields NL and AGD Operations Pty Ltd. MIN5396, the Ballarat Goldfields NL licence, went into care and maintenance in March 2010 and there was no production on this licence in 2010/11. MIN4644, the AGD Operations Pty Ltd licence showed a marked decrease in gold production, but a considerable increase in antimony production.

Other than the three main producers in 2010/11, there were 21 companies who also produced gold in the period, most of them small quantities.

Table 3.3.4 Brown Coal Production (thousand tonnes): 1983/84 - 2010/11

YEAR	Maddingley Brown Coal Co. Bacchus Marsh	Alcoa Anglesea	SECV	Loy Yang	Yallourn	Hazelwood	Annual Total
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
1996/97	39	1,005	-	27,808	17,083	14,860	60,795
1997/98	28	1,030	-	29,766	17,924	16,525	65,274
1998/99	22	1,091	-	30,510	17,350	17,675	66,648
1999/00	4	926	-	30,865	16,098	19,470	67,363
2000/01	11	963	-	28,686	16,234	19,063	64,958
2001/02	10	1,069	-	30,949	15,650	18,982	66,661
2002/03	15	1,051	-	29,017	17,515	19,210	66,809
2003/04	18	1,107	-	29,577	16,585	19,056	66,343
2004/05	19	943	-	29,826	17,663	18,701	67,152
2005/06	22	1,101	-	30,937	16,933	18,743	67,737
2006/07	15	1,049	-	29,146	16,090	19,313	65,613
2007/08	16	1,066	-	30,745	15,467	18,739	66,033
2008/09	14	966	-	29,007	18,229	20,036	68,252
2009/10	11	1,077	-	30,446	17,685	19,531	68,750
2010/11	16	1,070	-	29,895	17,705	18,047	66,733

Source: DPI

Brown coal production is dominated by the electricity generation companies in the Latrobe Valley – Hazelwood Power Corporation, Loy Yang Power Ltd and Yallourn Energy Pty Ltd.

The other major brown coal miner is Alcoa Australia Ltd, which produces brown coal at Anglesea to generate electricity for its Point Henry aluminium smelter. The Maddingley Brown Coal Company produces a very small amount of coal at Bacchus Marsh, mainly for fuel and soil conditioning purposes.

In the 2010/11 year, Hazelwood showed a production drop of approximately 1.5 million tonnes. This was due to 1 unit of the power station being out of action for a considerable time during that period.

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Extractive Industry

Extractive industries provide the raw materials for building and construction, which is vital to the State's development. The industry operates quarries that produce a range of hard rock, clay, sand and gravel.

There are 876 quarries operating under the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) in Victoria. This number has remained relatively stable since 2003/2004. A total of 643 of these reported a total production of 52.2 million tonnes in 2010/11. This is over 6 million tonnes more than 2009/10, and probably reflects the last of the federal government's school building program, the rebuilding of communities after the black Saturday bushfires and road and infrastructure rebuilding after the floods of early 2011.

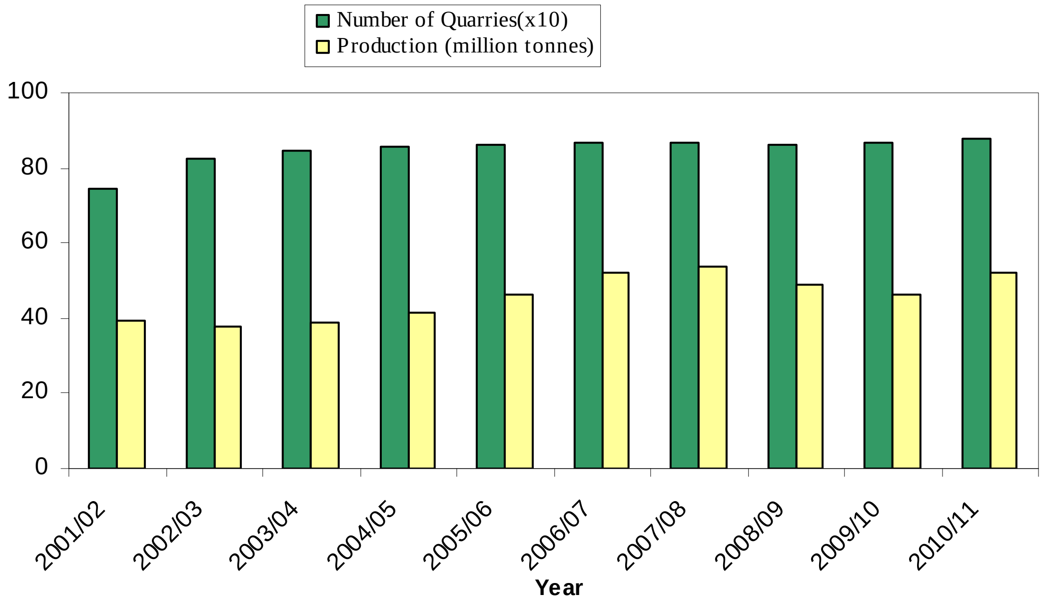
Definition of the Extractive Industry under Section 4 of the *Mineral Resources (Sustainable Development) Act 1990*

