**Earth Resources Regulation**

**Annual Statistical Report**

**FY 2020-21**

**Acknowledgement of Traditional Owners**

The Victorian Government proudly acknowledges Traditional Owners as Victoria’s first peoples and pays its respects to their Elders past and present.

We recognise the intrinsic connection of the first peoples to their Country for countless generations and their inherent obligation to maintain and strengthen their distinct cultural rights and responsibilities to care for their Country.

We value Traditional Owners’ role in the management of land, water and biodiversity and acknowledge the ongoing contribution this makes to our earth resources.

We have distinct legislative obligations to Traditional Owner groups that are paramount in our responsibilities in managing Victoria’s resources.

We support the need for genuine and lasting partnerships with Aboriginal people and communities to understand culture and connections to Country in the way we plan for and regulate our earth resources.

**Disclaimer**

The information contained in this report is provided for general guidance and assistance only and is not intended as advice. You should make your own enquiries as to the appropriateness and suitability of the information provided. While every effort has been made to ensure the currency, accuracy or completeness of the content, we endeavour to keep the content relevant and up to date and reserve the right to make changes as required. The Victorian Government, authors and presenters do not accept any liability to any person for the information (or the use of the information) which is provided or referred to in the report.

For more information, see the Earth Resources Regulation website [www.earthresources.vic.gov.au/earth-resources-regulation](http://www.earthresources.vic.gov.au/earth-resources-regulation)

This document is also available in PDF and accessible Word format at   
<http://earthresources.vic.gov.au/earth-resources-regulation/about-us/regulator-and-industry-reporting/earth-resources-regulation-annual-statistical-report/>

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# Introduction

Earth Resources Regulation, within the Department of Jobs, Precincts and Regions (DJPR), is responsible for the regulation of minerals, extractives, petroleum, geothermal and carbon storage activities in Victoria and offshore Victorian waters, and for offshore pipelines in Victorian waters¹. We are committed to being an effective regulator.

Earth Resources Regulation’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, site rehabilitation
* engaging with communities and stakeholders, and
* collecting regulatory fees and royalties.

Earth Resources Regulation administers the following Acts:

* *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) (mineral exploration mining and quarrying)
* *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*

Key observations and statistics from the 2020-21 returns include:

**Extractive operations**

* Rock production decreased 1.4% from 64.6 to 63.7 million tonnes *(Table 2.1.1)*
* Value of sales decreased 3.4% from $1,066.5 to $1030.4 million *(Table 2.1.1)*
* Work plan approvals decreased from 20 to 19 *(Table 2.3.1)*

**Minerals exploration and mining operations**

* Exploration expenditure increased 51.5% from $126.4 to $191.5 million *(Table 3.1.1)*
* Mining expenditure decreased 0.7% from $837.1 to $831.6 million *(Table 3.1.1)*
* Gold exploration expenditure increased 82.7% from $81.7 to $149.3 million *(Table 3.1.2)*
* Gold mining expenditure decreased 5% from $422.5 to $401.2 million *(Table 3.1.4)*
* Gold production decreased 8.6% from 790,054 to 722,239 ounces *(Table 3.2.1)*
* Licence applications granted increased by 114.9% from 47 to 101 *(Table 3.3.2)*

**Petroleum**

* Gas production decreased 16.9% from 9.83 to 8.17 petajoules of energy *(Table 4.1.1)*

**Royalties and regulatory fees**

* Royalties payable increased 25% from $115.8 to $144.8 million *(Table 5.1.1)*
* Gold royalties accounted for 33.3% of total royalties payable ($48.2 out of $144.8 million) *(Table 5.1.1)*
* Revenue from regulatory fees was $6.5 million *(Table 5.2.1)*

**Rehabilitation bonds**

* Total value of rehabilitation bonds held under the MRSDA was approximately $814.4 million *(Table 6.1.1)*

The *Earth Resources Regulation 2020-21 Statistical Report* presents a compilation of data as reported by tenement holders to Earth Resources Regulation. All production and expenditure figures are certified by tenement holders. The industry data in the report derives from about 94 per cent of mineral industry and 84 per cent of extractive industry annual returns. This includes 17 per cent of extractive industry annual returns where some components were not satisfactory and awaiting more details to be provided by tenement holders, as at the publication of this report. Detailed breakdown of the annual returns received are shown in *Table 7.1.1.*

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 the future to accommodate annual returns received after this publication.

Victorian waters are within three nautical miles of the coastline.

# Extractives

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

## Extractive Production

As at 30 June 2021, there were 848 quarries holding current work authorities under the MRSDA. As at 05 November 2021, a total of 427 quarries reported production in FY2020-21. The production volume decreased from 64.58 to 63.68 million tonnes and the value of sales decreased from $1,066.48 million to $1,030.39 million.

