

DEPARTMENT OF
PRIMARY INDUSTRIES



Statistical Review 2001/02

Minerals and Petroleum Division

Introduction

The Statistical Review provides an overview of Victoria's minerals, petroleum and extractive industries. It includes data on production, exploration and expenditure, as well as licensing and safety performance.

These data are highly relevant for anyone involved in the mining, extractive or petroleum industries and the report is the most comprehensive public database available for these sectors in Victoria.

Victoria's earth resource industry production includes:

- brown coal used almost exclusively for power generation;
- oil and gas from the offshore Gippsland and onshore fields north of Port Campbell in western Victoria;
- gold primarily from the Stawell and Fosterville mines;
- industrial minerals including gypsum, silica, feldspar rutile, zircon, ilmenite and kaolin; and
- rock, sand and clay, used mainly for building and road construction.

Victoria has the thickest and most extensive brown coal seams in the world and approximately 85% of the State's electricity is generated by coal-fired power plants in the LaTrobe Valley.

Since the 1920s, brown coal has provided an inexpensive energy source to run the industrial and manufacturing sectors of the Victorian economy.

Electricity costs continue to drop in real terms as the industry captures the benefit of reform. In addition, the sale of the former State Electricity Commission assets has returned almost \$21 billion to the State.

Since 1969, gas production from Gippsland has supplied domestic and industrial customers largely for heating through a pipeline transmission system which now covers over 4000 km.

The offshore Gippsland petroleum province has provided more than two thirds of Australia's cumulative oil production to date and has led to the establishment of major petrochemical facilities in the Melbourne area with significant follow-on employment and supply benefits.

Oil and gas remains the most valuable commodity produced in Victoria.

Gold provided the foundation for Victoria's wealth last century and the gracious and substantial Victorian buildings seen in Melbourne, Ballarat and Bendigo are tangible evidence of the money generated by gold during the 50 years after the seminal discoveries at Warrandyte and Clunes in 1851.

The potential for growth in mineral production is enormous, both from redevelopment of existing goldfields and new goldfields and for development of newly discovered mineral sands deposits in the Murray Basin region.

The extractive industries are the foundation of Victoria's building and construction industries.

Although not sharing the limelight of the other resource industries, they contribute the vital raw materials for a modern society.

The extractive industries generate the greatest value, in direct royalties to the State, of any of the earth resource industries.

The Victorian Government's commitment to the Victorian Initiative for Minerals and Petroleum of a further \$4 million extends the program to 2005.

That funding will enable the Department of Primary Industries, through its Minerals and Petroleum Division, to continue its program of regional geological data acquisition for the minerals and petroleum industries.

In addition, the Division is continuing its program of legislative reform which has yielded complete rewrites of the, *Extractive Industries (1995) Act* and the *Petroleum (1998) Act* over the past decade.

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Minerals

Mineral production continues to be dominated by brown coal and gold.

Brown coal production, predominantly from the Latrobe Valley for electricity generation, following a small decrease in 2000/01, has returned to its previous increasing trend reaching 66.6 million tonnes in 2001/02.

Gold production which increased markedly in the last decade, has shown some decline since 1999/00 and this trend continued in 2001/02. Gypsum and kaolin are the other significant contributors to mineral production. Both show a high degree of variability, in line with seasonal and market factors. Significant increase has been recorded in gypsum production in 2001/02, and this is interpreted as a reflection of improved reporting, rather than increased demand. Feldspar production in Victoria commenced in 1997/98 by ACI Industrial Minerals Division (now Unimin Australia Ltd). Copper and zinc concentrate production from Benambra ceased in 1995/96.

Heavy mineral sands (ilmenite, rutile and zircon) production in Victoria commenced in 2000/01 by Murray Basin Titanium Pty Ltd. It is expected that heavy mineral sands production from the Victorian Murray Basin deposits will accelerate in coming years.

TABLE 1.1 MINERAL PRODUCTION – VICTORIA 1982/1983-2001/2002

Year	Fuel Minerals	Metallic Minerals				Industrial Minerals					
	Brown Coal ('000 tonne)	Gold (kg)	Gold (oz)	Copper Con'trate (tonne)	Zinc Con'trate (tonne)	Zircon (tonne)	Rutile (tonne)	Ilmenite (tonne)	Feldspar (tonne)	Gypsum (cubic metre)	Kaolin (tonne)
1982/83	34708	115	3698	-	-	-	-	-	-	88000	47000
1983/84	33198	150	4823	-	-	-	-	-	-	207400	83700
1984/85	38379	902	29004	-	-	-	-	-	-	247300	88100
1985/86	36069	1272	40901	-	-	-	-	-	-	138800	35900
1986/87	41806	1179	37911	-	-	-	-	-	-	187700	41100
1987/88	44288	1719	55274	-	-	-	-	-	-	203100	100800
1988/89	48653	2512	80773	-	-	-	-	-	-	241400	117300
1989/90	45960	3515	113025	-	-	-	-	-	-	301500	168900
1990/91	49388	4863	156370	-	-	-	-	-	-	49200	145800
1991/92	50717	3346	107591	-	-	-	-	-	-	53100	87800
1992/93	47898	3993	128395	-	-	-	-	-	-	180200	114600
1993/94	49683	3917	125960	16287	1012	-	-	-	-	176800	105400
1994/95	49922	4319	138876	13163	5947	-	-	-	-	193100	79500
1995/96	54281	4838	155550	1338	6384	-	-	-	-	198667	55065
1996/97	60795	4710	151229	nil	nil	-	-	-	-	501495	114778
1997/98	65274	4979	160122	nil	nil	-	-	-	25703	479820	166100
1998/99	66648	4947	159088	nil	nil	-	-	-	45293	404917	180634
1999/00	67363	4790	154043	nil	nil	-	-	-	46162	462806	201436
2000/01	64958	3814	122632	nil	nil	1307	5921	-	53148	437694	203753
2001/02	66661	3492	112283	nil	nil	4043	21328	30627	56757	600931	202370

Source: Fuel Minerals: Department records, Statutory returns under the *Mineral Resources Development Act 1990*.
Metallic & Industrial Minerals: Statutory returns under the *Mineral Resources Development Act 1990*.

GRAPH 1 COAL & GOLD PRODUCTION 1982/83-2001-02

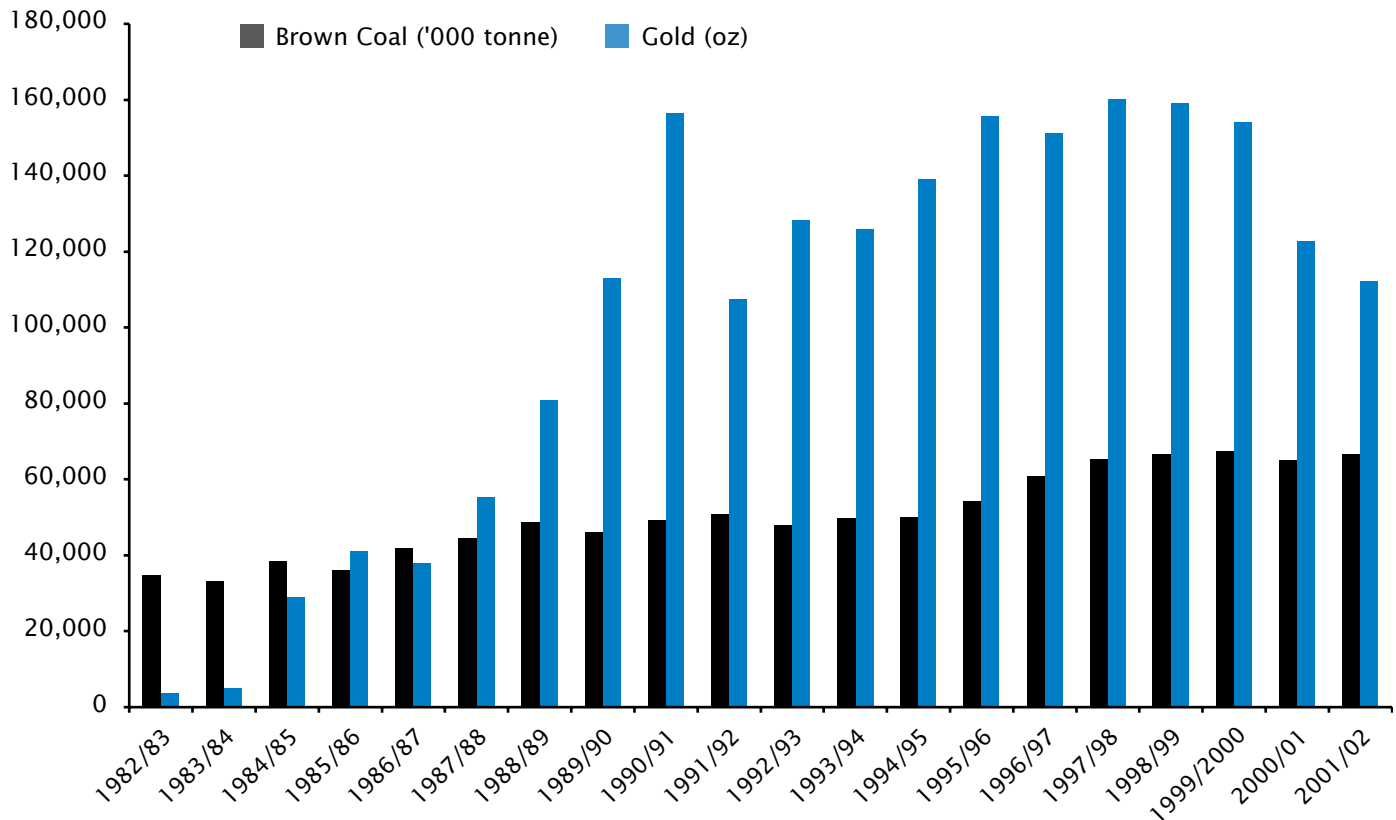


TABLE 1.2 MAJOR GOLD PRODUCERS – VICTORIA – 2000/01 (PRODUCERS MORE THAN 1000 GRAMS)

Producer	Location	Licence	Production (grams)	Production (ozs)	Estimated Value
Stawell Gold Mines	Stawell	MIN 5260	3218228	103480	\$58,983,600
Perseverance Exploration Pty Ltd	Fosterville	ML 1868	203083	6530	\$3,722,100
Wanbana Pty Ltd	Burnt Creek	MIN 4803	23420	753	\$429,210
Alliance Energy Limited	Maldon	MIN 5146	18884	607	\$345,990
Kinglake Resource Pty Ltd	Buninyong	MIN 4658	8957	288	\$164,160
Tech-Sol Resources Pty Ltd	Mt Egerton	MIN 4422	4774	154	\$87,780
Harris K	Mt Hotham	MIN 5262	4229	136	\$77,520
Boral Resources Vic. Pty Ltd	Buninyong	MIN 4777	1893	61	\$34,770
Lakey K W	Welshmans Reef	MIN 5174	1512	49	\$27,930
Other		Licences<5 ha	5736	184	\$104,880
		Licences>5 ha	1290	41	\$23,370
Total Production			3492006	112283	\$64,001,310

Source: Statutory returns under the *Mineral Resources Development Act 1990*.

Note: Estimated value \$A570/Oz.

MIN – Mining Licence

ML – Mining Lease

MAL – Mining Area Licence

Gold production is dominated by a few mines, with many smaller companies and individuals producing small amounts. The large part of Victoria's production is from Stawell Gold Mines Pty Ltd, at Stawell. In 2001/02 the other key producer was Perseverance Exploration Pty Ltd (Fosterville).

TABLE 1.3 BROWN COAL PRODUCTION – VICTORIA 1981/1982-2001/02 ('000 TONNES)

Year	Maddingley Brown Coal Co Bacchus Marsh	Alcoa Anglesea	SECV	Loy Yang	Yallourn	Hazelwood	Annual Total	Production Value* (000)
1981/82	99	1210	36256				37565	-
1982/83	83	1210	33415				34708	-
1983/84	80	1066	32052				33198	-
1984/85	89	1205	37085				38379	-
1985/86	60	1119	34890				36069	-
1986/87	43	1272	40491				41806	-
1987/88	45	1173	43070				44288	-
1988/89	47	1253	47353				48653	-
1989/90	22	1067	44871				45960	-
1990/91	40	1179	48169				49388	-
1991/92	40	1175	49502				50717	-
1992/93	36	1084	46778				47898	-
1993/94	31	1093	48559				49683	-
1994/95	43	1162	48717				49922	-
1995/96	40	836	-	25000	17460	10945	54281	\$434,248
1996/97	39	1005	-	27808	17083	14860	60795	\$486,360
1997/98	28	1030	-	29766	17924	16525	65274	\$522,192
1998/99	22	1091	-	30510	17350	17675	66648	\$533,184
1999/00	4	926	-	30865	16098	19470	67363	\$538,904
2000/01	11	963	-	28686	16234	19063	64958	\$519,664
2001/02	10	1069	-	30949	15650	18982	66661	\$533,287

*Estimated value (\$8/tonne)

Brown coal production is dominated by the electricity generation companies in the Latrobe Valley – Hazelwood Power Corporation, Loy Yang Power Ltd and Yallourn Energy Ltd. The largest producer is Loy Yang followed by Hazelwood and Yallourn. The other major brown coal miner is Alcoa of Australia Ltd, which produces brown coal at Anglesea to generate electricity for its Point Henry aluminium smelter. Maddingley Brown Coal Company produces a very small amount of coal at Bacchus Marsh, mainly for fuel and soil conditioning.

TABLE 2.1 EXPENDITURE ON MINERAL EXPLORATION AND MINING DEVELOPMENT IN VICTORIA 1993/1994–2001/2002 (\$MILLION)

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

	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
Exploration (ABS)	20.7	31.2	42.6	52.3	43.1	37.0	33.8	32.7	33.9
Exploration (MRD Act)	18.7	41.1	35.1	37.6	36.9	38.0	35.8	43.4	39.3
Mining (MRD Act)	77.4	66.7	73.8	156.8	165.2	174.6	188.3	195.5	213.5

Source: The above figures are collated from Six Monthly reports forwarded to the Department of Natural Resources and Environment, as required by the *Mineral Resource Development Act 1990*, and ABS: Actual and Expected Private Mineral Exploration (Catalogue No. 8412.0).

Note: The MRD Act mining expenditure figures represent total expenditure; ie capital and operating; by commercial entities engaged in exploration and mining activity during the relevant periods. The MRD Act exploration expenditure figures include exploration expenditure on mining and exploration licences.

Mineral exploration expenditure is a lead indicator of mineral industry activity. ABS data indicates that 2001/02 exploration expenditure is returning to a growth path after four years of a decreasing trend.

Expenditure on mine development was boosted by the inclusion of expenditure reported by brown coal mines in the Latrobe Valley for the first time in 1996/97. The upward trend since then has continued in 2001/2002.