"Extractive industry" means the extraction or removal of stone from land if a primary purpose of the extraction or removal is the sale or commercial use of the stone or the use of the stone in construction, building, road or manufacturing works and includes:

(a) the treatment of stone or the manufacture of bricks, tiles, pottery or cement products on or adjacent to land from which the stone is extracted; and

(b) any place, operation or class of operation involving the extraction or removal of stone from land, declared by the Minister, by notice published in the Government Gazette, to be an extractive industry for the purposes of this Act.

Figure 4.1 Extractive Industry Quarries and Production: 2001/02 – 2010/11

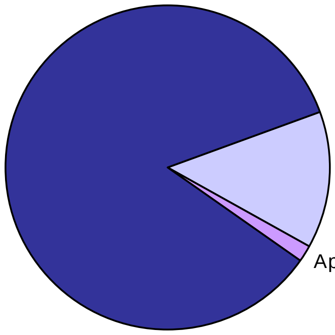


The number of quarries operating in Victoria rose considerably between 2001/02 and 2003/04 because of the licensing of smaller pits in the state, but has remained relatively stable since then. There have been considerable fluctuations in production output reflecting demand drivers for stone resources. The dip in 2008/09 and 2009/10 was likely caused by economic factors including the global financial crisis.

4.1 Work Authorities

Table and Figure 4.1.1 Status of Extractive Industry Work Authorities at 30 June 2011

Tenement	Proposal1	Application2	Current
Work Authority	155	17	876



Source: DPI

Note: A Work Authority is granted under the *Mineral Resources (Sustainable Development) Act 1990*.

1 Work Authority is in proposal stage when an initial site meeting takes place attended by the Inspector and other relevant parties.

2 Application stage is when a Work Authority application is lodged with all requirements to obtain an approved Work Plan.

The number of Work Authorities in Victoria is a proponent driven rather than DPI activity, and in the last 5 years the average is 868.

4.2 Production

Table 4.2.1 Victorian Extractive Industries Production and Sales by Rock Type: 2010/11

Product Group	Product Type	Sales - volume (tonnes)	Sales - value ($A)
Hard Rock	BASALT	17,699,750	271,499,769
	DOLERITE	372,327	6,703,092
	GNEISS	3,720	58,125
	GRANITE	5,586,823	100,508,479
	HORNFELS	3,714,669	53,165,632
	MARBLE	0	0
	QUARTZITE	61,187	351,921
	RHYODACITE	1,474,100	35,909,413
	SCHIST	213,100	3,508,385
	SEDIMENTARY	2,894,405	24,371,885
	SLATE	32,649	1,187,441
	TRACHYTE	21,888	437,760
Hard Rock Total		32,074,618	497,701,902
Soft Rock	CLAY & CLAY SHALE	1,895,158	4,485,286
	LIMESTONE	2,643,066	45,990,282
	SAND & GRAVEL	14,097,907	195,575,650
	SCORIA	921,475	12,441,493
	SOIL	65,106	681,340
	TUFF	542,137	3,377,532
Soft Rock Total		20,164,849	262,551,583
GRAND TOTAL		**52,239,467**	**760,253,485**

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

Table 4.2.2 Victorian Extractive Industries Production and Sales by Products: 2010/11

Product Group	Product Type	Sales - volume (tonnes)	Sales - value ($A)
Single size products	Aggregate	14,149,713	269,816,822
	Armour	250,973	4,293,349
Single size products total		14,400,686	274,110,171
Multi size products	Road base	7,017,953	104,412,479
	Road sub-base	11,778,989	136,675,009
	Fill	3,092,248	30,716,532
Multi size products total		21,889,190	271,804,020
Sand products	Concrete sand	6,135,709	95,152,919
	Fine sand	2,083,088	21,593,767
	Industrial	30,270	453,151
	Foundary	5,948	200,000
	Glass sand	521,703	13,200,000
Sand products total		8,776,718	130,599,837
Limestone Products	Cement	954,945	12,746,507
	Agriculture	425,504	7,663,470
	Lime	62159	8,356,898
Limestone products total		1,442,608	28,776,875
Clay products	Brick	1,738,326	4,064,473
	Stoneware	1,600	28,800
	Tile/pipe	39,552	160,680
Clay products total		1,779,478	4,253,953
Miscellaneous	Dimension stone	7,763	1,532,705
	Unspecified	3,943,024	49,185,524
Miscellaneous total		3,950,787	50,718,229
GRAND Total		**52,239,467**	**760,253,485**

