# Earth Resources Regulator Annual Statistical Report FY 2022-23







We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.



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Historical data in the report have been updated to reflect amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report. The current annual statistical report may be updated in future to accommodate annual returns received after this publication.

### Accessibility

Accessible Word format at https://resources.vic.gov.au/legislation-and-regulations/regulator-performance-reporting/annual-statistical-reports

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## Introduction

The Earth Resources Regulator, under Resources Victoria within the Department of Energy, Environment and Climate Action (DEECA), is responsible for the regulation of minerals, extractive industries (quarries), petroleum, geothermal and carbon storage activities in Victoria and offshore Victorian waters, and for offshore pipelines in Victorian waters<sup>1</sup>. We are committed to being an effective and transparent regulator.

### The Earth Resources Regulator's role includes:

- granting rights to access resources
- assessing works and setting controls for the extraction of resources
- assessing site rehabilitation liabilities and setting bonds
- conducting compliance operations to ensure that authority holders fulfil their regulatory obligations
- engaging with communities and stakeholders
- collecting regulatory fees and royalties

### The Earth Resources Regulator administers the following Acts:

- Mineral Resources (Sustainable Development) Act 1990 (MRSDA): mineral exploration and mining, and quarrying extractive resources
- Petroleum Act 1998: petroleum exploration and development onshore
- Offshore Petroleum and Greenhouse Gas Storage Act 2010 (OPGGSA): petroleum exploration and development, greenhouse gas storage and pipelines in Victorian offshore waters
- Geothermal Energy Resources Act 2005: geothermal energy exploration and development
- Greenhouse Gas Geological Sequestration Act 2008: greenhouse gas storage onshore
- Extractive Industries (Lysterfield) Act 1986
- Nuclear Activities (Prohibitions) Act 1983
- Underseas Mineral Resources Act 1963
- Mines (Aluminium Agreement) Act 1961

<sup>&</sup>lt;sup>1</sup> Victorian waters are within three nautical miles of the coastline.

# Key observations and statistics

The Earth Resources Regulator 2022-23 Statistical Report presents a compilation of data as reported by tenement holders to the Earth Resources Regulator. All production and expenditure figures are certified by tenement holders. We are working to validate stone resources estimate data and exploring how to capture this information when work plans are varied. We will inform industry how and when this is available. The industry data in the report is derived from approximately 97 per cent of minerals and 95 per cent of extractive industries annual returns. Detailed breakdowns of annual returns submission rates are shown in *Table 7.2.1*.

### Extractive industries operations

- Stone production increased 0.5 per cent from 71.91 million tonnes to 72.30 million tonnes (*Table 2.1.1*).
- Value of sales increased 14.4 per cent from \$1,186.05 million to \$1,357.14 million (Table 2.1.1).
- Reserves data publication expected early 2024 pending data quality assurance.

### Minerals exploration and mining operations

- Mineral exploration expenditure decreased 28.9 per cent from \$229.9 million to \$163.4 million (*Table 3.1.1*).
- Mining expenditure increased 17.8 per cent from \$802.9 million to \$945.9 million (Table 3.1.1).
- Gold production decreased 21.6 per cent from 627,016 ounces to 491,425 ounces (Table 3.2.1).
- Licence applications granted increased by 28.9 per cent from 83 to 107 (Table 3.3.3).
- Licence renewals increased by 450.0 per cent from 12 to 66 (Table 3.3.4).

### Petroleum (gas)

 Gas production decreased 6.1 per cent from 9.50 petajoules to 8.92 petajoules of energy (Table 4.1.1).

### Rehabilitation bonds

- Total value of rehabilitation bonds held under the MRSDA was approximately \$828.8 million (Table 5.1.1).
- Total value of rehabilitation bonds held under the Petroleum / Geothermal Act was approximately \$26 million (5.1.2)
- Total number of bonds reviews conducted was 91 (Table 5.2.1).

### Royalties and regulatory fees

- Royalties payable decreased 20.8 per cent from \$143.0 million to \$131.9 million (Table 5.1.1).
- Gold royalties accounted for 25.7 per cent of total royalties payable (\$33.9 out of \$131.9 million)
   (Table 5.1.1).
- Revenue from regulatory fees was \$6.8 million (*Table 5.2.1*).

# **Extractives**

Quarries predominantly produce hard rock, clay, sand and gravel, which are mostly used for constructing houses, public infrastructure and private sector developments.

### 2.1 Extractive industries production

As at 30 June 2023, there were 832 quarries holding current extractive industries work authorities under the MRSDA. As at 31 October 2023, a total of 471 quarries reported production in financial year 2022-23. The production volume increased from 71.91 million tonnes to 72.3 million tonnes and the value of sales increased from \$1,186.05 million to \$1,357.14 million.

Table 2.1.1: Production and value of sales by financial year.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Current quarries at EOFY	888	881	873	860	848	847	832
Quarries recorded production	549	557	547	531	496	480	471
Production (million tonnes)	58.17	61.37	63.04	64.71	67.23	71.91	72.29
Value of sales (\$ million)	\$855.39	\$990.91	\$1,024.81	\$1,075.47	\$1,119.10	\$1,186.05	\$1,357.14

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

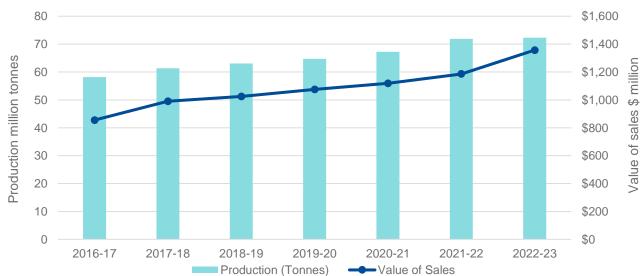


Figure 2.1.1: Production and value of sales by financial year.

Table 2.1.2: Extractive industries production and value of sales by product type over five financial years.