TABLE 2.2 MINERAL EXPLORATION AND MINING DEVELOPMENT EXPENDITURE IN VICTORIA BY SECTOR 2001/2002 (\$MILLION)

Sector	Exploration	Mining
Brown Coal*	0.6	157.5
Gold	37.7	39.7
Other	1.0	16.3
Total	39.3	213.5

*Includes methane gas exploration expenditure

GRAPH 2 EXPENDITURE ON PRIVATE MINERAL EXPLORATION (1993/1994-2001/2002)

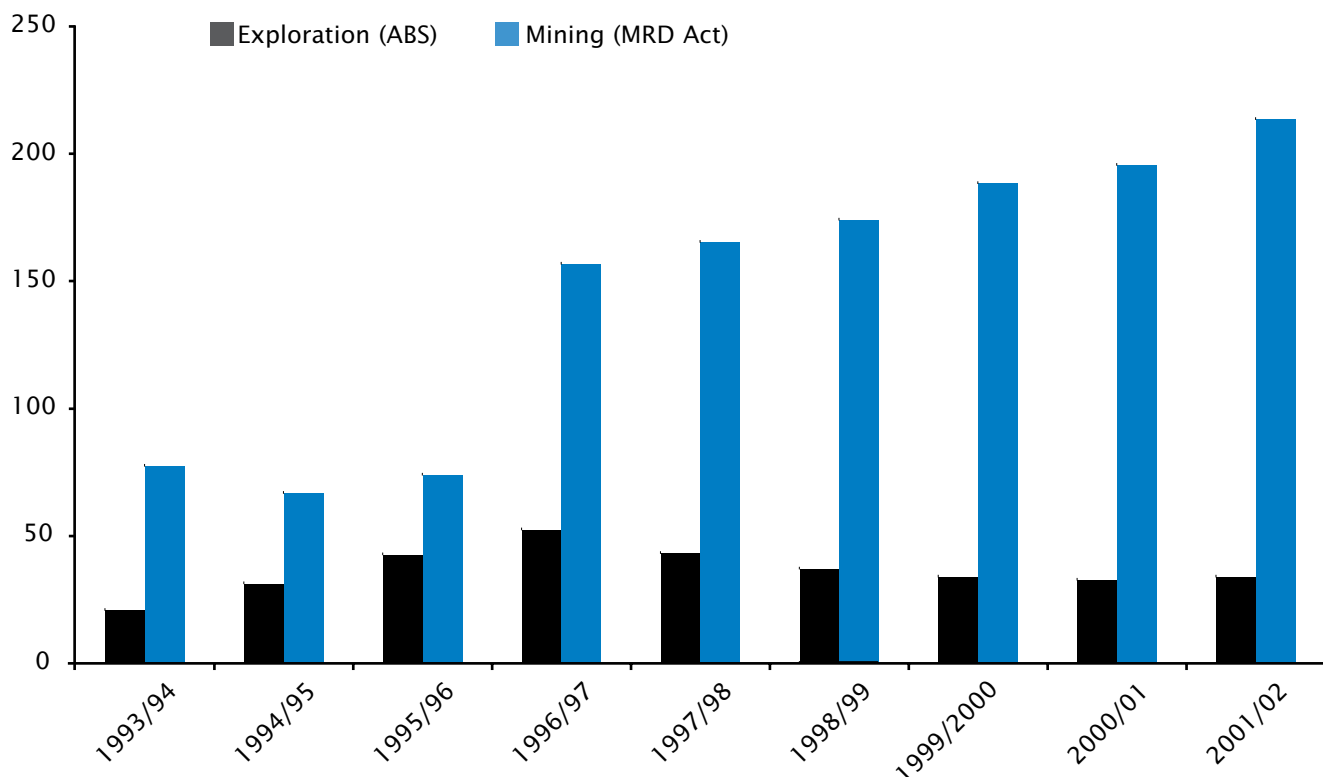


TABLE 3.1 NEW & RENEWAL APPLICATIONS FOR EXPLORATION AND MINING LICENCES – 2001/2002

	Received	Granted	W/drawn	Refused	Invalid
New Mining Licence Applications	24	24	6	1	1
Renewal Mining Licence Applications	37	25	0	1	0
Total Mining Licence Applications	61	49	6	2	1
New Exploration Licence Applications	79	45	12	3	0
Renewal Exploration Licence Applications	69	49	2	6	0
Total Exploration Licence Applications	148	94	14	9	0

Source: Department Records

Note: "Granted" Includes applications that were on hand as at 1 July 2001.

In 2001/02, 209 new and renewal applications were received for mining and exploration licences, with about 71% of these being for exploration licences. 143 mining and exploration licences were granted or renewed, with about 66% of these being exploration licences.

GRAPH 3 MINING LICENCE GRANTS (1994/95-2001/02)

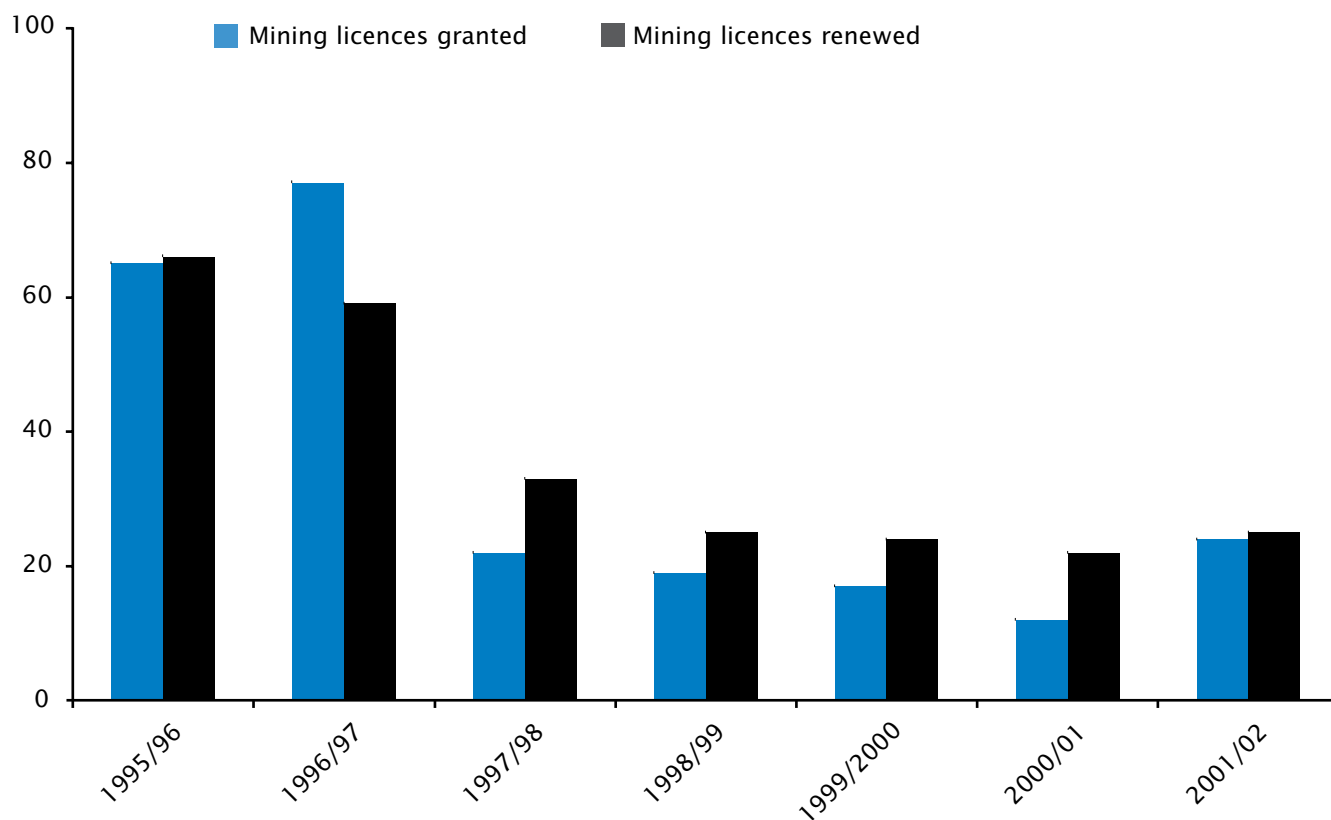


TABLE 3.2 EXPLORATION AND MINING LICENCES GRANTED AND RENEWED 1995/1996-2001/02

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
Mining Licences Granted	65	77	22	19	17	12	24
Mining Licences Renewed	66	59	33	25	24	22	25
Total Mining Licences Granted & Renewed	131	136	55	44	41	34	49
Exploration Licences Granted	162	130	180	77	39	39	45
Exploration Licence Renewed	149	162	94	82	100	63	49
Total Exploration Licences Granted & Renewed	311	292	274	159	139	102	94

Source: Department Records.

Note: "Granted" Includes applications that were on hand as at 1 July 2001.

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

There has been a general decline in the number of exploration licences granted and renewed since 1997/98. The number of mining licence grants and renewal however, showed a marked increase in 2001/02.

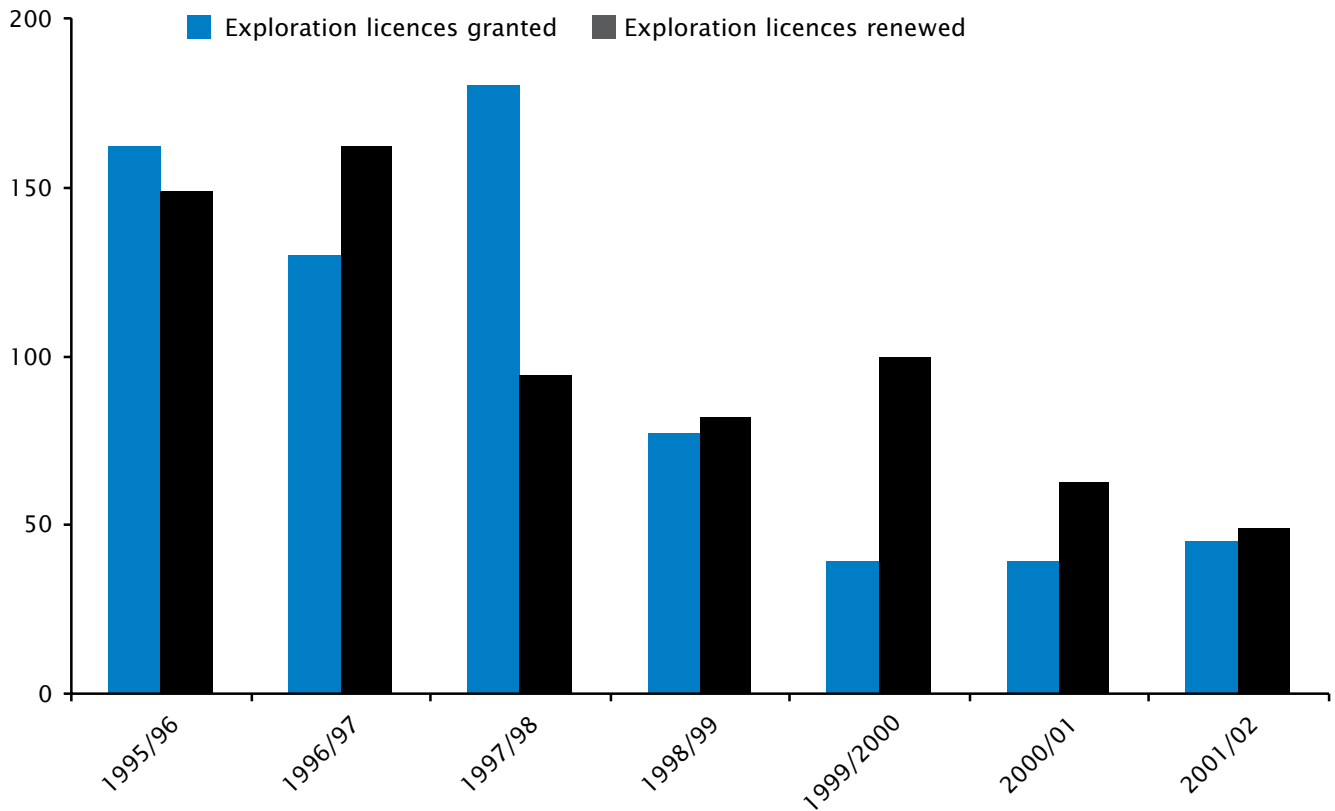
GRAPH 4 EXPLORATION LICENCE GRANTS (1995/96-2001/02)

TABLE 3.3 CURRENT EXPLORATION AND MINING LICENCES AT 30 JUNE EACH YEAR 1996-2002

	1996	1997	1998	1999	2000	2001	2002
Mining Licences	471	397	377	341	320	312	305
Exploration Licences	302	375	361	245	274	209	170
Totals	773	772	738	586	594	521	475

Source: Department records

The number of current mining and exploration licences has steadily fallen over the last six years. A significant number of amalgamations has contributed to the lower number of current mining and exploration licences.

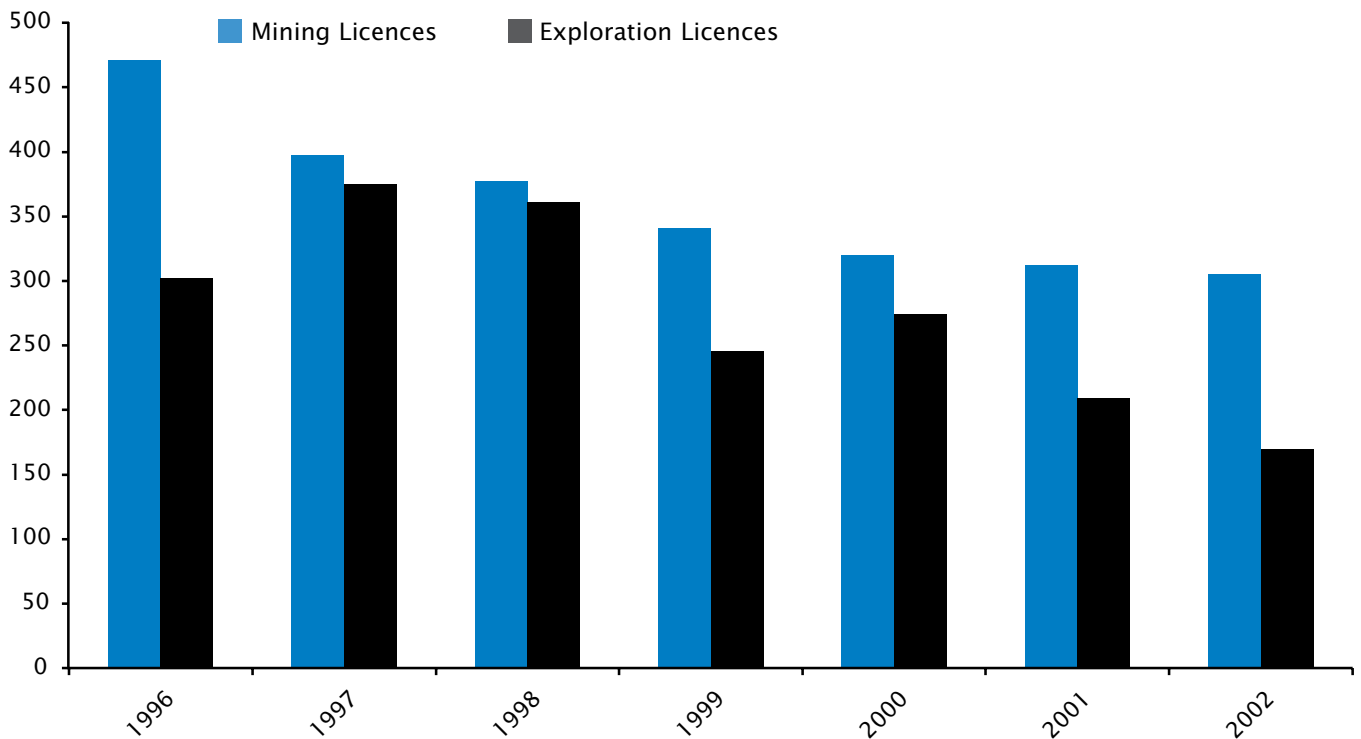
GRAPH 5 CURRENT EXPLORATION AND MINING LICENCES AT 30 JUNE EACH YEAR (1996-2002)

TABLE 4.1 MINING SAFETY STATISTICS 1993/1994-2001/2002

Year	Lost Time Injuries (LTI's)	Employed*	Days Lost	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
1993/94	36		-	35.0	-	-	-	2
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

*Average number of person employed as reported.