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

Note: Only operations reporting under the *Mineral Resources (Sustainable Development Act) 1990* are included in tables 4.2.1 and 4.2.2

Table 4.2.3 Victorian Dimension Stone Production: 2000/01 – 2010/11

	2001/02 (tonnes)	2002/03 (tonnes)	2003/04 (tonnes)	2004/05 (tonnes)	2005/06 (tonnes)	2006/07 (tonnes)	2007/08 (tonnes)	2008/09 (tonnes)	2009/10 (tonnes)	2010/11 (tonnes)
Basalt	18,803	12,200	13,864	13,875	21,552	27,280	27,559	3,735	3,733	2,942
Granite	1,058	2,212	1,600	879	636	797	448	867	680	400
Sandstone*	492	185	258	1090	5,059	4,214	3,437	2,873	1,402	0
Quartzite	0	0	0	0	0	0	0	0	0	860
Sedimentary	0	0	0	0	0	0	0	0	0	1,880
Slate	613	617	548	2,382	334	879	1,710	1,000	255	1,621
Tuff	0	0	0	0	0	0	0	0	0	60
TOTAL	**20,966**	**15,214**	**16,270**	**18,226**	**27,581**	**33,170**	**33,154**	**8,475**	**6,070**	**7,763**

Sources: Operators, DPI records and statutory returns under the *Mineral Resources (Sustainable Development) Act 1990*.

*Include some sedimentary and limestone production.

Dimension stone production showed a significant decrease in 2008/09 to 8,475 tonnes from 33,154 tonnes in 2007/08, and then a further decrease in 2009/10 to 6,070 tonnes. However, there was an increase in 2010/11 to 7,763 tonnes. These figures are all taken from the statutory returns on production at the end of each financial year. The figures for the last three years probably reflect the global downturn.

For further information please contact the Earth Resource Information Centre

(03) 9658 4400 or information.centre@dpi.vic.gov.au

Regulation

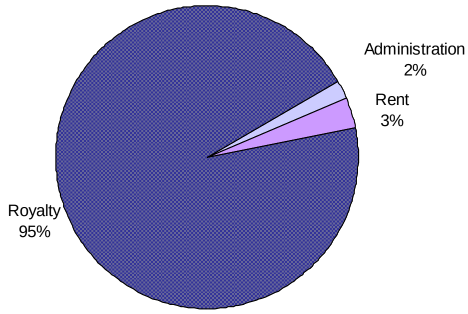
DPI collected a total of $54 million in royalties, rentals and administration fees in 2010/11 under the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA), the *Petroleum (Submerged Lands) Act 1967*, the *Petroleum (Submerged Lands) Act 1982* and the *Petroleum Act 1998*.

Rehabilitation bonds held by DPI for minerals and extractive increased from $178.3 million in 2009/10 to $189 million in 2010/11, as a result of bond reviews and the issue of new mining licences (see Table 5.1.3 and Figure 5.1.3).

5.1 Regulation, Revenue and Enforcement

Table and Figure 5.1.1 Minerals, Extractive and Petroleum Revenue: 2010/11

Revenue Stream	Revenue ($A million)
Administration	1.0
Rent	1.8
Royalty	51.2
Total	54.0

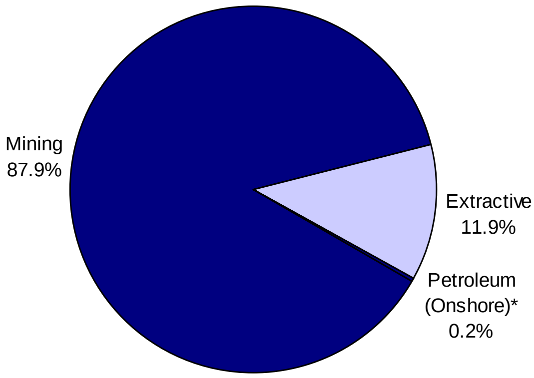


Source: DPI

Note: Royalty collected for the production/sales reported in the year ending 30/6/11.