Product group	Product type groups	2018	I-19	2019	9-20	2020	)-21	2021	-22	2022-	-23
		Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Production (million tonnes)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)
	Brick	0.94	\$2.71	0.93	\$2.59	0.91	\$2.54	1.08	\$2.18	1.03	\$3.81
Clay products	Stoneware pottery	0.004	\$0.05	0.001	\$0.02	0.001	\$0.01	0.001	\$0.02	0.001	\$0.02
	Tile/pipe	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	0.00	\$0.00
Total clay products		0.94	\$2.75	0.93	\$2.60	0.91	\$2.55	1.08	\$2.20	1.03	\$3.83
	Agriculture	0.62	\$16.25	0.62	\$17.46	0.86	\$24.29	0.76	\$21.33	0.31	\$10.05
Limestone products	Cement	0.04	\$0.89	0.06	\$1.03	0.07	\$1.25	0.03	\$0.81	0.08	\$1.92
	Lime	0.07	\$1.28	0.09	\$1.63	0.20	\$3.30	0.55	\$9.96	0.75	\$18.12
Total limestone products		0.73	\$18.42	0.77	\$20.12	1.14	\$28.84	1.34	\$32.10	1.14	\$30.08
	Dimension stone	0.0005	\$0.12	0.01	\$0.29	0.24	\$1.11	0.08	\$1.73	0.03	\$0.99
Miscellaneous	Soil	0.05	\$0.59	0.03	\$0.11	0.15	\$1.06	0.19	\$1.16	0.07	\$0.94
	Unspecified	3.00	\$32.79	4.77	\$72.06	6.57	\$105.50	0.22	\$4.02	0.00	\$1.65
Total miscellaneous		3.05	\$33.51	4.81	\$72.46	6.96	\$107.67	0.49	\$6.90	0.09	\$3.58
	Fill	3.79	\$38.38	4.87	\$46.47	4.36	\$43.81	6.93	\$62.75	7.27	\$77.99
Multi-size products	Road base	7.62	\$122.33	5.49	\$91.16	4.36	\$80.65	7.23	\$140.59	7.17	\$174.66
	Road sub-base	12.91	\$160.52	13.12	\$175.55	12.23	\$168.57	18.28	\$249.72	17.62	\$294.99
Total multi-size products		24.31	\$321.22	23.47	\$313.18	20.95	\$293.03	32.45	\$453.06	32.05	\$547.63
	Concrete sand	9.25	\$151.73	8.76	\$153.84	9.67	\$151.72	11.79	\$173.59	9.18	\$179.31
Sand products	Fine sand	1.61	\$19.33	3.01	\$43.49	2.32	\$35.78	1.85	\$29.88	2.94	\$60.97
	Foundry sand	0.86	\$19.11	0.002	\$0.10	0.57	\$13.35	0.08	\$7.25	0.07	\$3.87
	Industrial filters	0.02	\$0.20	0.00	\$0.00	0.05	\$0.82	0.05	\$3.18	0.06	\$4.98
Total sand products		11.74	\$190.37	11.77	\$197.42	12.61	\$201.67	13.77	\$213.90	12.25	\$249.12
Single-size products	Aggregate	21.36	\$427.62	22.90	\$467.94	24.55	\$483.80	22.59	\$475.62	25.60	\$519.15
	Armour	0.918	\$30.90	0.063	\$1.76	0.114	\$1.53	0.180	\$2.27	0.129	\$3.75
Total single-size products		22.28	\$458.53	22.97	\$469.69	24.66	\$485.33	22.77	\$477.89	25.73	\$522.89
Financial year total		63.04	\$1,024.81	64.71	\$1,075.47	67.23	\$1,119.10	71.91	\$1,186.05	72.29	\$1,357.14

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

Table 2.1.3: Extractive industries production and value of sales by rock type over five financial years.

Rock group	Rock group Rock type		-19	2019-	20	2020	-21	2021	-22	2022-23	
		Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Production (million tonnes)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)	Production (million tonnes)	Value of sales (\$ million)
	Basalt new	21.73	\$352.31	21.50	\$362.92	22.76	\$385.15	24.45	\$402.70	23.68	\$489.29
	Basalt old	3.85	\$84.17	4.38	\$80.31	2.86	\$60.22	4.01	\$83.09	3.86	\$90.04
	Dolerite	0.001	\$0.01	0.00	\$0.00	0.35	\$6.68	0.00	\$0.00	0.00	\$0.00
	Gneiss	0.01	\$0.00	0.08	\$1.92	0.004	\$0.00	0.001	\$0.00	0.01	\$0.00
	Granite	5.35	\$117.65	7.06	\$138.83	7.38	\$138.80	6.70	\$134.97	11.63	\$153.06
Hard rock	Hornfels	5.22	\$86.87	5.27	\$89.60	5.58	\$114.43	7.30	\$141.51	6.65	\$158.55
	Quartzite	0.03	\$0.75	0.01	\$0.60	0.04	\$1.06	0.08	\$1.51	0.11	\$1.62
	Rhyodacite	1.52	\$33.52	1.54	\$35.53	1.73	\$39.99	2.16	\$51.31	2.17	\$54.68
	Schist	0.48	\$9.31	0.43	\$8.32	0.19	\$4.54	0.43	\$9.96	0.27	\$5.72
	Slate	0.04	\$1.17	0.04	\$1.36	0.23	\$1.46	0.07	\$1.20	0.07	\$1.25
	Trachyte	0.03	\$0.70	0.03	\$0.51	0.02	\$0.54	0.03	\$0.64	0.04	\$0.86
Total hard rock		38.27	\$686.46	40.34	\$719.90	41.16	\$752.87	45.23	\$826.89	48.50	\$955.07
	Clay and clay shale	1.20	\$3.49	1.49	\$5.36	1.33	\$3.35	2.75	\$4.38	1.62	\$4.86
	Limestone	1.99	\$29.08	1.97	\$31.32	2.28	\$38.52	2.36	\$41.68	2.03	\$38.86
	Sand and gravel	16.70	\$248.96	15.75	\$257.70	17.33	\$263.42	17.03	\$253.31	15.75	\$290.29
Soft rock	Scoria	0.76	\$12.97	0.94	\$15.41	1.12	\$18.78	0.96	\$18.48	1.17	\$23.15
	Sedimentary*	3.76	\$39.75	3.61	\$40.26	3.68	\$38.59	2.88	\$35.52	2.68	\$39.18
	Soil	0.05	\$0.62	0.06	\$0.11	0.15	\$1.08	0.19	\$1.16	0.07	\$0.94
	Tuff	0.32	\$3.48	0.56	\$5.41	0.20	\$2.26	0.50	\$4.57	0.48	\$4.75
Total soft rock		24.77	\$338.35	24.37	\$355.57	26.07	\$366.00	26.68	\$359.11	23.79	\$402.03
Financial year tot	al	63.04	\$1,024.81	64.71	\$1,075.47	67.23	\$1,118.86	71.91	\$1,186.00	72.29	\$1,357.10

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

 $<sup>\</sup>hbox{*Sedimentary (usually rippable rocks, including sandstone, shale, siltstone, chert, mudstone, claystone)}.$ 

### 2.2 Extractive industries work authorities

Table 2.2.1: Extractive industries work authorities granted by financial year.

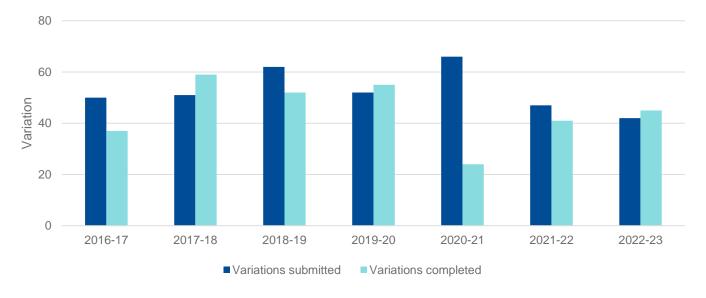
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Work authorities granted	10	13	11	4	3	15	10
Resource estimate* (million tonnes)	-	-	+	-	+	56.1	10.0

<sup>\*</sup>Resource estimate: The total estimated resource available for extraction from the granted work authorities. The data was provided by tenement holders. Resource estimate data is not available prior to FY 2021-22.

Table 2.2.2: Extractive industries work authority variations by financial year.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Work authority variations submitted	50	51	62	52	66	47	42
Work authority variations completed	37	59	52	55	24	41	45

Figure 2.2.2: Extractive industries work authority variations by financial year.