Source: Returns made under the *Mineral Resources Development Act 1990*.

Note: **Lost Time Injuries** – are defined as those occurrences that resulted in a fatality, permanent disability or time lost from work of one day/shift or more.

Lost Time Injury Frequency Rate – is defined as the number of occurrences of lost time injury for each one million hours worked.

Lost Time Injury Incidence Rate – is defined as the number of Lost Time Injuries per thousand employees.

Lost Time Injury Duration Rate – is defined as the average days lost for every lost time injury.

Severity Rate – is defined as the number of days lost for each one million hours worked.

The total number of Lost Time Injuries (LTI) in the mining industry showed a significant drop in 2001/02 to 22 from previous year record of 27. LTI Frequency Rate has also continued its general downward trend. There was no fatality in 2001/02.

GRAPH 6 MINING SAFETY STATISTICS (1993/94-2001/02)

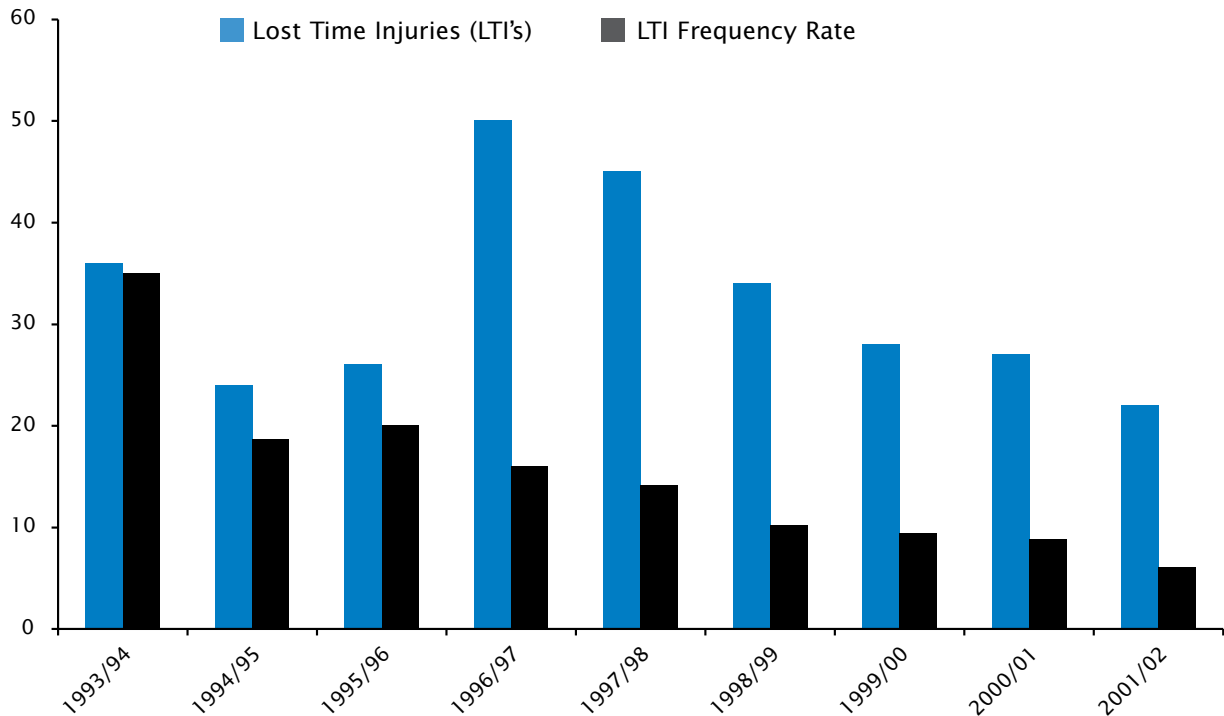


TABLE 4.2 MINING SAFETY STATISTICS BY SECTOR – 2001/02

Sector**	Employed*	Hours	Days Lost	Lost Time Injury (LTI's)	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
Metalliferous O/C	418	133366	22	3	22.5	7.2	7.3	164.9	0
Metalliferous U/G	436	690047	65	7	10.1	16.1	9.3	94.2	0
Non-Metalliferous***	178	226309	7	2	8.8	11.3	3.5	30.9	0
Coal	1140	2561003	82	10	3.9	8.7	8.2	32.0	0
Exploration	375	77819	-	-	-	-	-	-	0

*Average number of person employed as reported.

**Based on returns for the six monthly period ending 30/6/02.

***Includes heavy mineral sands mines

Source: Returns made under the *Mineral Resources Development Act 1990*.

Note: **Lost Time Injuries** – are defined as those occurrences that resulted in a fatality, permanent disability or time lost from work of one day/shift or more.

Lost Time Injury Frequency Rate – is defined as the number of occurrences of lost time injury for each one million hours worked.

Lost Time Injury Incidence Rate – is defined as the number of Lost Time Injuries per thousand employees.

Lost Time Injury Duration Rate – is defined as the average days lost for every lost time injury.

Severity Rate – is defined as the number of days lost for each one million hours worked.

Coal mining was the main contributor to high LTI counts for the mining industry in 2001/02, followed by metalliferous (U/G) and metalliferous (O/C) operations. The highest lost-time-injury-frequency-rate (LTIFR) for the year was recorded for metalliferous (O/C) operations, followed by metalliferous (U/G) mines.

GRAPH 7 MINING SAFETY STATISTICS BY SECTOR (2001/02)

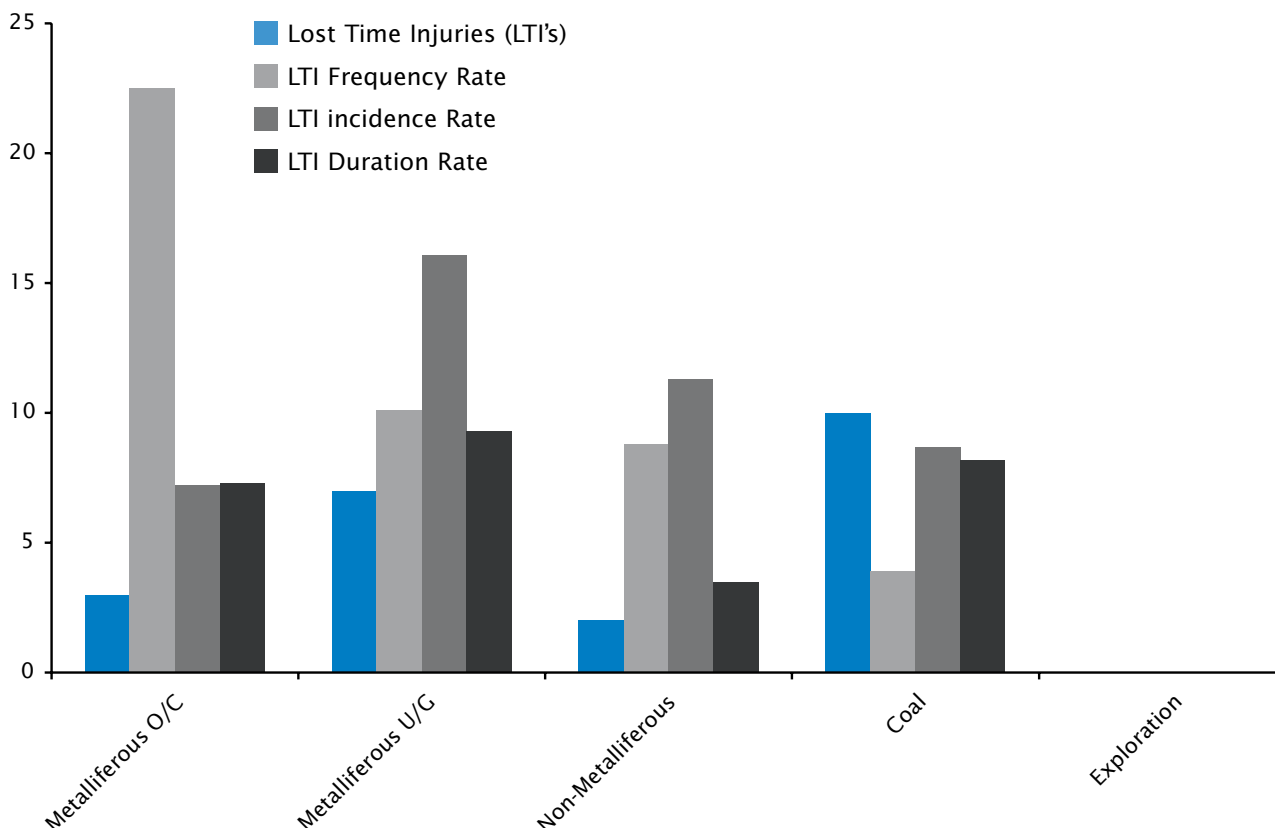


TABLE 4.3 MINING MOST FREQUENT INJURIES 2001/02

Injury	%
Strains & Sprains – including back injuries	36
Open Wound	18
Foreign Particles in eye	9
Bruising and Concussion	9
Internal Injury of chest, abdomen and pelvis	9
Fractures – excluding vertb. column	9
Poisoning	5
Dislocation	5
Total	100

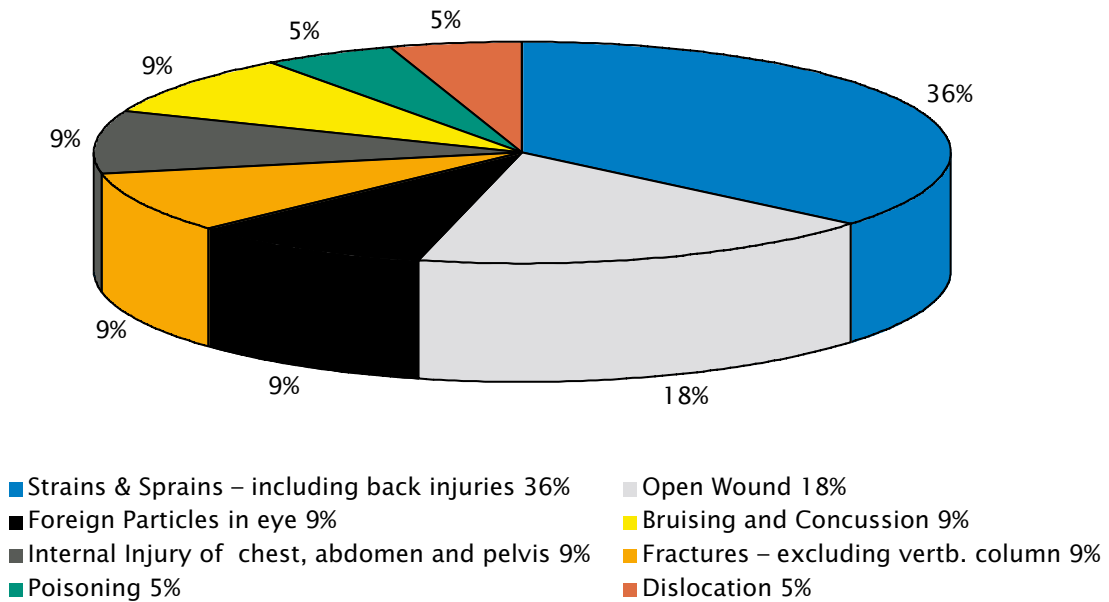
Based on returns as at 25 November 2002.

Source: Department's records.

Note: Based on reports submitted in AS1885.1 form.

The dominant injury types reported for the mining industry in Victoria for the year ending 30 June 2002 are Strains & Sprains and Open Wound followed in equal proportions by Foreign Particles in eye, Bruising and Concussion, Internal Injury and Fractures.

GRAPH 7 MINING MOST FREQUENT INJURIES 2001/02



- Strains & Sprains – including back injuries 36%
- Open Wound 18%
- Foreign Particles in eye 9%
- Bruising and Concussion 9%
- Internal Injury of chest, abdomen and pelvis 9%
- Fractures – excluding vertb. column 9%
- Poisoning 5%
- Dislocation 5%



Petroleum

Offshore Gippsland Basin crude and condensate production has declined since the mid 1980's. This occurred as reserves in the first generation major fields diminished and the rate of new discoveries could not compensate for the production decline in the major fields. Production levels increased during 97/98 compared to 96/97, due to the development of Bream B, Moonfish and West Tuna. The completion of phase -1 of the Blackback Field has maintained production levels in 98/99. The lower production levels in the year 98/99 are due to the two months hiatus after the Longford incident. Although production levels increased during 99/00 it is still 15% lower than the levels of 97/98. The declining rate in production continued at about 4% during 01/02

Gas production levels increased during 01/02 is linked to demand level, and will probably increase in time especially with increased interstate gas sales through new interstate pipelines.

PETROLEUM TENEMENT ACTIVITIES – VICTORIA (2001/02)

ACREAGE RELEASES

Offshore Acreage Release

During 2000/01, four offshore (gazettal area 2001, V01/1, V01/2, V01/3 in the offshore Otway and V01/4 in offshore Gippsland Basins) areas in Victorian waters were released based on six year work program bidding system. The closing date for these offshore bids was on 11 April 2002. The offshore bids were assessed according to the PSLA guideline and the gazettal areas were granted to the following exploration companies:

Vic/P-50 (Vo1-01) to Essential Petroleum Resources Ltd.,
Vic/P-51 (Vo1-02) to Santos Ltd. /Inpex Alpha Ltd.,
Vic/P-52 (Vo1-03) to Santos Ltd. /Unocal South-Asean /Inpex Alpha Ltd., and
Vic/P-53 (Vo1-04) to Australian Crude Oil Company Incorporation.

Onshore Acreage Release

Three areas were released during 2000/2001 for exploration activities within eastern region of the Otway Basin. The onshore bids assessment of the 2001 acreage release resulted in the award of two exploration Permits PEP-163 and PEP-164 [Vic/0-01(3) and Vic/0-01(1)] to Lakes Oil N.L during 2002.

LICENCES AND RETENTION LEASES

Offshore Production Licence

In the offshore Gippsland Basin—construction of the offshore section on the OMV operated Baleen / Patricia project has been completed. The onshore gas plant is near commissioning as of February 2003.

In the offshore Otway Basin— a field development plan has been approved and a production Licence for the Minerva Gas Field (Vic/RL-8) has been offered. BHP Billiton has also programmed to drill two development wells in Vic/L-8 by late 2002.

Onshore Production Licence

Three production Licences for Leavers, Croft, and Buttress Gas Fields (PPL-9, PPL-10 and PPL-11) in the eastern region of the Otway Basin have been offered to Santos Ltd during 2001/02.

Onshore Retention Leases

During the year 2002, one retention lease for the eastern portion of the Buttress complex has been issued to Santos Ltd for a period of five years with a work program directed towards determining the feasibility of production in the term.