Table and Figure 5.1.2 Minerals, Extractive and Petroleum Royalty - by Sector: 2010/11

Sector	Revenue ($A million)
Mining	45.0
Extractive	6.1
Petroleum (On shore)*	0.1
Total	51.2



Source: DPI

*Includes some calendar year payments.

Table 5.1.3 Rehabilitation Bonds by Sector - Value ($A million): June 2000 - June 2011

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
Jun-08	3.1	75.6	58.8	137.5
Jun-09	2.0	97.1	64.9	164.0
Jun-10	2.3	103.7	72.3	178.3
Jun-11	1.9	122.1	65	189.0

Source: DPI

Figure 5.1.3 Rehabilitation Bond by Sector: June 2000 – June 2011

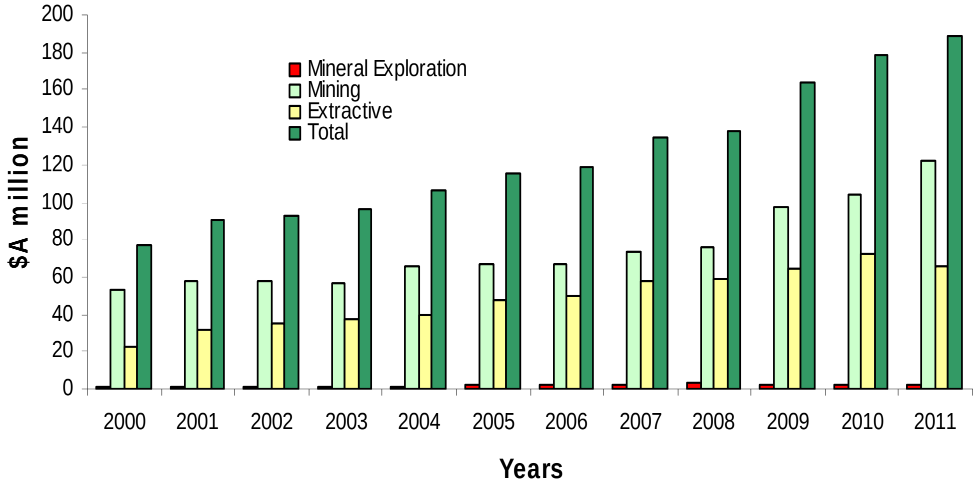


Table 5.1.4 Rehabilitation Bond Reviews: 2000/01- 2010/11

Year	Number of Bonds Reviewed	Result of Bond Review		
		Bond Increase	No Change	Bond Decrease
2000/01	370	94	270	6
2001/02	389	49	332	8
2002/03	332	85	237	10
2003/04	367	78	282	7
2004/05	344	99	238	7
2005/06	340	59	279	2
2006/07	258	65	190	3
2007/08	402	58	335	9
2008/09	382	49	323	10
2009/10	413	55	344	14
2010/11	246	25	218	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 5.1.5 Enforcement and Compliance Activities 2010/11

Site Visits	798
Inspections	522
Completed Compliance Audits	54
High Risk Issues Audit	103
Complaints Received	207
Improvement Notices Issued	0
Investigations Initiated	0
MRSDA Notices Issued	21
Work plans & Variations Administration	892
Management of Rehabilitation Liabilities	276

Source: DPI

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Appendix A

Abbreviations, Symbols & Conversions

$A	dollar (Australian)
$A/GJ	dollar (Australian) per gigajoule
$m	million dollars (Australian)
$US	dollar (United States)
ABS	Australian Bureau of Statistics
bbl	barrel (42 US Gallons;158.987 L)
bbl/d	barrels per day
Bm3	billion (109) cubic metres
Bscf	billion (109) cubic feet (0.0283 Gm3)
C+C	crude oil and condensate
cond.	condensate
GL	gigalitre (109 L; 6.29 Mbbl)
Gm3	billion (109) cubic metres (35.336 Bscf)
kL	kilolitre (103 L)
L	litre
LPG	Liquefied petroleum gas
ML	megalitre (106 L)
Mbbl	million barrels
Mcf/d	Million cubic feet per day
MIN	Mining licence granted under the *Mineral Resources (Sustainable Development) Act 1990*
MRSDA	*Mineral Resources (Sustainable Development) Act 1990*
Mm3	million cubic metres
oz	Troy ounce (31.1 g)
PSLA 1967	*Petroleum (Submerged Lands) Act 1967 (Commonwealth)*
PSLA 1982	*Petroleum (Submerged Lands) Act 1982 (Victoria)*
Work authority	A title granted under the *Mineral Resources (Sustainable Development) Act 1990*