# 2.3 Extractive industries work plans, codes of practice and administrative updates by notification

Work plans and codes of practices submitted and approved by financial year:

- An initial work plan is the primary document describing the permitted activities to be undertaken on a work authority.
- A work plan variation is submitted by a licence holder when they want to change the scope of work in an existing work plan.
- Code of practice (eligible to operate under the Code of Practice for Small Quarries).

Table 2.3.1: Extractive industries work plans, work plan variations and codes of practice applications submitted.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	15	6	10	7	6	8	8
Work plan variation	22	10	11	21	12	13	9
Code of practice	2	8	7	5	5	3	2
Total submitted	39	24	28	33	23	24	19

Table 2.3.2: Extractive industries work plans, work plan variations and codes of practice applications approved.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	4	11	9	6	5	5	4
Work plan variation	12	9	6	14	14	5	8
Code of practice	0	8	3	3	1	3	0
Total approved	16	28	18	23	20	13	12

Table 2.3.3: Extractive industries work plans, work plan variations and codes of practice applications withdrawn/refused.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	3	4	7	4	2	7	3
Work plan variation	0	2	2	4	4	6	2
Code of practice	2	1	1	0	0	5	1
Total withdrawn/ refused	5	7	10	8	6	18	6

Statutory endorsement indicates that the Earth Resources Regulator has assessed and endorsed the work plan or work plan variation as having met the requirements under the MRSDA.

Table 2.3.4: Extractive industries work plans and work plan variations statutory endorsements.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	9	7	4	9	6	4	6
Work plan variation	5	5	8	12	7	6	9
Total endorsed	14	12	12	21	13	10	18

Administrative updates by notification are minor changes to the existing work plan with no significant increase in risk arising from the new or changing work.

Administrative updates do not require statutory endorsement (no further planning permission required). The administrative updates by notification process was introduced towards the end of FY 2017-18.

Table 2.3.5: Extractive industries administrative updates by notifications received and acknowledged.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Received	-	3	14	30	12	26	22
Acknowledged	-	2	14	17	10	12	12

### **Minerals**

### 3.1 Mineral exploration and mining expenditure

Table 3.1.1: Expenditure on mineral exploration and mining development (\$ million).

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Mineral exploration (ABS seasonally adjusted data ) <sup>1</sup>	\$40.5	\$73.4	\$102.1	\$135.8	\$183.8	\$222.3	\$180.8
Mineral exploration <sup>2</sup>	\$44.2	\$69.0	\$107.3	\$132.2	\$198.3	\$229.9	\$163.4
Mineral mining <sup>3</sup>	\$749.1	\$654.6	\$734.5	\$837.1	\$831.7	\$802.9	\$945.9

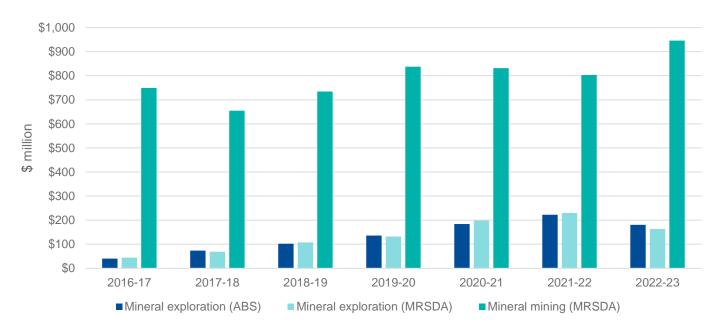
Source: Figures collated from annual activity reports required under the MRSDA and by the Australian Bureau of Statistics (https://www.abs.gov.au/statistics/industry/mining/mineral-and-petroleum-exploration-australia/latest-release#data-download).

1 The Australian Bureau of Statistics (ABS) reports quarterly on private mineral exploration expenditure for all Australian states and the Northern Territory. Victorian mineral exploration and mining expenditure is also reported in accordance with MRSDA requirements. The ABS exploration expenditure statistics can vary significantly from expenditure reported under the MRSDA. The difference between these two exploration expenditure data sets is mainly due to the difference in methodologies for data collection and the inclusion of the exploration expenditure on mining licences in the MRSDA figure. The ABS statistics are a valid basis for comparison of Victorian expenditure with other states and territories. However, the MRSDA figures provide greater detail.

2 The mineral exploration expenditure figures for exploration and retention licences and any specified exploration expenditure on mining and prospecting licences.

3 The mineral mining expenditure figure covers all expenditure on mining and prospecting licences (including capital and operating expenses), less any specified exploration expenditure on mining and prospecting licences.

Figure 3.1.1: Expenditure on mineral exploration and mining.



Exploration expenditure is allocated to the primary nominated mineral commodity on the licence in accordance with the MRSDA.

Table 3.1.2: Mineral exploration expenditure by commodity and financial year (\$ million).

Year	Gold	Mineral sands	Coal	Other*	Total
2016-17	\$26.1	\$5.2	\$0.5	\$12.5	\$44.2
2017-18	\$44.3	\$8.2	\$0.5	\$16.1	\$69.0
2018-19	\$57.3	\$24.2	\$7.1	\$18.8	\$107.3
2019-20	\$81.8	\$23.7	\$6.0	\$20.7	\$132.2
2020-21	\$149.3	\$16.4	\$6.9	\$25.7	\$198.3
2021-22	\$142.2	\$34.5	\$14.4	\$38.8	\$229.9
2022-23	\$91.0	\$32.5	\$7.9	\$32.0	\$163.4

<sup>\*</sup>Other includes cases where there is more than one primary mineral.

Figure 3.1.2: Mineral exploration expenditure by commodity and financial year (\$ million).

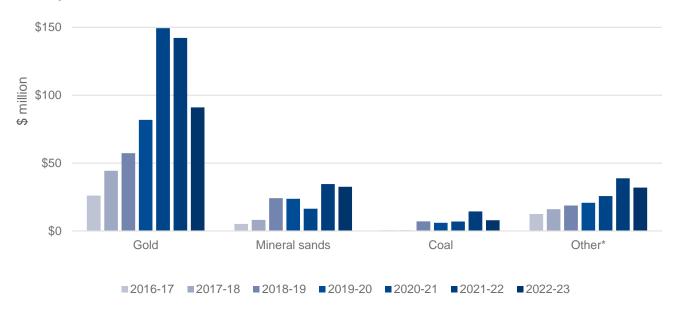
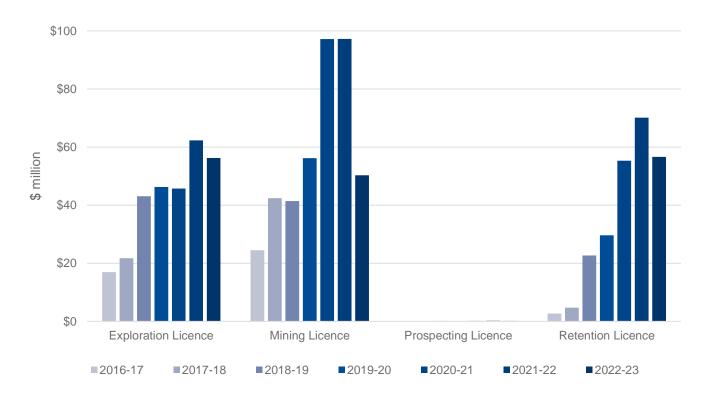


Table 3.1.3: Mineral exploration expenditure by licence type and financial year (\$ million).