TABLE 5.1 ANNUAL OFFSHORE GIPPSLAND BASIN PETROLEUM PRODUCTION (SINCE 1968)

Year	Victoria Annual Petroleum Production		
	C+C, GL	LPG, GL	Gas, Gm ³
1968-1984	290.20	34.30	51.20
1984-1985	26.40	3.00	6.00
1985-1986	25.78	2.97	5.79
1986-1987	24.44	2.88	5.69
1987-1988	22.87	2.83	5.65
1988-1989	18.61	2.68	5.91
1989-1990	18.68	2.69	6.71
1990-1991	17.48	2.50	6.01
1991-1992	16.97	2.57	6.26
1992-1993	17.80	2.74	6.14
1993-1994	16.60	2.66	6.05
1994-1995	14.35	2.56	6.77
1995-1996	12.26	2.25	6.65
1996-1997	11.93	2.12	6.01
1997-1998	13.56	2.29	6.12
1998-1999	9.73	1.63	5.66
1999-2000	11.60	1.89	5.56
2000-2001	9.40	1.75	6.44
2001-2002	9.06	1.80	6.49
Total	587.72	78.11	161.11

Source: Esso-BHPP.
Notes: C+C is Crude and Condensate.

GRAPH 8 GIPPSLAND BASIN – PETROLEUM PRODUCTION (1984/85-2001/02)

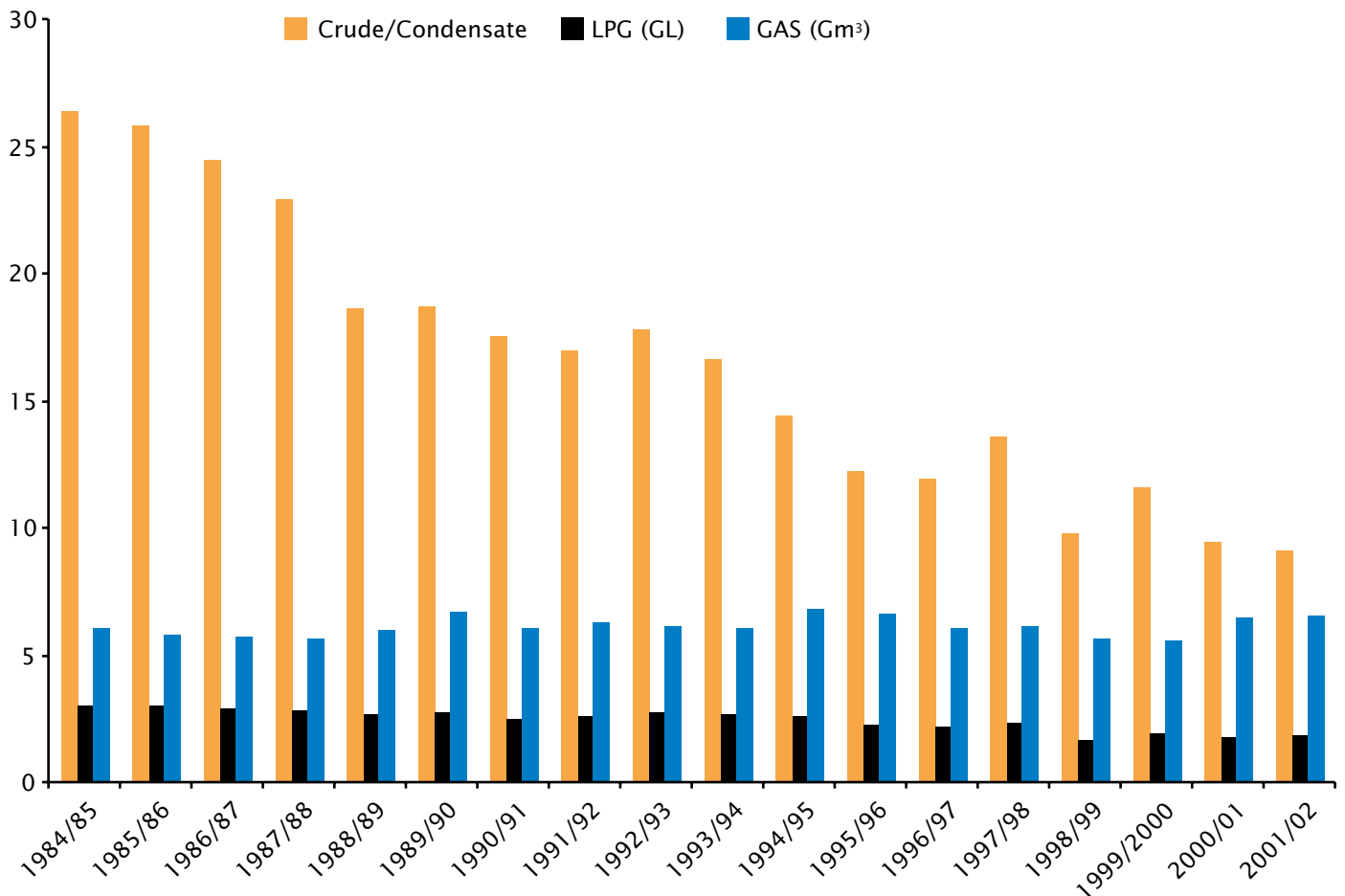


TABLE 5.2 GROSS GIPPSLAND PETROLEUM PRODUCTION 2001/2002

Field	2000/2001			2001/2002		
	C+C, GL	LPG, GL	Gas, Gm ³	C+C, GL	LPG, GL	Gas, Gm ³
Barracouta	0.084	0.134	0.901	0.082	0.133	0.864
Blackback	0.216	0.043	0.082	0.282	0.056	0.103
Bream	0.766	0.078	0.068	0.629	0.060	0.062
Cobia	0.272	0.014	0.003	0.267	0.014	0.003
Dolphin	0.253	0.015	0.011	0.241	0.014	0.010
Flounder	0.977	0.232	0.493	0.834	0.213	0.404
Fortescue	0.570	0.032	0.007	0.381	0.022	0.004
Halibut	0.805	0.043	0.010	0.789	0.041	0.010
Kingfish	0.648	0.055	0.031	0.531	0.043	0.024
Mackerel	0.227	0.025	0.005	0.182	0.020	0.004
Marlin	0.425	0.452	2.160	0.478	0.521	2.405
Moonfish	0.112	0.005	0.018	0.071	0.003	0.015
Perch	0.006	0.000	0.000	0.047	0.001	0.001
Seahorse	0.033	0.002	0.000	0.026	0.001	0.000
Snapper	0.304	0.281	2.321	0.323	0.279	2.233
S. Mackerel	0.012	0.001	0.000	0.019	0.002	0.000
Tarwhine	0.148	0.040	0.022	0.102	0.027	0.015
Tuna	1.276	0.086	0.181	1.455	0.108	0.205
W. Kingfish	0.718	0.065	0.033	0.668	0.061	0.030
W. Tuna	1.543	0.151	0.097	1.654	0.183	0.099
Total	9.395	1.754	6.443	9.061	1.802	6.491

Source: Esso-BHPP

Note: Bream and Flounder gas injection has been subtracted from the production volume.

The major oil and condensate producers in 2001/02 were Bream, Flounder, Fortescue, Halibut, Kingfish, Tuna, West Kingfish and West Tuna. These eight fields are now responsible for more than 97% of liquid production from the Gippsland Basin. Although production from the major fields is declining, infill drilling, development and work-over activities continued during 01/02

GRAPH 9 GROSS GIPPSLAND PRODUCTION (1999/00-01/02)

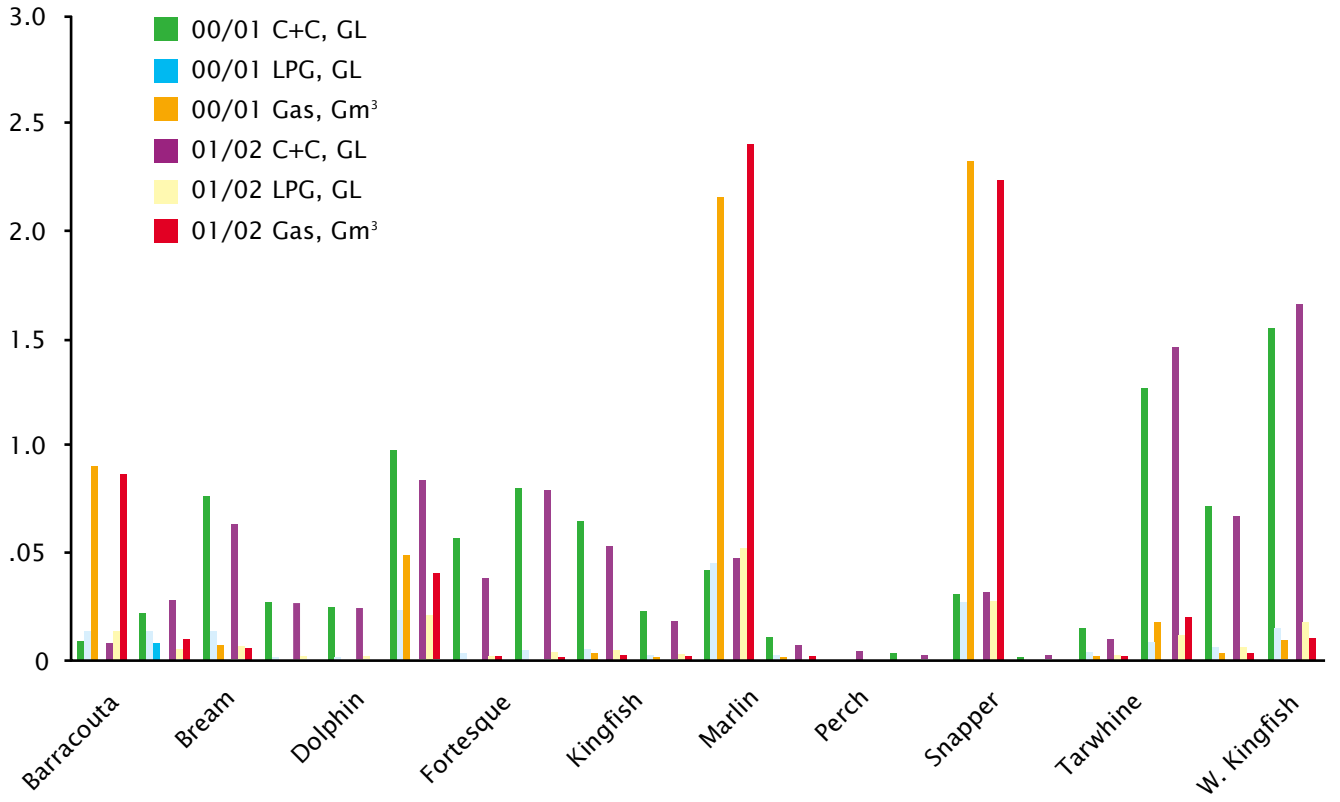


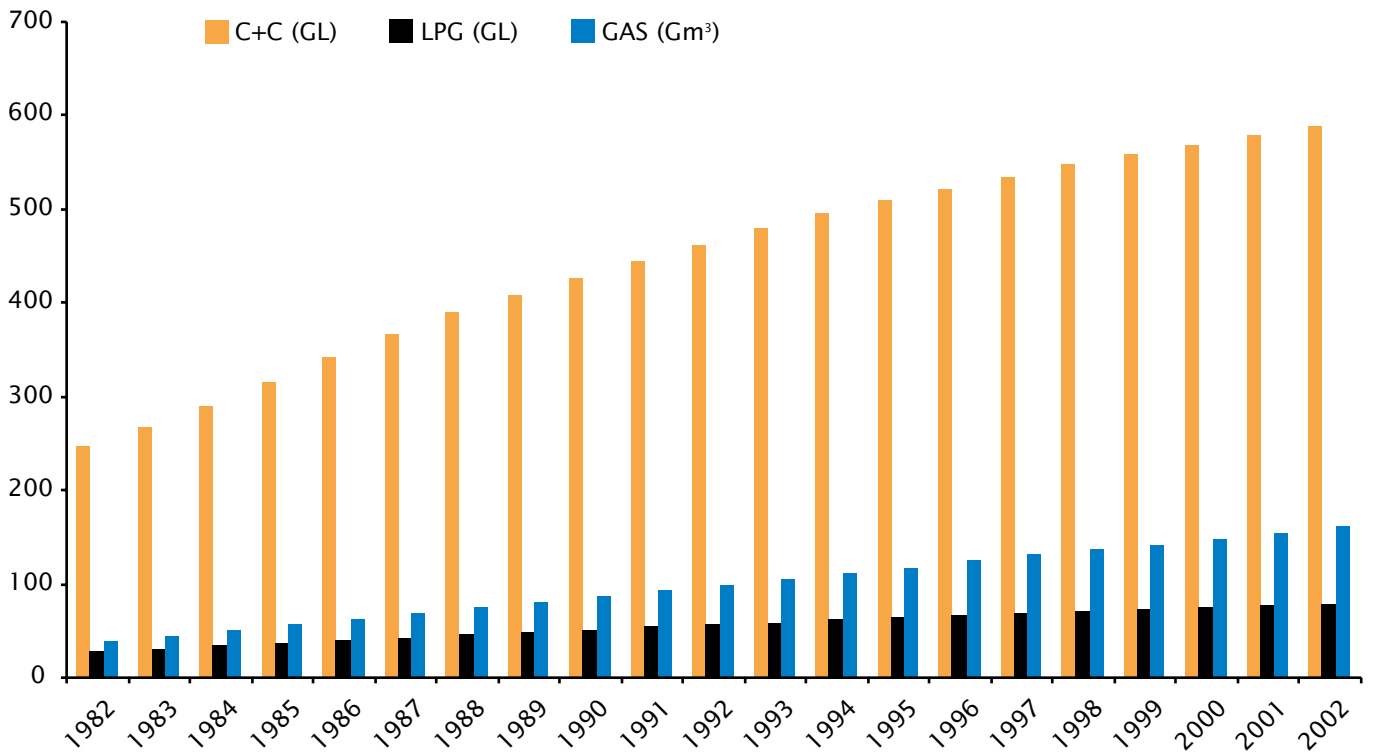
TABLE 5.3 GIPPSLAND BASIN CUMULATIVE PRODUCTION AND REMAINING RESERVES

Year	Initial Recoverable Reserves			Cumulative Production			Remaining Reserves		
	C+C, GL	LPG, GL	Gas, Gm ³	C+C, GL	LPG, GL	Gas, Gm ³	C+C, GL	LPG, GL	Gas, Gm ³
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

Source: Esso-BHPP

The estimated Gippsland Basin 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.