**Table 2.1.1 Production and value of sales by financial year**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **Current quarries at EOFY** | 884 | 888 | 888 | 881 | 873 | 860 | 848 |
| **Quarries with production** | 555 | 543 | 547 | 554 | 546 | 524 | 427 |
| **Production (million tonnes)** | 50.71 | 54.09 | 58.08 | 61.21 | 62.92 | 64.59 | 63.68 |
| **Value of sales ($million)** | $763.9 | $800.95 | $854.80 | $989.30 | $1,021.37 | $1,066.48 | $1,030.39 |

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 five financial years**

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

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Product Group** | **Product Type Groups** | **FY 2016-17** | | **FY 2017-18** | | **FY 2018-19** | | **FY 2019-20** | | **FY 2020-21** | |
| **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** |
| **Clay products** | Brick | 1.07 | $3.09 | 0.99 | $3.02 | 0.94 | $2.71 | 0.93 | $2.59 | 0.91 | $2.54 |
| Stoneware Pottery | 0.001 | $0.03 | 0.001 | $0.04 | 0.004 | $0.05 | 0.001 | $0.02 | 0.001 | $0.01 |
| Tile/Pipe | 0.03 | $0.08 | 0.02 | $0.08 | - | - | - | - | - | - |
| **Clay Products Total** | | **1.10** | **$3.20** | **1.01** | **$3.14** | **0.94** | **$2.75** | **0.93** | **$2.60** | **0.91** | **$2.55** |
| **Limestone products** | Agriculture | 0.52 | $14.14 | 0.65 | $17.46 | 0.62 | $16.25 | 0.61 | $15.33 | 0.83 | $22.83 |
| Cement | 0.03 | $0.57 | 0.08 | $1.70 | 0.04 | $0.89 | 0.06 | $1.03 | 0.07 | $1.25 |
| Lime | 0.15 | $2.43 | 0.08 | $1.57 | 0.07 | $1.28 | 0.09 | $1.63 | 0.20 | $3.30 |
| **Limestone Products Total** | | **0.69** | **$17.15** | **0.80** | **$20.73** | **0.73** | **$18.42** | **0.76** | **$17.99** | **1.10** | **$27.38** |
| **Miscellaneous** | Dimension Stone | 0.07 | $1.00 | 0.01 | $0.25 | 0.000 | $0.12 | 0.01 | $0.29 | 0.23 | $0.42 |
| Soil | 0.03 | $0.42 | 0.05 | $0.60 | 0.05 | $0.59 | 0.03 | $0.11 | 0.15 | $1.06 |
| Unspecified | 3.60 | $44.39 | 5.31 | $61.58 | 2.88 | $31.56 | 4.66 | $67.79 | 7.20 | $106.73 |
| **Miscellaneous Total** | | **3.71** | **$45.80** | **5.36** | **$62.43** | **2.92** | **$32.27** | **4.70** | **$68.19** | **7.58** | **$108.21** |
| **Multi-size products** | Fill | 3.33 | $29.96 | 3.92 | $38.97 | 3.79 | $37.95 | 4.85 | $46.11 | 3.82 | $40.00 |
| Road Base | 6.48 | $86.44 | 6.09 | $104.25 | 7.62 | $122.04 | 5.48 | $91.01 | 4.24 | $77.51 |
| Road Sub-Base | 10.56 | $126.65 | 11.97 | $144.31 | 12.91 | $159.15 | 13.14 | $176.30 | 11.06 | $149.70 |
| **Multi-size Products Total** | | **20.37** | **$243.05** | **21.98** | **$287.53** | **24.31** | **$319.14** | **23.46** | **$313.43** | **19.13** | **$267.21** |
| **Sand products** | Concrete Sand | 8.94 | $124.40 | 7.20 | $132.49 | 9.25 | $151.73 | 8.76 | $151.07 | 9.62 | $138.59 |
| Fine Sand | 1.70 | $16.95 | 2.50 | $39.67 | 1.61 | $19.33 | 3.01 | $43.49 | 1.88 | $27.10 |
| Foundry Sand | 0.74 | $17.22 | 0.003 | $0.04 | 0.86 | $19.11 | 0.002 | $0.04 | 0.10 | $6.95 |
| Industrial Filters | 0.03 | $0.31 | 0.02 | $0.12 | 0.02 | $0.20 | - | - | 0.04 | $0.81 |
| **Sand Products Total** | | **11.41** | **$158.88** | **9.72** | **$172.33** | **11.74** | **$190.37** | **11.77** | **$194.59** | **11.63** | **$173.45** |
| **Single-size products** | Aggregate | 20.70 | $385.08 | 22.27 | $441.86 | 21.36 | $427.51 | 22.90 | $467.94 | 23.21 | $450.20 |
| Armour | 0.10 | $1.64 | 0.07 | $1.30 | 0.92 | $30.90 | 0.06 | $1.75 | 0.11 | $1.38 |
| **Single size Products Total** | | **20.80** | **$386.72** | **22.33** | **$443.15** | **22.28** | **$458.41** | **22.97** | **$469.69** | **23.32** | **$451.58** |
| **Financial Year Total** | | **58.08** | **$854.81** | **61.21** | **$989.30** | **62.92** | **$1,021.38** | **64.59** | **$1,066.48** | **63.68** | **$1,030.39** |