Year	Exploration licence	Mining licence	Prospecting licence	Retention licence	Total
2016-17	\$17.O	\$24.5	\$0.1	\$2.7	\$44.2
2017-18	\$21.8	\$42.4	\$0.1	\$4.7	\$69.0
2018-19	\$43.1	\$41.4	\$0.1	\$22.7	\$107.3
2019-20	\$46.2	\$56.2	\$0.1	\$29.6	\$132.2
2020-21	\$45.7	\$97.2	\$0.1	\$55.3	\$198.3
2021-22	\$62.3	\$97.2	\$0.2	\$70.1	\$229.9
2022-23	\$56.3	\$50.3	\$0.1	\$56.6	\$163.4

Figure 3.1.3: Mineral exploration expenditure by licence type and financial year (\$ million).



Mining expenditure is allocated to the primary nominated mineral commodity on the licence in accordance with the MRSDA.

Table 3.1.4: Mining expenditure by commodity and financial year (\$ million).

Year	Gold	Mineral sands	Coal	Other*	Total
2016-17	\$260.0	\$15.2	\$431.2	\$42.7	\$749.1
2017-18	\$238.2	\$12.6	\$359.1	\$44.8	\$654.6
2018-19	\$316.4	\$14.6	\$329.3	\$74.2	\$734.5
2019-20	\$422.5	\$12.4	\$362.2	\$40.0	\$837.1
2020-21	\$401.2	\$13.2	\$361.9	\$55.3	\$831.7
2021-22	\$427.8	\$15.6	\$303.7	\$55.8	\$802.9
2022-23	\$509.2	\$12.2	\$371.2	\$53.3	\$945.9

<sup>\*</sup>Other includes cases where there is more than one primary mineral.

Figure 3.1.4: Mining expenditure by commodity and financial year (\$ million).

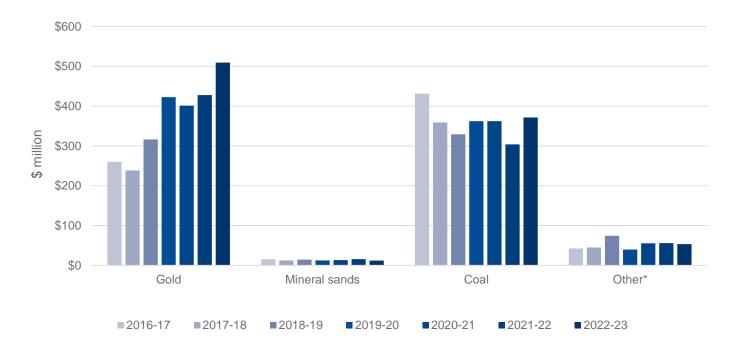


Table 3.1.5: Mining expenditure by licence types and financial year (\$ million).

Year	Mining licence	Prospecting licence	Total
2016-17	\$748.4	\$0.6	\$749.1
2017-18	\$653.9	\$0.7	\$654.6
2018-19	\$733.7	\$0.8	\$734.5
2019-20	\$836.4	\$0.8	\$837.1
2020-21	\$830.3	\$1.4	\$831.7
2021-22	\$800.9	\$2.0	\$802.9
2022-23	\$944.5	\$1.4	\$945.9

Figure 3.1.5: Mining expenditure for mining licences by financial year (\$ million).

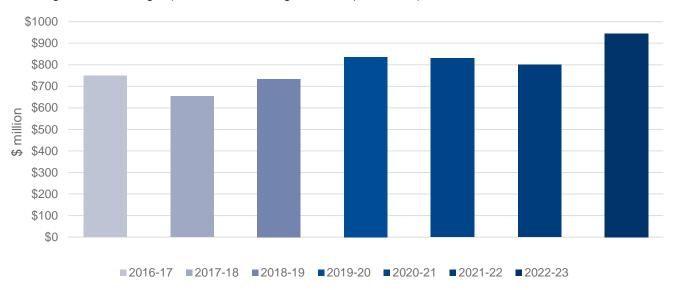
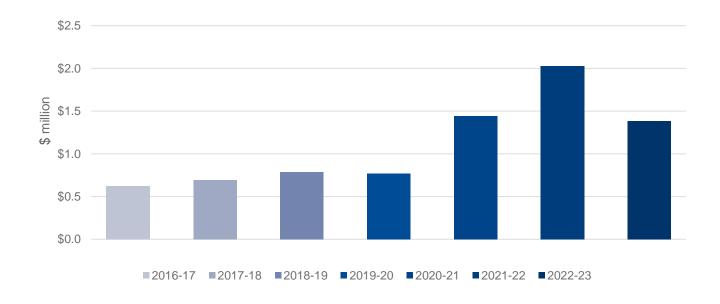


Figure 3.1.6: Mining expenditure for prospecting licences by financial year (\$ million).



# 3.2 Mineral production

Table 3.2.1: Mineral production by financial year.

Year	Gold (ounces*)	Silver (ounces*)	Antimony (tonnes)	Mineral sands <sup>1</sup> (tonnes)	Industrial minerals² (tonnes)	Coal <sup>3</sup> (tonnes)	Others <sup>4</sup> (tonnes)
2016-17	312,835	4,116	5,138	164,353	645,217	56,095,491	3,208
2017-18	364,294	0	2,570	100,286	808,950	45,061,567	7,998
2018-19	567,501	1,931	2,016	0	588,134	42,255,570	6,050
2019-20	790,054	7,481	3,141	0	687,878	40,372,215	6,741
2020-21	722,239	7,689	3,551	0	852,724	42,263,209	13,822
2021-22	627,016	41,445	2,896	0	1,016,983	39,126,368	19,169
2022-23	491,425	8,377	2,144	0	680,135	38,596,216	18,363

<sup>\*</sup>Gold and silver reported in troy ounces.

Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received after the publication of the previous year's report.

Table 3.2.2: Mineral production value by financial year (\$ million).

Year	Gold	Silver	Antimony	Mineral sands¹	Industrial minerals²	Coal³	Others <sup>4</sup>	Total
2016-17	\$519.8	\$0.1	\$33.6	\$188.5	\$8.0	N/A	\$0.1	\$750.2
2017-18	\$613.5	\$0.0	\$28.2	\$172.6	\$11.7	N/A	\$0.2	\$827.0
2018-19	\$1,015.5	\$0.04	\$21.2	\$0.0	\$10.3	N/A	\$0.0	\$1,093.7
2019-20	\$1,843.0	\$0.2	\$24.8	\$0.0	\$10.3	N/A	\$0.2	\$1,924.5
2020-21	\$1,781.5	\$0.3	\$36.7	\$0.0	\$13.6	N/A	\$0.3	\$1,878.2
2021-22	\$1,592.5	\$1.3	\$58.2	\$0.0	\$15.7	N/A	\$0.8	\$1,669.7
2022-23	\$1,235.7	\$0.3	\$73.6	\$0.0	\$6.9	N/A	\$0.7	\$1,343.1

<sup>&</sup>lt;sup>1</sup> Mineral sands (zircon, rutile, ilmenite).