GRAPH 10 GIPPSLAND BASIN – CUMULATIVE PETROLEUM PRODUCTION (1982-2002)



GRAPH 11 GIPPSLAND BASIN – REMAINING PETROLEUM RESERVES (1982-2002)

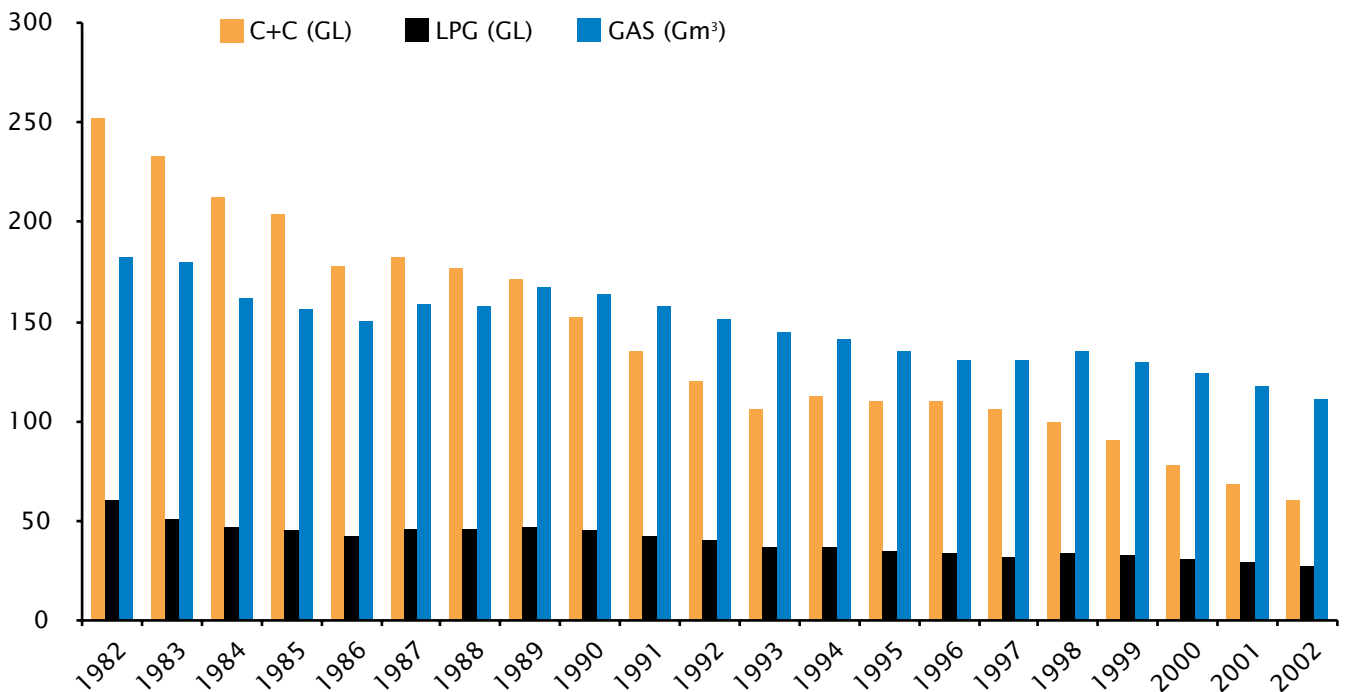
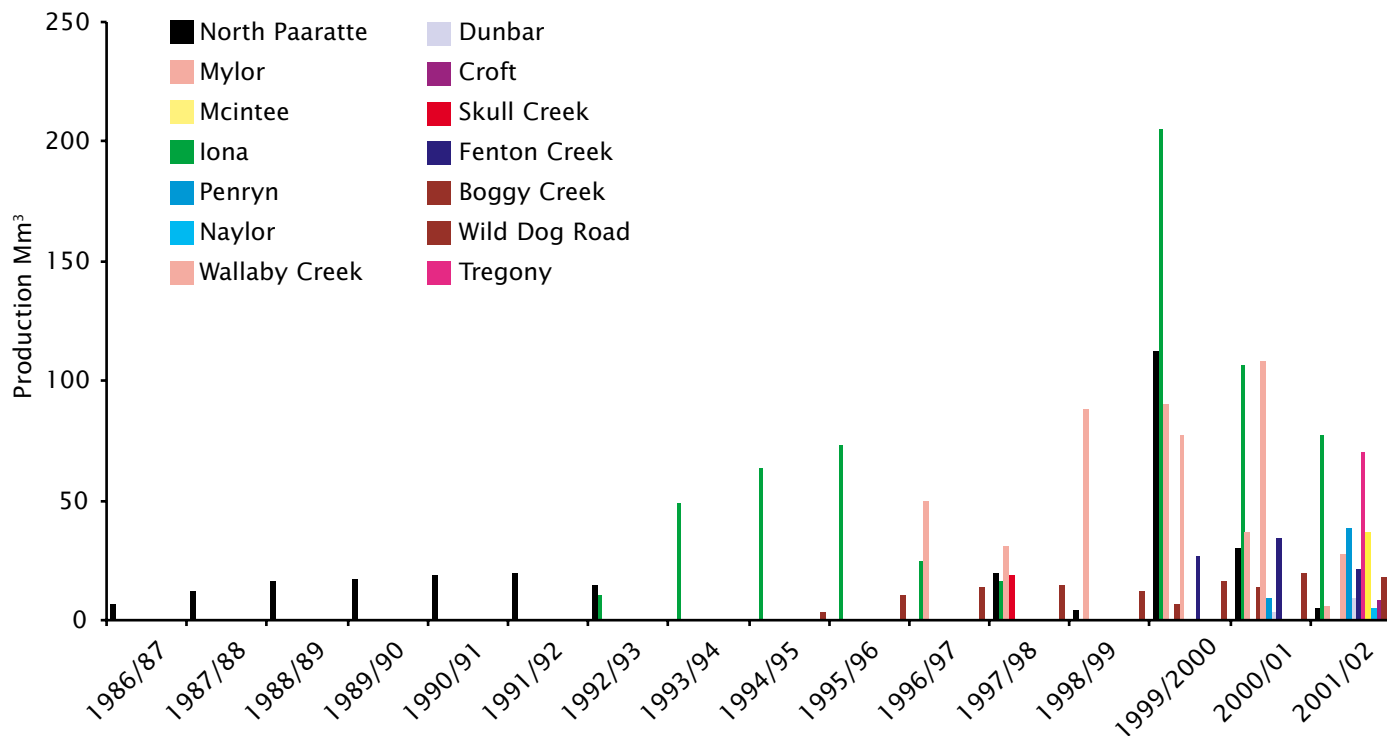


TABLE 6.1 ONSHORE VICTORIAN OTWAY BASIN ANNUAL GAS AND CONDENSATE PRODUCTION

Year	Nth Paaratte		Iona		Wallaby Crk		Skull Crk		Wild Dog Rd		Mylor		Penryn		Dunbar		Fenton Crk		Tregony		McIntee		Naylor		Croft		Boggy Crk*	
	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI	Gas, Mm ³	cond KI
1986-87	6.4	108.9																										
1987-88	12.4	203.8																										
1988-89	16.5	274.3																										
1989-90	17.0	271.8																										
1990-91	19.0	300.3																										
1991-92	19.2	290.7																										
1992-93	14.6	220.7	10.7	244.9																								
1993-94	0.1	0.0	49.0	1088.7																								
1994-95	0.0	0.0	63.8	1568.1																	3.4	0.1						
1995-96	0.0	0.0	72.9	1771.6																	10.7	4.1						
1996-97	0.0	0.0	24.7	672.7	49.6	836.0	0.0	0.0													13.8	5.8						
1997-98	19.9	328.3	16.3	335.6	30.7	466.7	19.1	0.0													14.5	7.5						
1998-99	3.8	56.3			88.1	1881.2																					11.8	7.1
1999-00	112.6	405.3	205.0	4248.1	90.1	1879.0			6.4	32.9	77.1	6146.8				26.6	1601.9									16.0	7.4	
2000-01	30.5	383.6	106.8	2634.0	36.5	719.5			13.6	57.3	108.0	7235.7	8.8	257.3	3.5	175.1	34.5	1587.5									19.7	9.6
2001-02	5.1	55.3	77.3	335.6	6.0	99.7					27.8	1853.1	38.1	2254.1	9.2	215.0	21.1	1046.7	70.2	4139.3	36.8	973.6	4.8	258.5	8.5	409.4	17.7	10.4
Total	277.1	2899.2	626.5	12899.3	301.0	5882.1	19.1	0.0	20.0	90.2	212.8	15235.6	46.9	2511.4	12.7	390.1	82.2	4236.1	70.2	4139.3	36.8	973.6	4.8	258.5	8.5	409.4	107.6	51.9

Source:
 Santos for: Mylor, Fenton Creek and Penryn fields
 Western Underground Gas Storage for: Iona, North Paaratte and Wallaby Creek fields
 Origin for: Skull Creek, Wild Dog Road and Dunbar Fields
 British Oxygen Company (BOC) for: Boggy Creek
 Wallaby Creek came on stream in September 1996. Maylor and Fenton Creek on August 1999, Wild Dog Road on January 2000
 *Boggy Creek is primarily CO² producer

GRAPH 12 ONSHORE VICTORIAN OTWAY BASIN GAS PRODUCTION (1986/87-2001/02)



GRAPH 13 ONSHORE VICTORIAN OTWAY BASIN CONDENSATE PRODUCTION (1986/87-2001/02)

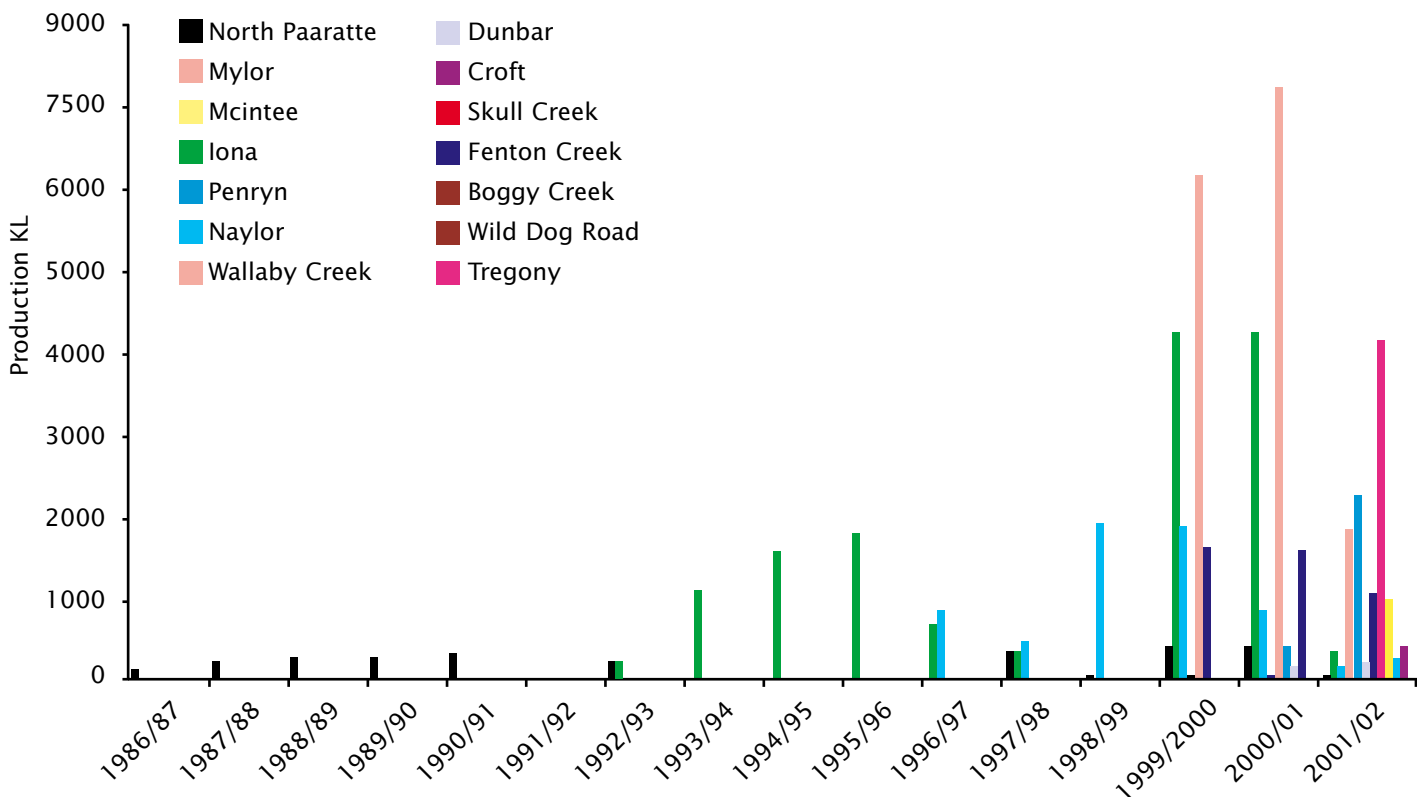


TABLE 6.2 ONSHORE OTWAY BASIN SALES GAS RESERVES STATUS (MM³), JUNE 2002

Licence Area	Initial Reserves	Cumulative Production	Remaining Reserves
H/C gas in Port Campbell area, as listed bellow	2395.3	1718.6	676.7
Boggy Creek (CO ² Producer)	396.4	107.6	288.8

Note:

*Producing fields in the Port Campbell area consist of Iona, North Paaratte, Wallaby Creek, Skull Creek, Boggy Creek, Fenton Creek, Mylor, Dunbar, Tregony, McIntee, Croft and Naylor.

**The newly discovered Lavers Field in the onshore Port Campbell region is not in production yet.

***The total gas in place for undeveloped offshore gas fields (Minerva, La Bella and Geographe) is estimated at about 1196.0 billion cubic feet (Bcf) or 33.1 billion cubic metres (Bm³).

TABLE 7.1 SEISMIC SURVEYS – VICTORIA (2001-2002)

3D Seismic							
Region	Basin	Survey Name	Permit	Operator	Start	Kilometres	Exp. m\$
Offshore	Gippsland	GB/3D	Offshore	ESSO	21/10/01	3000 km ²	60.0
Offshore	Gippsland	GBA02A	VIC/P-42	GEO Ser.	1/2/02	423 km ²	4.0
Offshore	Otway	OB/3D	VIC/P-44	Strike Oil	19/10/01	545 km ²	10.9
2D Seismic							
Offshore	Gippsland	GB/2D	VIC/P-48	Pan Canadian	17/12/01	200 km	0.4
Offshore	Gippsland	GB/2D	VIC/P-49	Pan Canadian	17/12/01	500 km	1.0
Offshore	Otway	OB/2D	VIC/Tasm.	Fugro Seismic Aust.	1/11/01	3990 km	5.5
Onshore	Otway	OC/02 2D (Cobden)	PEP-153	Santos	6/02	295 km	2.5
Onshore	Otway	OCW/02 2D (Curdie West)	PEP-154 A	Santos	1/02	57 km	0.5
Onshore	Otway	OCW/02 2D	PEP-160	Santos	20/3/02	210 km	1.4
Onshore	Otway	OSH/OZ Gravity Survey	PEP-151	Origin		20 km	0.04

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by permit holder under the provisions of the *Petroleum Act 1985*.