**T****able 2.1.3 Extractive industries production and value of sales by rock type five financial years**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Rock Group** | **Rock Type** | **FY 2016-17** | | **FY 2017-18** | | **FY 2018-19** | | **FY 2019-20** | | **FY 2020-21** | |
| **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** | **Production (million tonnes)** | **Value of sales ($ million)** |
| **Hard Rock** | Basalt New | 16.92 | $259.41 | 20.21 | $318.29 | 21.61 | $351.07 | 21.53 | $364.19 | 22.68 | $377.70 |
| Basalt Old | 3.87 | $74.58 | 3.12 | $63.72 | 3.85 | $81.97 | 4.38 | $80.31 | 2.86 | $60.21 |
| Dolerite | - | - | 0.02 | $0.23 | 0.001 | $0.01 | - | - | 0.35 | $6.68 |
| Gneiss | 0.03 | $0.001 | 0.01 | $0.01 | 0.01 | $0.001 | 0.08 | $1.92 | - | - |
| Granite | 5.92 | $104.98 | 5.37 | $123.00 | 5.35 | $117.65 | 7.06 | $138.79 | 7.32 | $137.48 |
| Hornfels | 5.01 | $73.10 | 5.23 | $85.85 | 5.22 | $86.87 | 5.27 | $89.56 | 4.47 | $81.38 |
| Quartzite | 0.07 | $0.54 | 0.03 | $0.64 | 0.03 | $0.75 | 0.01 | $0.60 | 0.02 | $0.58 |
| Rhyodacite | 1.80 | $38.03 | 1.79 | $43.64 | 1.52 | $33.52 | 1.54 | $35.53 | 1.73 | $39.99 |
| Schist | 0.22 | $4.04 | 0.27 | $5.86 | 0.48 | $9.31 | 0.43 | $8.32 | - | - |
| Slate | 0.03 | $0.98 | 0.04 | $1.25 | 0.04 | $1.17 | 0.04 | $1.36 | 0.19 | $0.02 |
| Trachyte | 0.03 | $0.54 | 0.04 | $0.80 | 0.03 | $0.70 | 0.03 | $0.51 | 0.02 | $0.54 |
| **Hard Rock Total** | | **33.89** | **$556.19** | **36.14** | **$643.28** | **38.14** | **$683.02** | **40.38** | **$721.09** | **39.65** | **$704.58** |
| **Soft Rock** | Clay and Clay Shale | 1.37 | $3.54 | 1.48 | $3.90 | 1.20 | $3.49 | 1.47 | $5.33 | 1.30 | $3.28 |
| Limestone | 1.78 | $25.58 | 1.80 | $28.62 | 1.99 | $29.08 | 1.96 | $28.64 | 2.16 | $36.01 |
| Sand and Gravel | 16.65 | $217.16 | 16.92 | $253.93 | 16.70 | $248.96 | 15.74 | $251.30 | 16.14 | $235.86 |
| Scoria | 0.69 | $11.41 | 1.15 | $18.07 | 0.76 | $12.97 | 0.94 | $15.39 | 1.10 | $18.63 |
| Sedimentary\* | 2.95 | $37.09 | 3.09 | $36.13 | 3.76 | $39.75 | 3.48 | $39.22 | 3.03 | $29.19 |
| Soil | 0.03 | $0.42 | 0.05 | $0.60 | 0.05 | $0.62 | 0.06 | $0.11 | 0.15 | $1.06 |
| Tuff | 0.72 | $3.44 | 0.58 | $4.79 | 0.32 | $3.48 | 0.56 | $5.41 | 0.15 | $1.77 |
| **Soft Rock Total** | | **24.20** | **$298.62** | **25.07** | **$346.02** | **24.77** | **$338.35** | **24.21** | **$345.39** | **24.03** | **$325.81** |
| **Financial Year Total** | | **58.08** | **$854.81** | **61.21** | **$989.30** | **62.92** | **$1,021.38** | **64.59** | **$1,066.48** | **63.68** | **$1,030.39** |

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

\*Sedimentary (usually rippable rocks, including sandstone, shale, siltstone, chert, mudstone, claystone).