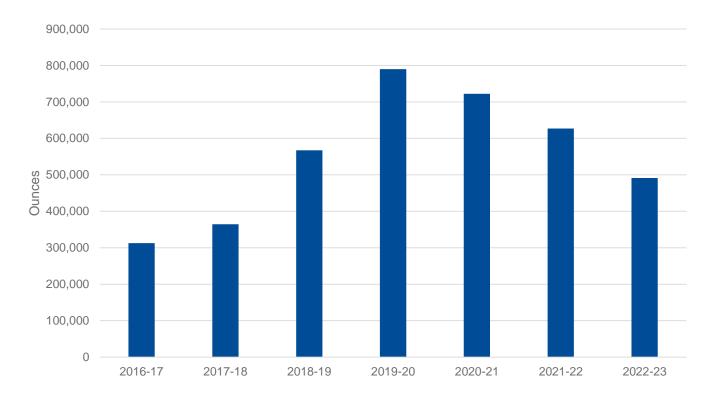
Note: Some historical data has been adjusted to accommodate amendments to annual returns by tenement holders and annual returns received since last publication of this report.

 $<sup>^{\</sup>rm 2}$  Industrial minerals (feldspar, gypsum, kaolin and fine clay).

<sup>&</sup>lt;sup>3</sup> No unit value is assigned to coal for the purposes of determining its production value. Coal is almost entirely used for electricity production and is largely an internal transfer within mining/generation entities. As such, there is no available market price for coal.

<sup>&</sup>lt;sup>4</sup> Others (includes peat, quartz and tailings,).

Figure 3.2.1: Gold production (ounces) by financial year).



### 3.3 Mineral tenements

Table 3.3.1: Number of current licences at the end of each financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	180	200	212	217	291	357	425
Mining licence	162	156	145	141	139	131	123
Prospecting licence	54	59	55	60	66	57	52
Retention licence	15	20	21	27	30	32	38
Total	411	435	433	445	526	577	638

Figure 3.3.1 Number of current licences at the end of each financial year.

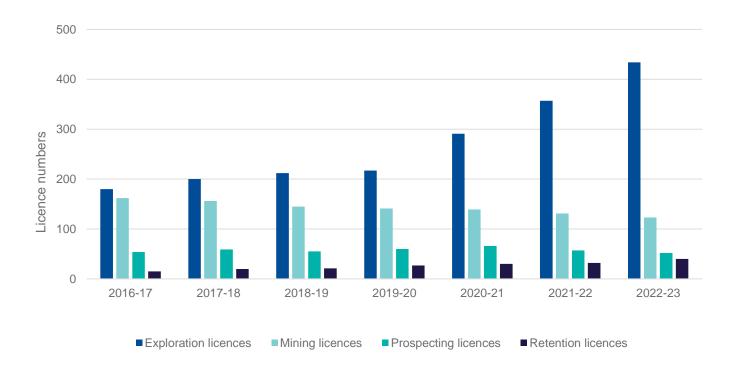


Table 3.3.2: Number of licence applications submitted by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	38	72	67	138	111	126	50
Mining licence	1	2	1	1	1	3	1
Prospecting licence	18	17	14	7	10	8	3
Retention licence	3	7	6	14	5	2	0
Total	60	98	88	160	127	139	54

Figure 3.3.2: Number of licence applications submitted by financial year.

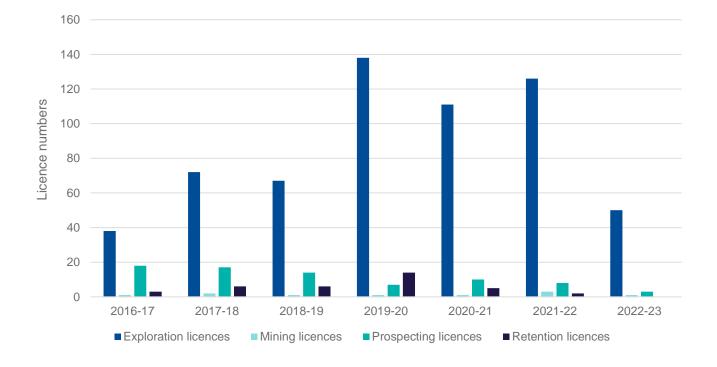


Table 3.3.3 Licence applications granted by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	21	63	36	25	89	77	94
Mining licence	0	3	1	2	0	0	2
Prospecting licence	11	12	14	14	9	4	5
Retention licence	4	7	1	6	3	2	6
Total	36	85	52	47	101	83	107

Figure 3.3.3: Number of licence applications granted by financial year.

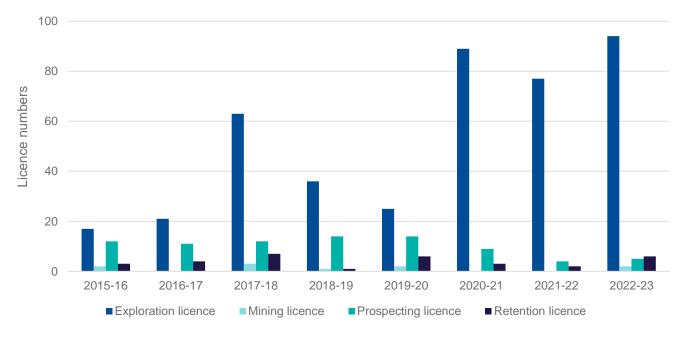


Table 3.3.4: Licences renewed by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	17	29	19	11	15	6	55
Mining licence	15	26	22	9	4	5	11
Retention licence	-	-	-	1	2	1	0
Total	32	55	41	21	21	12	66

Figure 3.3.4: Number of licence applications renewed by financial year.

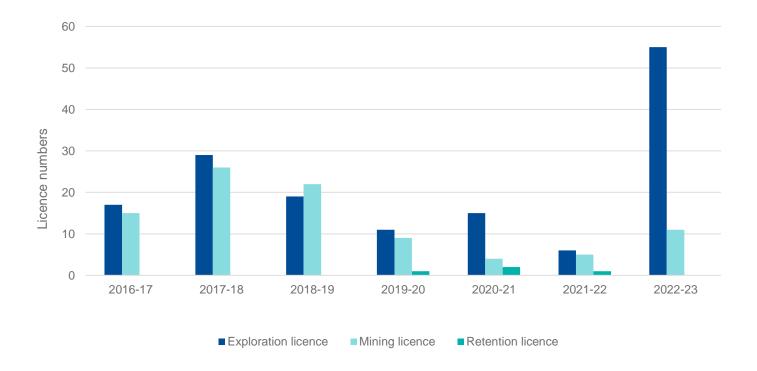


Table 3.3.5: Licence variations submitted by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	173	124	191	211	187	171	104
Mining licence	44	48	63	28	17	22	20
Prospecting licence	13	3	14	8	5	9	2
Retention licence	2	6	7	9	4	6	7
Total	232	181	275	256	213	208	133

Figure 3.3.5: Number of licence variations submitted by financial year.