TABLE 7.2 2D-SEISMIC SURVEYS – VICTORIA (1984/85-2001/02)

Year	Offshore Basin		Onshore Basin			No. of Surveys	Kilometres Acquired
	Gippsland	Otway	Gippsland	Otway	Murray		
Pre 1984	54	23	33	60	0		
1984/85	5	2	0	8		15	10130
1985/86	1	0	1	6		8	1414
1986/87	0	2	0	6		8	477
1987/88	4	4	0	6		14	7455
1988/89	9	2	0	3	1	15	7838
1989/90	1	0	0	3		4	6655
1990/91	1	2	3	3		9	11384
1991/92	5	0	0	3		8	12235
1992/93	4	0	0	6		10	50946
1993/94	2	0	1	5		8	11191
1994/95	4	0	0	3		7	20073
1995/96	1	2	0	3	1	7	2792
1996/97	0	0	2	4		6	301
1997/98	0	0	0	3		3	233
1998/99	4	0	0	0		4	1671
1999/00	1	1	3	3		8	1127
2000/01	1	0	1	2		4	768
2001/02	2	1	0	4		7	5272
Totals	99	39	44	131	2	145	151962

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

GRAPH 14 SEISMIC SURVEYS – VICTORIA (1984/85-2001/02)

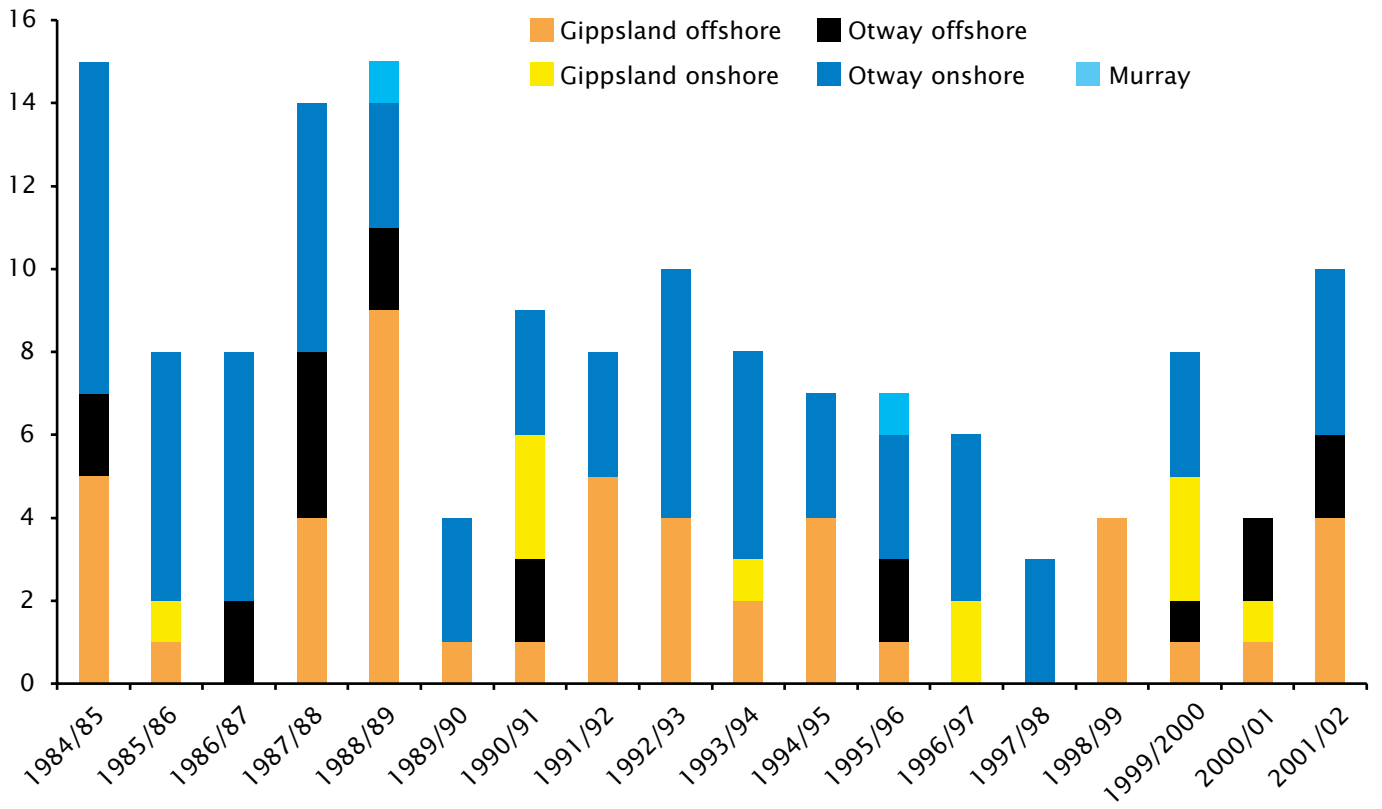


TABLE 8.1 PETROLEUM EXPLORATION WELLS – VICTORIA (2001/02)

Region	Basin	Well Name	Spud Date	Operator	Tenement	Status	Total Depth (m)
Onshore	Otway	Lavers-1	5/12/01	Santos	PEP-154	Gas Discovery	1627
Onshore	Otway	Buttres North-1	7/1/02	Santos	PEP-154	Gas Discovery	1732
Onshore	Otway	Naringal-1	23/1/02	Santos	PEP-154	Dry (minor show)	1710
Onshore	Otway	Naylor South-1	15/12/01	Santos	PEP-154	Dry (minor show)	2243
Onshore	Otway	Naylor-1	9/5/01	Santos	PEP-153	Gas Discovery	2143
Onshore	Otway	Penryn-2	7/8/01	Santos	PEP-153	Gas Discovery	1694
Onshore	Otway	Port Fairy-1	9/1/02	Origin	PEP-152	Gas Shows Sus.	1550
Offshore	Otway	Thylacine-2	28/8/01	Origen/Woodside	T/P-30	Gas Discovery	2525
Offshore	Otway	N. Geographe-1	28/9/01	Origen/Woodside	VIC/P-43	P + A	2156
Onshore	Murray	Kelly-1	8/10/01	Knight Industry	PEP 161	Dry	862
Onshore	Gippsland	Boundary Creek-1	7/8/01	Lakes Oil	PEP 157	Stratigraphic Show Well	366
Onshore	Gippsland	York-1	18/2/02	Lakes Oil	PEP 158	Dry	1200
Onshore	Gippsland	Deadman Hill-1	12/5/02	Lakes Oil	PEP 157	Stratigraphic Well	839
Onshore	Gippsland	Protea-1	4/6/02	Lakes Oil	PEP 157	Stratigraphic Well	840
Offshore	Gippsland	East Pilchard-1	3/7/01	ESSO	VIC/L9	Gas + CO ² Discovery	2138
Offshore	Gippsland	Patricia-2	20/6/02	OMV	VIC/RL 5	Gas Discovery	1385
Offshore	Gippsland	Baleen-3	4/6/02	OMV	VIC/RL 6	Gas Discovery	1555
Offshore	Gippsland	Melville-1	16/10/01	Bass Strait Oil	VIC/P-42	Dry	3345

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

TABLE 8.2 PETROLEUM EXPLORATIONS WELLS – VICTORIA (1984/85-2001/02)

Year	Offshore		Onshore			Total wells	Total drilled (m)
	Gippsland	Otway	Gippsland	Otway	Murray		
Pre 1984						381	
1984/85	10	0	2	2	0	14	29223
1985/86	9	1	3	5	0	18	36925
1986/87	2	0	2	2	0	6	9282
1987/88	1	0	2	7	0	10	13839
1988/89	9	0	0	1	0	10	29871
1989/90	17	0	0	2	0	19	51941
1990/91	0	0	2	6	1	9	9893
1991/92	5	0	0	2	0	7	14953
1992/93	4	4	0	1	0	9	21255
1993/94	2	1	0	3	0	6	12682
1994/95	6	0	2	5	0	13	27563
1995/96	2	2	0	3	0	7	16281
1996/97	2	0	1	5	0	8	17112
1997/98	2	0	0	1	0	3	6518
1998/99	0	0	1	0	0	1	1743
1999/00	3	0	3	2	0	8	10745
2000/01	1	1	2	5	0	9	17712
2001/02	4	2	4	7	1	18	28208
Totals	79	11	24	59	2	556	355746

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

GRAPH 15 EXPLORATION WELLS – VICTORIA (1984/85-2001/02)

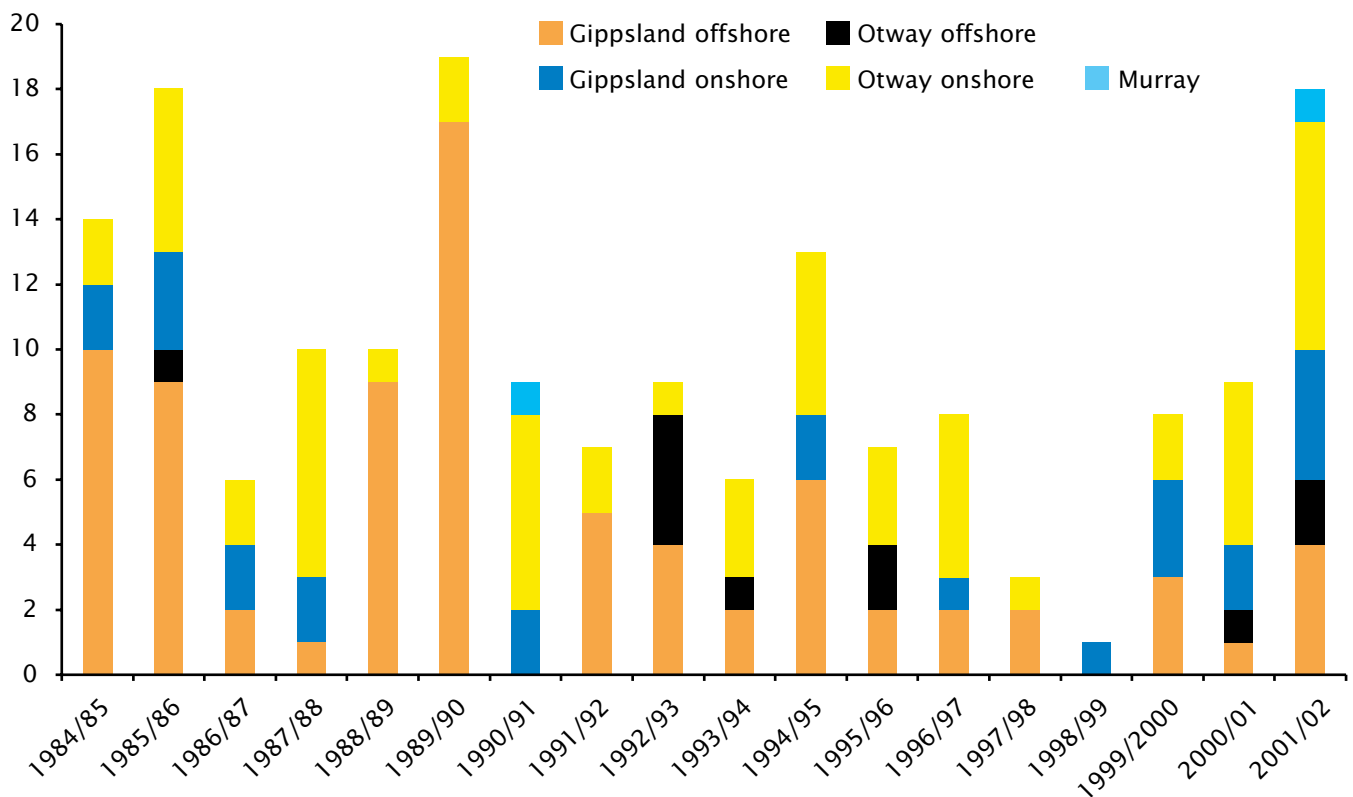


TABLE 9.1 OFFSHORE DEVELOPMENT WELLS – VICTORIA (JULY 2001-JUNE 2002)

Region	Well	Spudd Date	Operator	Licence	Total Depth (m)
Offshore Gippsland	W-22	6 Jun 01	ESSO	VIC/L-4	2488
Offshore Gippsland	W-21	1 Jul 01	ESSO	VIC/L-4	3261
Offshore Gippsland	W-4a	25 Jul 01	ESSO	VIC/L-4	2833
Offshore Gippsland	W-15	25 Jul 01	ESSO	VIC/L-4	3030
Offshore Gippsland	W-16	3 Sep 01	ESSO	VIC/L-4	830
Offshore Gippsland	W-9	6 Sep 01	ESSO	VIC/L-4	3003.6
Offshore Gippsland	W-3	24 Sep 01	ESSO	VIC/L-4	3575
Offshore Gippsland	W-20	14 Oct 01	ESSO	VIC/L-4	3663
Offshore Gippsland	W-16	20 Nov 01	ESSO	VIC/L-4	168
Offshore Gippsland	W-27	25 Nov 01	ESSO	VIC/L-4	3529.5
Offshore Gippsland	W-48A	20 Jan 02	ESSO	VIC/L-4	2268
Offshore Gippsland	W-8	25 Feb 02	ESSO	VIC/L-4	3590
Offshore Gippsland	W-33	20 Apr 02	ESSO	VIC/L-4	2460
Offshore Gippsland	W-38	18 May 02	ESSO	VIC/L-4	1730
Total Depth (m)					36429.1

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

TABLE 9.2 DEVELOPMENT WELLS – VICTORIA (1984/85-2001/ 02)

Year	Wells drilled	Annual Drilling (m)
Pre 1984	499	N/A
1984/85	28	89664
1985/86	10	34320
1986/87	16	51221
1987/88	8	29613
1988/89	14	37783
1989/90	17	46369
1990/91	6	19551
1991/92	11	30664
1992/93	8	30021
1993/94	10	39810
1994/95	17	60469
1995/96	10	42519
1996/97	33	97678
1997/98	30	84823
1998/99	44	133166
1999/00	9	25915
2000/01	4	9644
2001/02	14	36429
Totals	788	899659

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

TABLE 10 PETROLEUM EXPLORATION EXPENDITURE (1984/85-2001/02)

Year	Onshore	Offshore	Total million A\$
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

Source: The above figures are collated from reports forwarded to the Department of Natural Resources and Environment by operators under the provisions of the *Petroleum (Submerged Lands) Acts 1967 (Commonwealth) & 1988 (State)* and the *Petroleum Act 1958*.

Over the last decade annual petroleum expenditure has fluctuated significantly, with peaks of over \$100 million per annum in the 1980's. The average annual expenditure in the 1990's has been \$39 million

Petroleum exploration expenditure in Victoria in 2001/02 was A\$ 190 million. During the year a total of 18 exploration wells have been drilled, out of which 7 wells in onshore Otway Basin, 4 in onshore Gippsland Basin and 1 in the Murray Basin. In offshore regions, 6 wells were drilled, 4 in Gippsland and 2 in Otway Basin. Data acquisition in onshore Otway Basin (Port Campbell Region) comprises 582 km 2D, in offshore Otway Basin 5445 km² 3D and 3990 km 2D. In the offshore Gippsland Basin, a total of 700 km 2D and 3250 km² 3D.