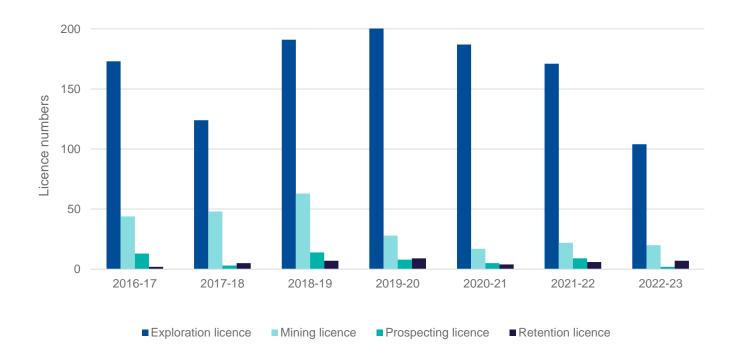
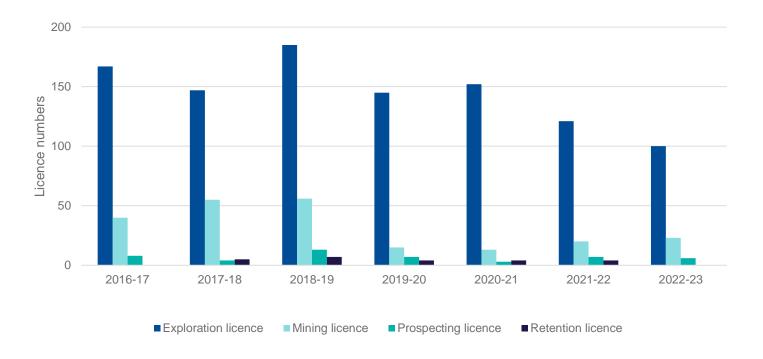


Table 3.3.6: Licence variations completed by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Exploration licence	167	147	185	145	152	121	100
Mining licence	40	55	56	15	13	20	23
Prospecting licence	8	4	13	7	3	7	6
Retention licence	0	5	7	4	4	4	0
Total	215	211	261	171	172	152	129

Figure 3.3.6: Number of licence variations completed by financial year.



# 3.4 Mineral work plans, codes of practice and administrative updates by notification

Work plans and codes of practices submitted and approved by financial year:

- An initial work plan is the primary document describing the permitted activities to be undertaken on a licence.
- A work plan variation is submitted by a licence holder when they want to change the scope of work in an existing work plan.
- Code of practice (eligible to operate under the Code of Practice for low impact exploration or low risk mines).

Table 3.4.1: Mineral work plans and work plan variations and codes of practice applications submitted.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	7	14	11	8	9	13	10
Work plan variation	13	16	11	14	3	4	6
Code of practice	7	4	10	3	4	6	1
Total submitted	27	34	32	25	16	23	17

Table 3.4.2: Mineral work plans, work plan variations and codes of practice applications approved.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	3	4	6	7	3	10	1
Work plan variation	1	11	14	7	4	2	2
Code of practice	5	3	2	5	4	5	1
Total approved	9	18	22	19	11	17	4

Table 3.4.3: Mineral work plans, work plan variations and codes of practice applications withdrawn/refused.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	4	2	1	2	2	12	4
Work plan variation	1	7	2	4	1	0	3
Code of practice	0	0	0	0	0	1	0
Total withdrawn/	5	9	3	6	3	13	7

Statutory endorsement indicates that the Earth Resources Regulator has assessed and endorsed the work plan or work plan variation as having met the requirements under the MRSDA.

Table 3.4.4: Mineral work plans and work plan variations statutory endorsements.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Initial work plan	1	0	1	1	2	0	0
Work plan variation	0	1	4	3	1	0	3
Total endorsed	1	1	5	4	3	0	3

Administrative updates by notification are minor changes to the existing work plan with no significant increase in risk arising from the new or changing work. Administrative updates do not require statutory endorsement (no further planning permission required). The administrative updates by notification process was introduced at the end of FY 2017-18.

Table 3.4.5: Mineral administrative updates by notifications received and acknowledged.

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Received	-	2	11	10	7	12	0
Acknowledged	-	2	8	9	7	7	0

# Petroleum, geothermal, offshore pipelines and greenhouse gas

Exploration within Victoria's jurisdiction for petroleum occurred in the offshore parts of the Otway, Gippsland geological basins and onshore. Production activity occurred in the Otway Basin.

Offshore activities occur within three nautical miles of the coast, according to Victorian legislation. Waters further than three nautical miles are covered by Commonwealth legislation and reported separately by Commonwealth Government agencies.

Hydraulic fracturing is banned under Victorian legislation.

### 4.1 Gas production and storage

Gas production located offshore within Victoria's three nautical mile zone.

Table 4.1.1: Gas ex-wellhead production figures by financial year.

Year	Condensate (barrels)	Gas production (MMscf*)	Gas production (petajoules^)	CO <sup>2</sup> production (tonnes)
2016-17	201,972	19,598	21.26	34,937
2017-18	134,178	13,118	13.91	33,643
2018-19	146,186	14,523	15.40	32,293
2019-20	99,094	9,069	9.83	31,029
2020-21	122,569	7,534	8.17	27,149
2021-22	167,353	8,759	9.50	27,003
2022-23	185,519	8,225	8.92	16,230

<sup>\*</sup>MMscf = million standard cubic feet.

<sup>^</sup>Convert Gas MMscf to petajoules using online sales gas converter: https://www.convertme.com/en/convert/energy/mscfgas.html.

Table 4.1.2: Underground gas storage by financial year.

Year	Condensate (barrels)	Gas storage (MMscf**)	Gas storage (petajoules^)	Gas injection (MMscf)	Gas injection (petajoules^)
2015-16	1,967	16,881	18.31	9,970	10.81
2016-17	587	9,668	10.49	13,952	15.13
2017-18	465	11,670	12.38	13,745	14.91
2018-19	1,220	13,100	13.89	12,514	13.57
2019-20	944	15,959	17.31	12,231	13.27
2020-21	283	16,144	17.51	10,201	11.06
2021-22	311	12,470	13.52	16,216	17.59
2022-23	436	14,990	16.26	21,193	22.99

<sup>\*\*</sup>MMscf = million standard cubic feet.

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# 4.2 Drilling

### Exploration, appraisal and production wells

Table 4.2.1: Number of wells drilled in Victoria by financial year.

Year	Offshore (Vic) Gippsland	Offshore (Vic) Otway	Onshore Gippsland	Onshore Otway	Total wells
2015-16	0	1	0	0	1
2016-17	0	0	0	0	O
2017-18	0	0	0	0	o
2018-19	0	0	0	1	1
2019-20	0	1	0	0	1
2020-21	0	1	0	0	1
2021-22	0	0	0	1	1
2022-23	0	0	0	0	O

# 4.3 Petroleum, offshore pipelines, geothermal and greenhouse gas licences

Table 4.3.1: Overview of onshore petroleum tenements as at 30 June 2023.

Onshore petroleum licences and permits	Number
Onshore petroleum production licence	11
Onshore petroleum exploration permit	9
Onshore petroleum special drilling authorisation	2
Onshore petroleum retention lease	1
Total	23

Table 4.3.2: Overview of offshore (Victorian waters) petroleum tenements as at 30 June 2023.

Offshore petroleum licences and permits	Number
Offshore petroleum exploration permit	5
Offshore petroleum production licence	2
Offshore greenhouse gas assessment permit	1
Offshore petroleum access authority	1
Offshore petroleum retention lease	1
Total	10

### Table 4.3.3 Offshore pipeline licences as at 30 June 2023.

Offshore pipeline licences	Number
Offshore pipeline licence	14

### Table 4.3.4: Geothermal exploration permits as at 30 June 2023.

Geothermal energy permits	Number
Geothermal exploration permit	1

### Table 4.3.5: Offshore greenhouse gas assessment permits as at 30 June 2023.

Greenhouse gas storage permits	Number	
Offshore greenhouse gas assessment permit	1	

Table 4.3.6: Non-MRSDA licence variations submitted by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Geothermal exploration permit	1	2	0	0	0	0	0
Offshore greenhouse gas assessment permit	0	0	1	1	0	0	0
Offshore petroleum access authority	0	0	2	2	0	0	0
Offshore petroleum exploration permit	0	2	6	2	9	1	3
Offshore petroleum production licence	0	0	2	2	0	0	0
Offshore petroleum retention lease	1	1	1	0	0	0	1
Offshore pipeline licence	9	16	5	3	1	10	1
Onshore petroleum exploration permit	5	30	9	5	10	13	5
Onshore petroleum production licence	0	16	17	9	0	0	0
Onshore petroleum retention lease	0	4	0	1	1	1	1
Onshore petroleum special drilling authorisation	0	0	1	2	2	0	0
Total	16	71	44	27	23	25	11

Table 4.3.7: Non-MRSDA licence variations completed by financial year.

Licence type	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Geothermal exploration permit	0	2	1	0	0	0	0
Offshore greenhouse gas assessment permit	0	0	0	1	1	0	0
Offshore petroleum access authority	0	0	1	3	0	0	0
Offshore petroleum exploration permit	2	1	2	3	12	0	1
Offshore petroleum production licence	0	0	1	3	0	0	0
Offshore petroleum retention lease	0	2	0	2	0	0	0
Offshore pipeline licence	3	22	3	6	2	0	7
Onshore petroleum exploration permit	7	15	17	10	2	21	4
Onshore petroleum production licence	0	9	7	18	8	1	0
Onshore petroleum retention lease	1	4	0	1	0	2	0
Onshore petroleum special drilling authorisation	0	0	1	2	2	0	0
Total	13	55	33	49	27	24	12

# **Rehabilitation bonds**

### 5.1 Bonds held

The total monetary value of the rehabilitation bonds held by the State under the MRSDA in 2022-23 was \$828.8 million as at 30 June 2023. Under the Petroleum / Geothermal Act, the value held in bonds is \$26.0 million as at 30 June 2023. Up-to-date bonds held by the State are published on the Earth Resources Regulator website:

https://resources.vic.gov.au/community-and-land-use/rehabilitation.

Table 5.1.1: Value of rehabilitation bonds by MRSDA tenement type and by financial year (\$ million).

Year	Extractive industries (\$ million)	Mining licences (\$ million)	Exploration licences (\$ million)	Prospecting licences (\$ million)	Retention licences (\$ million)	Total (\$ million)
2016-17	\$91.7	\$380.5	\$2.0	\$0.2	\$0.1	\$474.5
2017-18	\$92.2	\$717.7	\$2.0	\$0.2	<b>\$</b> 0.1	\$812.2
2018-19	\$91.9	\$717.7	\$2.6	\$0.2	\$0.4	\$812.7
2019-20	\$93.0	\$717.9	\$2.7	\$0.2	\$0.4	\$814.1
2020-21	\$92.9	\$717.8	\$3.0	\$0.4	\$0.4	\$814.4
2021-22	\$100.8	\$719.7	\$3.1	\$0.5	\$0.5	\$824.5
2022-23	\$109.0	\$715.4	\$3.4	\$0.5	\$0.5	\$828.8

Figure 5.1.1: Extractive industries and mining rehabilitation bonds held at the end of financial year (\$ million).

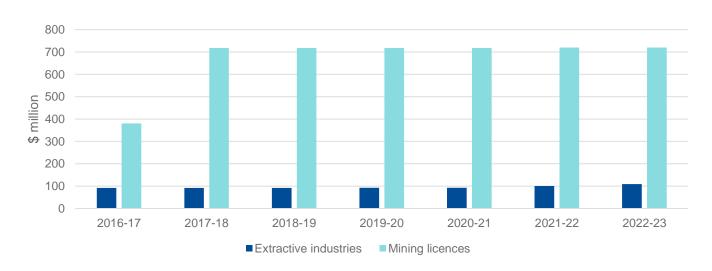


Figure 5.1.2: Exploration, prospecting and retention licence rehabilitation bonds held at the end of financial year (\$ million).

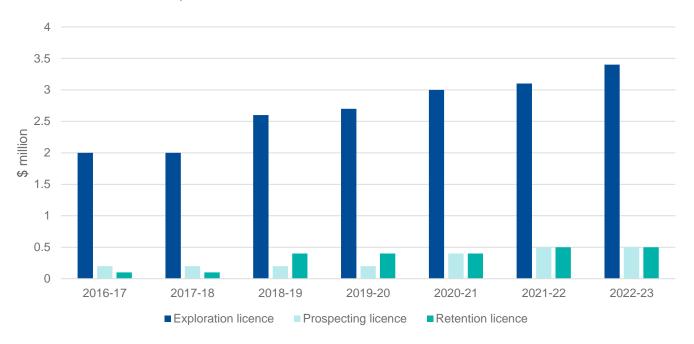


Table 5.1.2: Value of rehabilitation bonds by Petroleum / Geothermal Act tenement type (\$ million).

Non-MRSDA Tenement Type	2022-23
Geothermal Exploration Permit	\$0.02
Offshore Petroleum Production Licence	\$0
Onshore Petroleum Exploration Permit	\$0.1
Onshore Petroleum Production Licence	\$12.3
Onshore Petroleum Retention Lease	\$0.03
Onshore Petroleum Special Access Authorisation	\$0
Onshore Petroleum Special Drilling Authorisation	\$13.6
Total	\$26.0

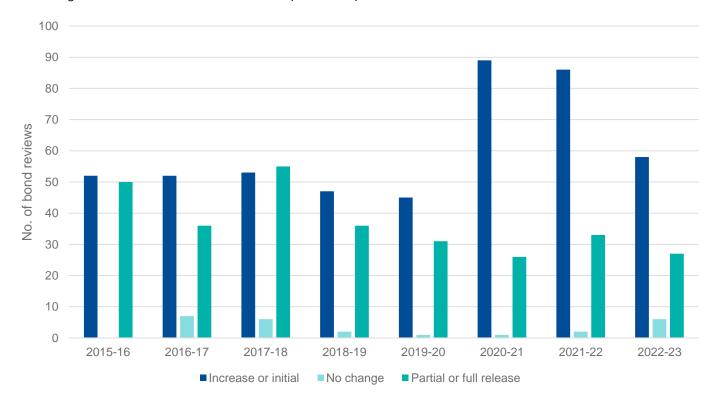
### 5.2 Bond reviews

Table 5.2.1: Rehabilitation bond reviews by financial year.