GRAPH 16 DEVELOPMENT WELLS – VICTORIA (1984/85-2001/02)

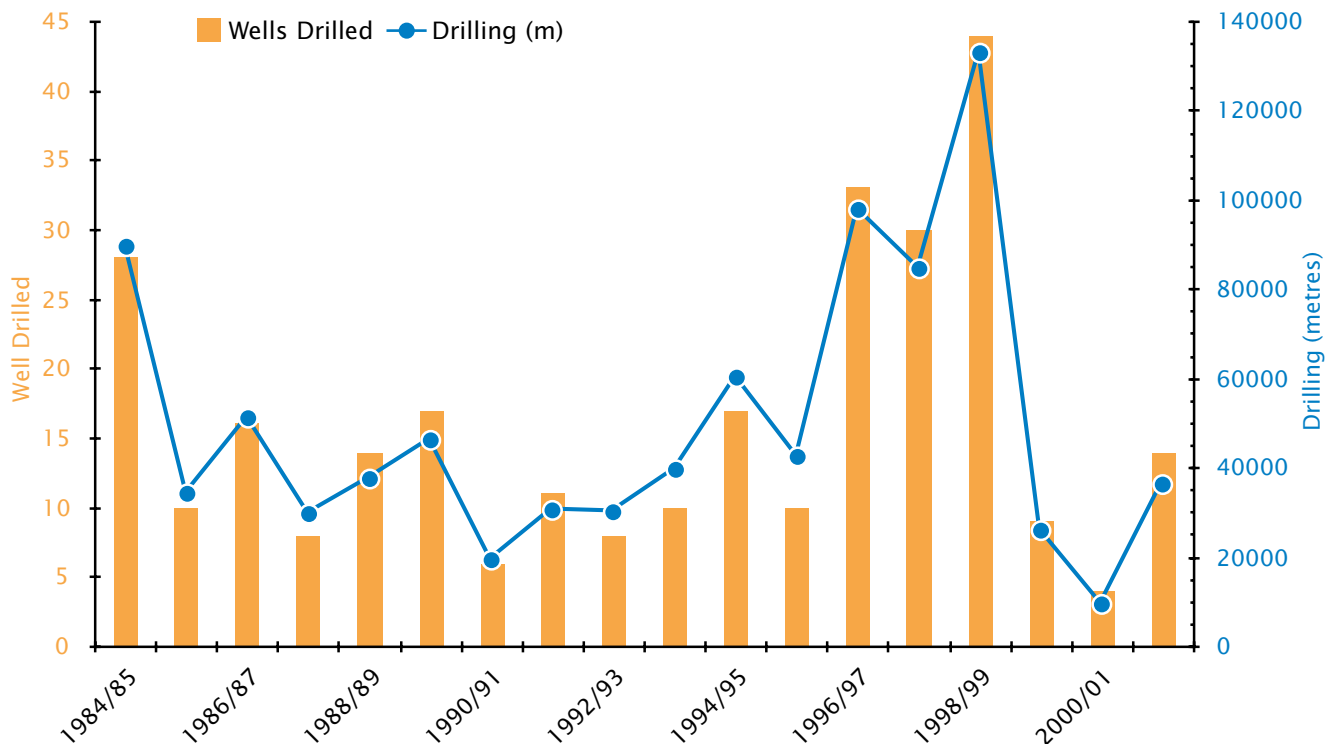


TABLE 11 OFFSHORE GIPPSLAND BASIN – PETROLEUM SAFETY STATISTICS

Year	Lost Time Injuries
1989/90	39
1990/91	17
1991/92	8
1992/93	3
1993/94	2
1994/95	2
1995/96	0
1996/97	0
1997/98	0
1998/99	1
1999/00	1
2000/01	1
2001/02	0

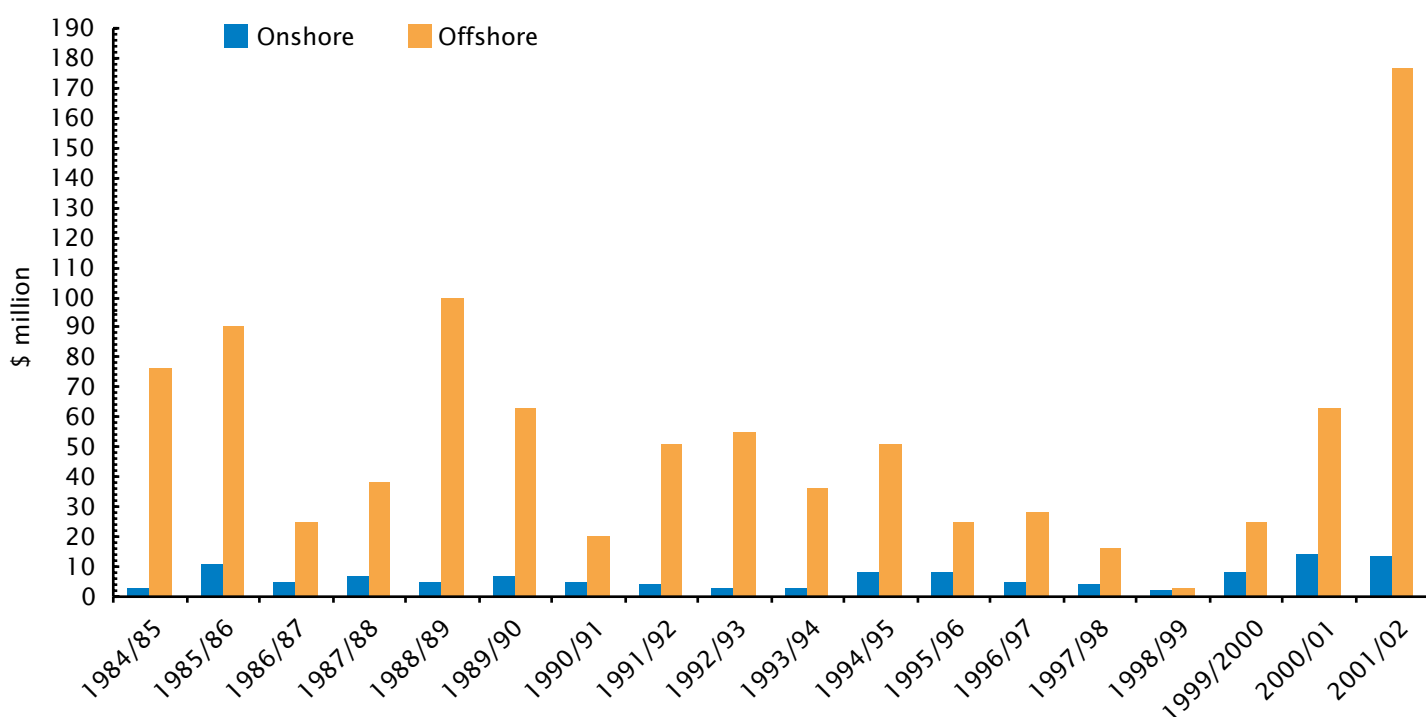
Source: Department records

Note: 21 minor incidents occurred during 2001/02 operations of which 7 were within VIC/L-21 during OMV drilling operations and 15 were within ESSO / BHP Billiton drilling operations in offshore Gippsland Basin.

TABLE 12 BASS STRAIT OFFSHORE PETROLEUM SAFETY STATISTICS

	Year	Exposure hrs Contractors	Exposure hrs Employees	Total Exposure hrs	Incidents	LTI
Totals	1999/2000	1652796	332066	1984862	10	1
Totals	2000/2001	1786488	374696	2161184	5	1
Cumulative Totals		3439284	706762	4146046	15	2

GRAPH 17 PETROLEUM EXPLORATION EXPENDITURE – VICTORIA (1984/85-2001/02)





Extractive Industries

The extractive industries are the foundation of Victoria's building and construction industries and are regulated under *Extractive Industries Development Act 1995*. Although not sharing the limelight of the other resource industries, they contribute the vital raw materials for a modern society and generate the greatest value, in direct royalties to the State, of any of the earth resource industries. The industry's major outputs are:

- crushed rock, largely for concrete and road construction,
- sand for concrete, glass manufacture and other industrial uses, and
- clay, largely for pipe, tile and brick manufacture.

The annual production of the extractive industry materials is an indicator of the construction activity in the State. In 2001/2002 production was 38.3 million tonnes with an estimated value of \$355 million.

TABLE 12.1A VICTORIAN EXTRACTIVE INDUSTRIES PRODUCTION AND SALES BY ROCK TYPE 2001/2002

Product Group	Product Type	Sales – Tonnes	Sales – \$ value*
Hard Rock			
	Basalt	13475085	\$129,898,778
	Dolerite	494550	\$6,057,475
	Gneiss	12650	\$104,601
	Granite	3397412	\$39,168,557
	Hornfels	3148019	\$30,154,855
	Quartzite	57503	\$643,801
	Rhyodacite	936804	\$12,452,305
	Schist	4560	\$42,750
	Sedimentary	1625894	\$7,957,314
	Slate	613	\$230,000
Hard Rock Total		23153090	\$226,710,436
Soft Rock			
	Clay & clay shale	1283043	\$4,213,032
	Limestone	1715755	\$13,503,252
	Sand & gravel	10839980	\$99,353,091
	Scoria	827847	\$8,525,041
	Soil	20850	\$149,853
	Tuff	461699	\$2,410,628
Soft Rock Total		15149174	\$128,154,897
Grand Total		38302264	\$354,865,334

*Where no data is supplied by the operator an estimated value is used.

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

Only operations reported under the *Extractive Industries Development Act 1995* are included in the above figures.

Stone production in 2001/02 showed an increase to 38.3 million tonnes from the previous years' production of 36.6 million tonnes in 2000/01. This is interpreted as a reflection of improved reporting, rather than increased demand for construction material in 2001/2002.

TABLE 12.1B VICTORIAN EXTRACTIVE INDUSTRIES PRODUCTION AND SALES BY PRODUCT 2001/2002

Product Group	Product Type	Sales – Tonnes	Sales – \$ Value
Single size products	Aggregate	118133	\$765,650
	Armour	10783795	\$141,476,419
Single size products Total		10901928	\$142,242,069
Multi size products	Road_base	6441662	\$58,330,621
	Road sub_base	6905574	\$41,522,330
	Fill	1950198	\$6,264,187
Multi size products Total		15297434	\$106,117,138
Sand products	Concrete sand	5098478	\$58,404,171
	Foundry sand	35496	\$91,303
	Fine sand	1806758	\$13,410,764
	Glass sand	452489	\$4,399,890
	Industrial	42891	\$196,053
Sand products Total		7436112	\$76,502,181
Limestone Products	Cement	686637	\$1,579,000
	Agriculture	279918	\$4,535,398
	Lime	25360	\$176,500
Limestone Products Total		991915	\$6,290,898
Clay products	Brick	1208795	\$4,014,357
	Firebricks	20900	\$23,597
	Tile/pipe	43743	\$180,121
Clay products Total		1273438	\$4,218,075
Miscellaneous	Dimension stone	20889	\$756,701
	Product type not reported	2380548	\$18,738,273
Miscellaneous Total		2401437	\$19,494,974
Grand Total		38302264	\$354,865,334

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

Notes: Only operations reported under the *Extractive Industries Development Act 1995* are included in the above Tables 12.1a and 12.1b.

TABLE 12.2 VICTORIAN DIMENSION STONE PRODUCTION 1992/1993-2001/2002

	1992/93 Tonnes	1993/94 Tonnes	1994/95 Tonnes	1995/96 Tonnes	1996/97 Tonnes	1997/98 Tonnes	1998/99 Tonnes	1999/00 Tonnes	2000/01 Tonnes	2001/02 Tonnes
Basalt	4497	5607	11845	10065	2000	6060	-	19063	20868	18803
Granite	7474	5235	5213	5516	4405	1821	2572	3462	233	1058
Sandstone	1535	857	902	196	1400	256	1295	343	23	415
Slate	-	625	780	730	977	1130	1058	538	1233	613
Total	13506	12324	18740	16507	8782	9267	4925	23406	22357	20889

Sources: Operators, Departmental records and statutory returns under the *Extractive Industries Development Act 1995*. Dimension stone production in 2001/02 was little different than the previous year reflecting steady market conditions.

TABLE 13.1 STATUS OF CURRENT EXTRACTIVE INDUSTRY WORK AUTHORITIES AT 30/6/2002

	Proposal	Applications	Granted
E I Search Permit	0	9	0
Work Authority	213	54	743
Total	213	63	743

Sources: Department records.

Note: A Search Permit and Work Authority are granted under the *Extractive Industries Development Act 1995* which commenced operation on 1 June 1996.

TABLE 14.1 EXTRACTIVE INDUSTRY SAFETY STATISTICS 1992/93-2001/02

Year	Lost Time Injuries (LTI's)	Employed*	Days Lost*	LTI Frequency Rate	LTI Incidence Rate	LTI Duration Rate	Severity Rate	Fatalities
1992/93	31	-	-	21.6	-	-	-	nil
1993/94	40	-	-	29.0	-	-	-	nil
1994/95	32	-	-	20.2	-	-	-	nil
1995/96	28	-	-	13.4	-	-	-	nil
1996/97	30	-	-	20.6	-	-	-	nil
1997/98	41	-	710	17.3	26.0	17.3	282.0	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

Sources: Departmental records

*Departmental records prior to 97/98 are incomplete

Note: **Lost Time Injuries** – are defined as those occurrences that resulted in a fatality, permanent disability or time lost from work of one day/shift or more.

Lost Time Injury Frequency Rate – is defined as the number of occurrences of lost time injury for each one million hours worked.

Lost Time Injury Incidence Rate – is defined as the number of Lost Time Injuries per thousand employees.

Lost Time Injury Duration Rate – is defined as the average days lost for every lost time injury.

Severity Rate – is defined as the number of days lost for each one million hours worked.

TABLE 14.2 EXTRACTIVE INDUSTRY MOST FREQUENT INJURIES (2001/02)

Injury	%
Strains & Sprains	48
Fracture – excluding vertebral column	24
Burns	9
Foreign particles in eye	9
Internal Injury of chest, abdomen and pelvis	5
Superficial Injury	5
Total	100

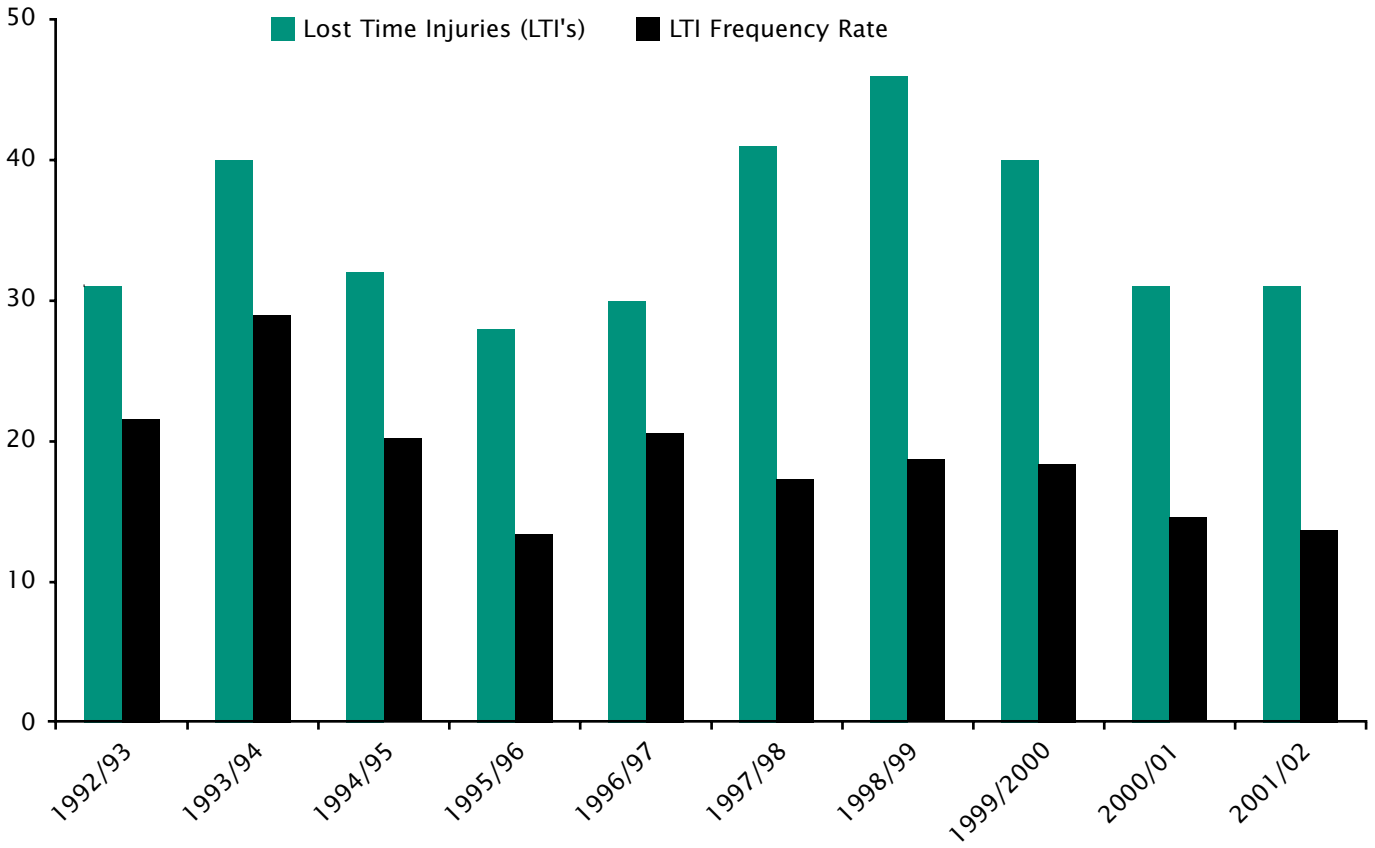
*Based on returns as at 25 November 2002.