Year	Result of review – increase or initial bond	Result of review – no change	Result of review – partial or full release	Number of bonds reviewed
2016-17	52	7	36	95
2017-18	53	6	55	114
2018-19	47	2	36	85
2019-20	45	1	31	77
2020-21	89	1	26	116
2021-22	86	2	33	121
2022-23	58	6	27	91

The bond review numbers differ slightly from previous reports due to the undertaking of a data cleansing and re-alignment exercise for historical bond review records.

Figure 5.2.1: Outcome of bond reviews by financial year.



# Revenue

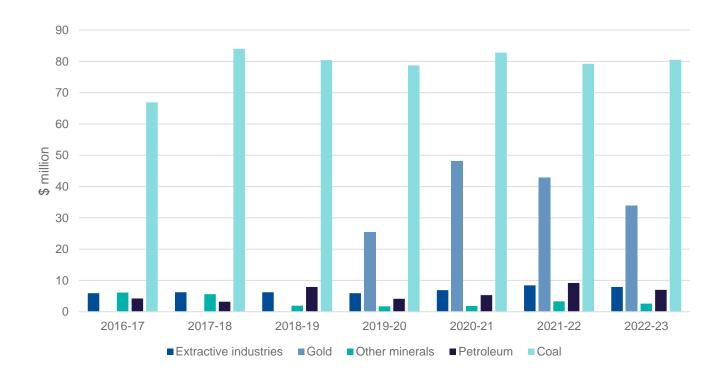
# 6.1 Royalties payable

Table 6.1.1 Royalties payable by financial year (\$ million).

Year	Extractive industries (\$ million)	Gold* (\$ million)	Other minerals (\$ million)	Petroleum (\$ million)	Coal (\$ million)	Total (\$ million)
2016-17	\$5.9	N/A	\$6.1	\$4.2	\$66.9	\$83.1
2017-18	\$6.2	N/A	\$5.6	\$3.2	\$84.0	\$99.1
2018-19	\$6.2	N/A	\$1.9	\$7.9	\$80.4	\$96.1
2019-20	\$5.9	\$25.4	\$1.7	\$4.1	\$78.7	\$115.8
2020-21	\$6.9	\$48.2	\$1.8	\$5.3	\$82.8	\$145.1
2021-22	\$8.4	\$42.8	\$3.3	\$9.2	\$79.2	\$143.0
2022-23	\$7.9	\$33.9	\$2.6	\$7.O	\$80.5	\$131.9

<sup>\*</sup>From 1 January 2020, gold produced under a mining licence in Victoria is subject to a royalty. The royalty only applies to gold produced in a financial year in excess of 2,500 ounces.

Figure 6.1.1: Royalties payable by financial year (\$ million).

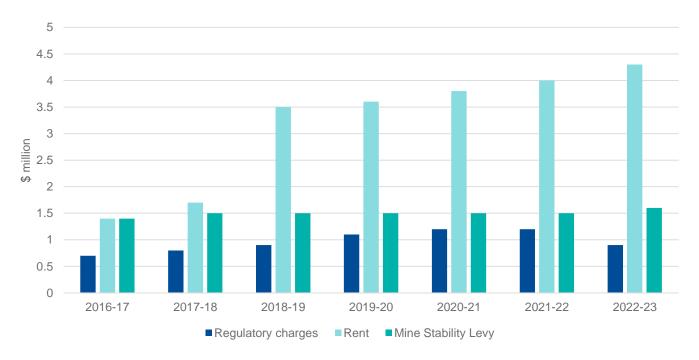


# 6.2 Regulatory fees

Table 6.2.1: Regulatory fees by financial year (\$ million).

Year	Regulatory charges (\$ million)	Rent (\$ million)	Mine Stability Levy (\$ million)	Total (\$ million)
2015-16	\$0.7	\$2.0	\$1.4	\$4.1
2016-17	\$0.7	\$1.4	\$1.4	\$3.5
2017-18	\$0.8	\$2.8	\$1.5	\$5.1
2018-19	\$0.9	\$3.5	\$1.5	\$5.9
2019-20	\$1.1	\$3.6	\$1.5	\$6.2
2020-21	\$1.2	\$3.8	\$1.5	\$6.5
2021-22	\$1.2	\$4.0	\$1.5	\$6.7
2022-23	\$0.9	\$4.3	\$1.6	\$6.8

Figure 6.2.1: Regulatory fees by financial year (\$ million).



# Compliance

# 7.1 Compliance activities

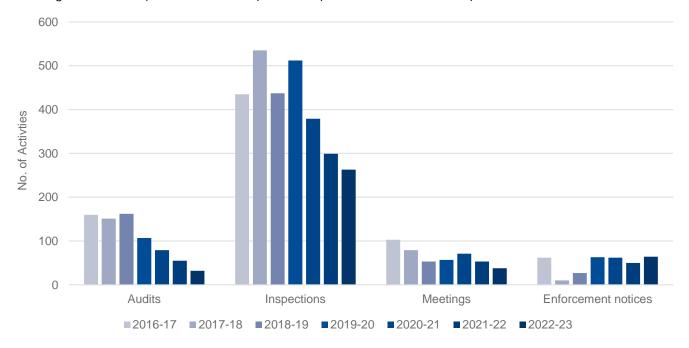
The Earth Resources Regulator undertakes a compliance program to ensure that authority holders comply with their obligations. Monitoring, compliance and enforcement activities under the MRSDA are summarised in the table below.

Table 7.1.1: Compliance activities by financial year.

Activities	Audits	Inspections <sup>^</sup>	Meetings	Enforcement notices*	Total
2016-17	160	435	103	62	760
2017-18	151	535	79	10	775
2018-19	162	437	53	27	679
2019-20	107	512	57	63	739
2020-21	79	379	71	62	591
2021-22	55	299	53	50	457
2022-23	32	263	38	64	397

<sup>^</sup>Inspections include site closures and site visits.

Figure 7.1.1: Compliance activities by financial year over seven financial years.



<sup>\*</sup>MRSDA s110 and s110a Notices issued.

## 7.2 Industry annual returns submission rate

Tenement holders are obliged to submit an annual report on their activities by the due date even if no work has been undertaken in the financial year. The information submitted is used to monitor industry activities, specify regulatory fees and royalties, and inform management of Victoria's earth resources sector by understanding the state of the industry and aiding further investment and jobs.

Table 7.2.1: MRSDA tenements FY 2022-23 annual report submission rate as at 31 October 2023.

Tenement type	% annual returns received by due date or with extensions*	% annual returns received late	% total annual returns received	% annual returns outstanding
Extractive industries	90%	5%	95%	5%
Mining licences	93%	3%	96%	4%
Prospecting licences	99%	0%	99%	1%
Exploration licences	92%	5%	97%	3%
Retention licences	96%	4%	100%	0%

<sup>\*</sup>Due dates: extractive industries 31 July 2023; mining and prospecting 28 July 2023; exploration and retention dates varied during the year. (Note: annual returns submitted includes regulator approved extensions.)

### Annual returns submitted by tenement type

Tenement type	Annual returns
Extractive industries	Annual return extractive industries / Royalty return
Mining licences	Expenditure and activity / Production and royalty
Prospecting licences	Expenditure and activity / Production and royalty
Exploration licences	Expenditure and activity / Annual technical
Retention licences	Expenditure and activity / Annual technical

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