Source: Department records.

Note: Based on reports submitted in AS1885.1 form.

Strains & Sprains and Fracture are the dominant injury types reported for extractive industry in Victoria for the year ending 30 June 2002.

GRAPH 19 EXTRACTIVE INDUSTRY SAFETY STATISTICS (1992/93-2001/02)



GRAPH 20 EXTRACTIVE INDUSTRY MOST FREQUENT INJURIES 2000/01

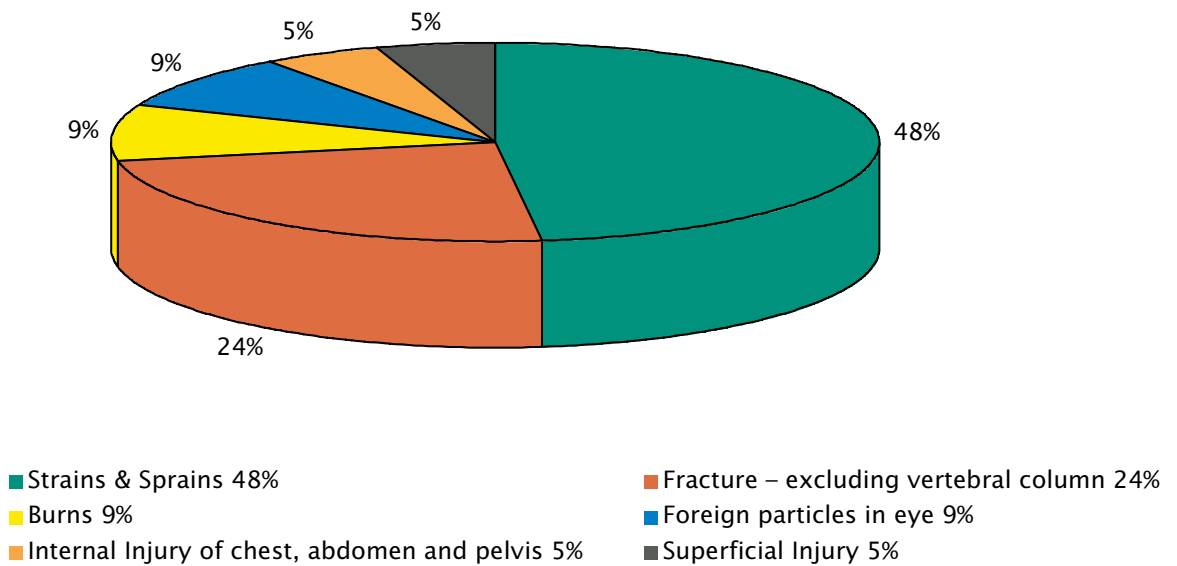


TABLE 15 MINERALS & PETROLEUM REGULATION – REVENUE 2001/02

Year	2001/02
Administration fees	\$448,345
Rent (invoiced)	\$3,148,049
Royalty	\$6,018,049
Miscellaneous	\$9,432
Total	\$9,623,984

Source: DNRE Oracle financial system

GRAPH 21 MINERALS & PETROLEUM REGULATION REVENUE STREAM FOR 2001/02

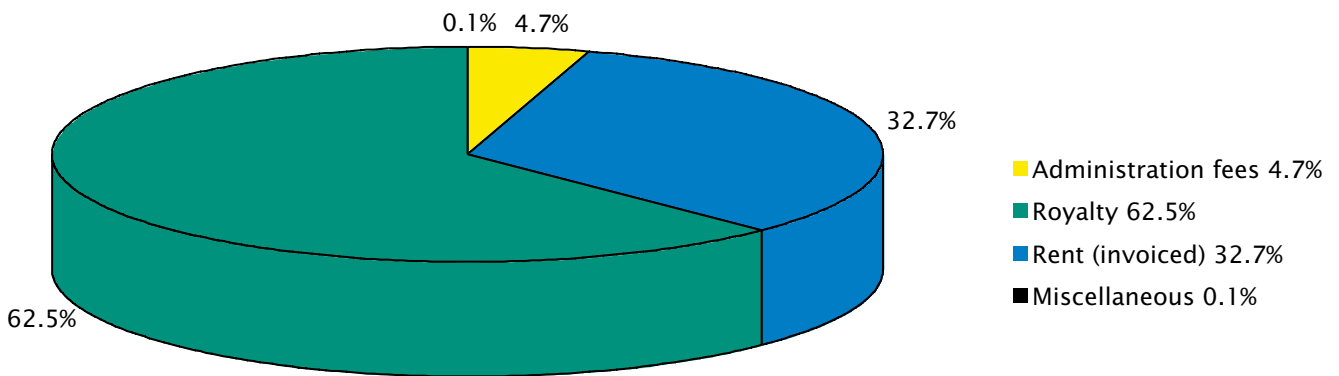


TABLE 16 REHABILITATION BONDS BY SECTOR – VALUE (\$ MILLIONS) JUNE 1999-JUNE 2002

Date	Exploration	Mining	Extractive	Total
June 99	1.504	53.154	20.203	74.861
June 00	1.279	53.262	22.782	77.323
June 01	1.234	57.434	31.392	90.060
June 02	1.130	57.459	34.540	93.129

TABLE 17 REHABILITATION BOND REVIEWS – 2001/02

Number of Bonds Reviewed	Result of Bond Review		
	Bond Increase	No Change	Bond Decrease
389	49	332	8

Bond Reviews: The Department has a program of regular bond review for active sites. Bonds are reviewed every 1 to 6 years depending on the risk associated with the operation.

TABLE 18 STATUS OF MINES AND QUARRIES EXPLOSIVE LICENCES AT 31 DECEMBER 1998-2002

Licence Type	Dec 98	Dec 99	Dec 00	Dec 01	Dec 02
Licence to Use Application	13	12	35	40	28
Licence to Use Issued	42	25	11	21	17
Licence to Store Application	87	83	79	66	8
Licence to Store Issued	82	74	74	67	10
Licence to Manufacture Application	0	0	8	4	11
Licence to Manufacture Issued	0	0	0	11	12

GRAPH 22 EXPLOSIVES MINES AND QUARRIES

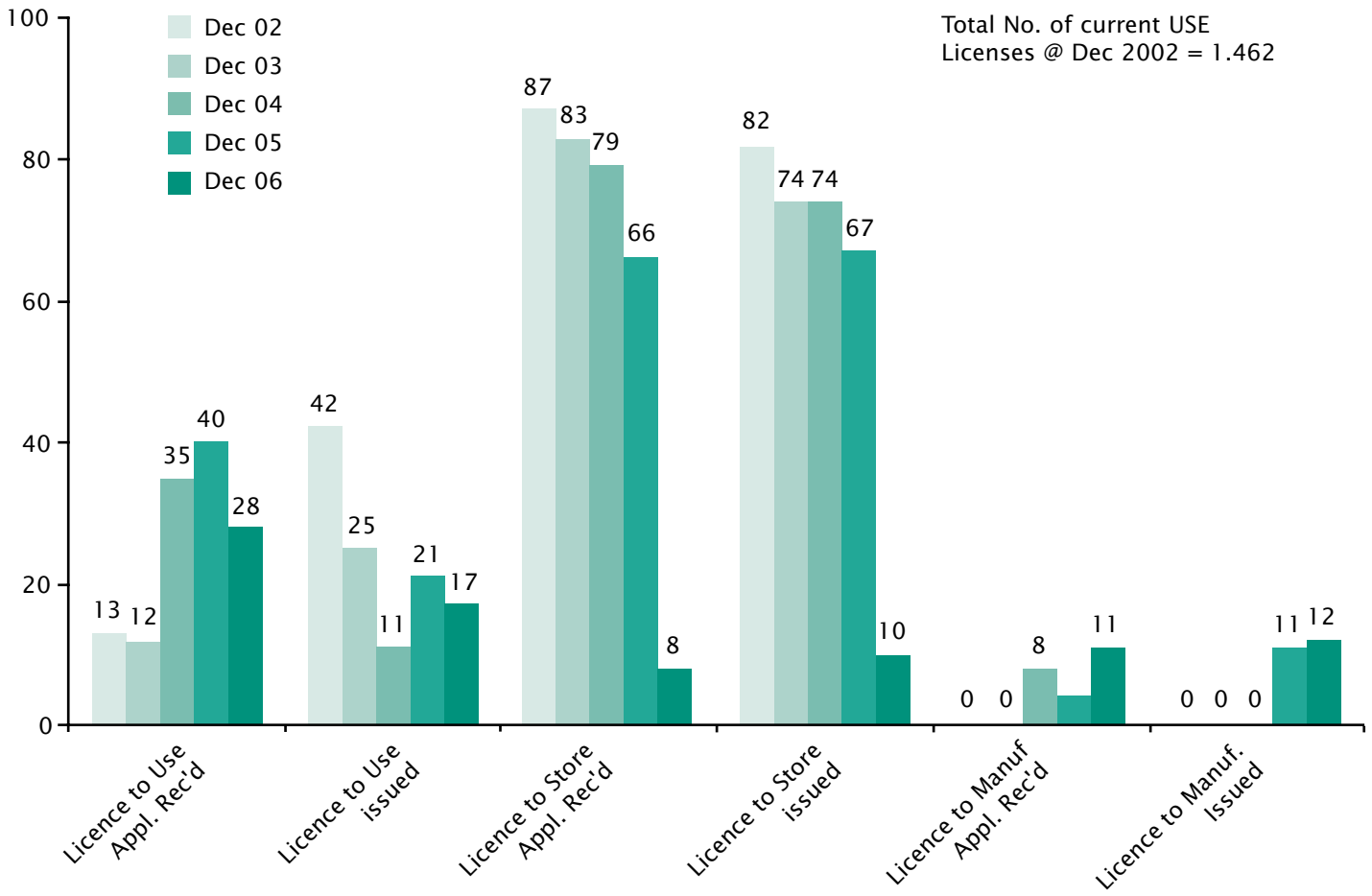
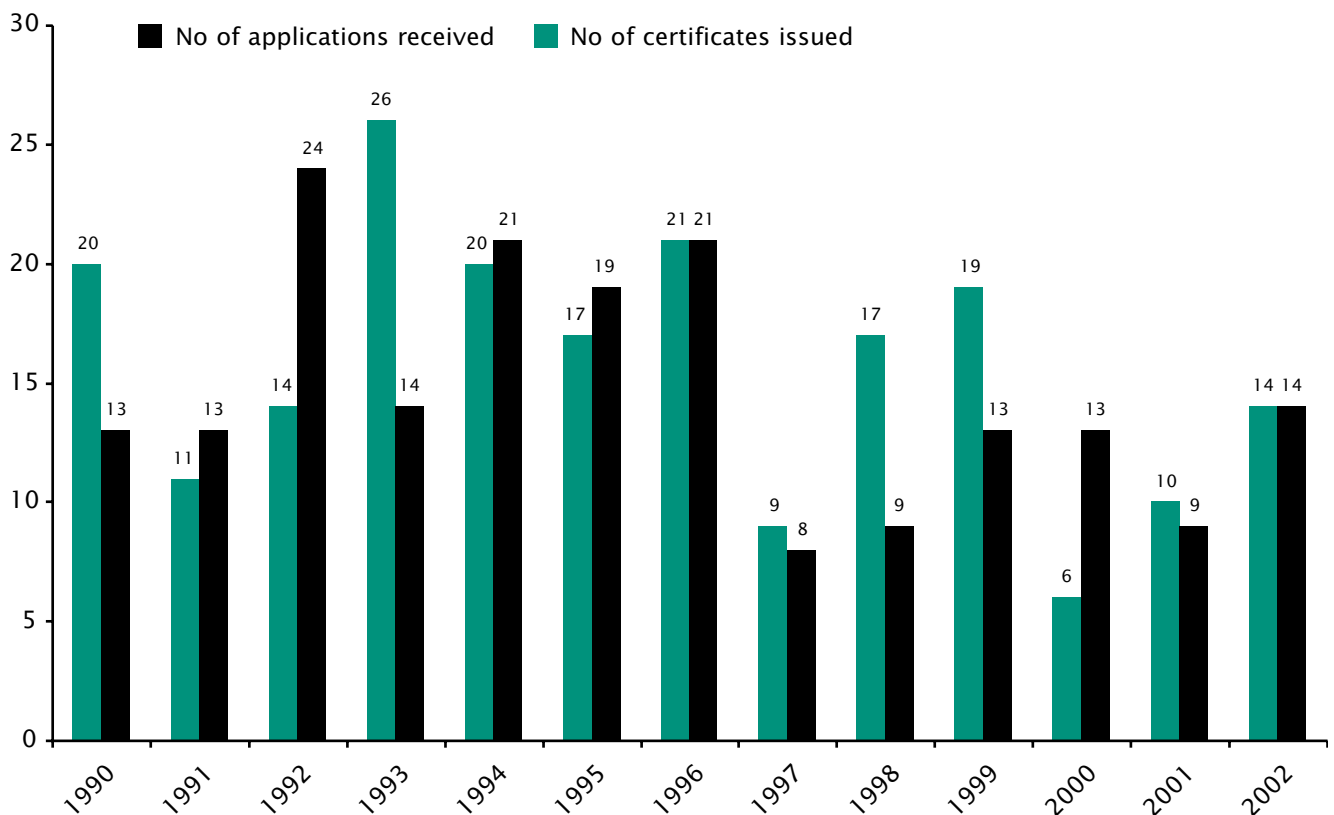


TABLE 19 STATUS OF QUARRY MANAGER CERTIFICATES AT 31 DECEMBER 1990-2002

Year	Applications	Issued
1990	20	13
1991	11	13
1992	14	24
1993	26	14
1994	20	21
1995	17	19
1996	21	21
1997	9	8
1998	17	9
1999	19	13
2000	6	13
2001	10	9
2002	14	14
Total	204	191

GRAPH 23 QUARRY MANAGERS CERTIFICATES ISSUED UNDER THE EIDA 1995**TABLE 20 COMPLIANCE MONITORING ACTIVITIES – HEALTH, SAFETY & ENVIRONMENT 2001-2002**

	Extractive	Mining	Petroleum
System Audits	21	7	4
Compliance Audits	295	50	10
Investigations	7	5	8

TABLE 21 ENFORCEMENT 2001-2002

Acts	Notices/ Directions	Infringement Notices	Improvement Notices	Prohibition Notices	Prosecutions in Progress
MRDA 1990	70	27	N/A	N/A	1
EIDA 1995	331	40	N/A	N/A	-
PETROLEUM 1998	-	N/A	N/A	N/A	-
PSLA 1967	37	N/A	N/A	N/A	-
PSLA 1982	-	N/A	N/A	N/A	-
OHS 1985	N/A	N/A	1	2	3
DG 1985	2	N/A	-	-	-
PIPELINES 1967	-	N/A	N/A	N/A	-
Total	440	67	1	2	4

N/A: Not present in legislation
 MRDA: Mineral Resources Development Act 1990
 EIDA: Extractive Industries Development Act 1995
 PETROLEUM: Petroleum Act 1998
 PSLA 1967: Petroleum (Submerged Land) Act 1967 (Cth)
 PSLA 1982: Petroleum (Submerged Land) Act 1982 (Vic)
 OHS: Occupational Health and Safety Act 1985
 DG: Dangerous Goods Act 1985
 PIPELINES 1967: Pipelines Act 1967