## Work authorities

**Table 2.2.1 Work authorities granted**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **Work Authorities**  **Granted** | 18 | 15 | 10 | 13 | 11 | 4 | 3 |

## Extractive work plans and administrative updates by notification

A work plan (WP) is the primary document describing the permitted activities to be undertaken on a work authority. A work plan variation (WPV) is submitted by a licence holder when they want to change the scope of work from an existing work plan.

**Table 2.3.1 Extractive work plans and work plan variations submitted and approved**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **WP/WPV Submitted** | 21 | 31 | 35 | 16 | 21 | 28 | 18 |
| **WP/WPV Approved** | 8 | 19 | 16 | 20 | 15 | 20 | 19 |

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

**Table 2.3.2 Extractive work plans and work plan variations statutory endorsed**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **WP/WPV Endorsed** | \* | 23 | 14 | 12 | 12 | 21 | 13 |

\*Data not readily available.

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 FY2017-18.

**Table 2.3.3 Extractive administrative updates by notifications received and acknowledged**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **Received** | - | - | - | 3 | 14 | 30 | 14 |
| **Acknowledged** | - | - | - | 2 | 14 | 17 | 10 |

# Minerals

## Mineral exploration and mining expenditure

**Table 3.1.1 Expenditure on mineral exploration and mining development ($ million)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| Mineral Exploration  (ABS)1 | $22.9 | $28.9 | $40.7 | $73.7 | $102.3 | $136.5 | $184.9 |
| MRSDA Exploration2 | $47.5 | $38.5 | $44.3 | $69.0 | $101.2 | $126.4 | $191.5 |
| MRSDA  Mining3 | $607.8 | $685.8 | $748.8 | $654.7 | $734.5 | $837.1 | $831.6 |

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

**Figure 3.1.1 Expenditure on mineral exploration and mining**

*1 The 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 the requirements of the MRSDA. 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 Change of metric – expenditure on exploration and retention licences with an expenditure reporting period that ends within the financial year.*

*3The MRSDA 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.*

**Table 3.1.2 Mineral exploration expenditure by commodity and financial year ($ million)**

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Gold | Mineral Sands | Coal | Other\* | Total |
| 2015-16 | $16.4 | $6.5 | $0.37 | $15.3 | **$38.5** |
| 2016-17 | $25.9 | $5.1 | $0.46 | $12.7 | **$44.3** |
| 2017-18 | $44.3 | $8.1 | $0.47 | $16.1 | **$69.0** |
| 2018-19 | $57.3 | $24.2 | $1.0 | $18.8 | **$101.2** |
| 2019-20 | $81.7 | $23.7 | $0.28 | $20.7 | **$126.4** |
| 2020-21 | $149.3 | $16.4 | $0.16 | $25.6 | **$191.5** |

\*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 |
| 2015-16 | $15.4 | $19.8 | $0.1 | $3.3 | **$38.5** |
| 2016-17 | $17.0 | $24.5 | $0.1 | $2.7 | **$44.3** |
| 2017-18 | $21.8 | $42.4 | $0.1 | $4.7 | **$69.0** |
| 2018-19 | $43.1 | $41.4 | $0.1 | $16.6 | **$101.2** |
| 2019-20 | $46.2 | $56.2 | $0.1 | $23.9 | **$126.4** |
| 2020-21 | $45.6 | $97.2 | $0.1 | $48.6 | **$191.5** |

**Figure 3.1.3 Mineral exploration expenditure by licence type financial year ($ million)**

**Table 3.1.4 Mining expenditure by commodity and financial year ($ million)**

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Gold | Mineral Sands | Coal | Other\* | Total |
| 2015-16 | $280.2 | $21.8 | $339.4 | $44.4 | **$685.8** |
| 2016-17 | $259.9 | $15.2 | $431.2 | $42.5 | **$748.8** |
| 2017-18 | $238.2 | $12.6 | $359.1 | $44.8 | **$654.7** |
| 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 | **$831.6** |

\*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 |
| 2015-16 | $685.1 | $0.7 | **$685.8** |
| 2016-17 | $748.2 | $0.6 | **$748.8** |
| 2017-18 | $654.0 | $0.7 | **$654.7** |
| 2018-19 | $734.7 | $0.8 | **$734.5** |
| 2019-20 | $836.4 | $0.8 | **$837.1** |
| 2020-21 | $830.2 | $1.4 | **$831.6** |

**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)**

## Mineral production

**Table 3.2.1 Mineral production by financial year**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Financial Year | Gold\*  (ounce) | Antimony  (tonne) | Zircon  (tonne) | Rutile  (tonne) | Ilmenite  (tonne) | Feldspar  (tonne) | Coal  (1,000 tonnes) | Gypsum#  (tonne) | Kaolin and Clay  (tonne) |
| 2014-15 | 200,872 | 3,684 | 77,162 | 85,983 | 383,369 | 40,232 | 60,957 | 520,526 | 152,047 |
| 2015-16 | 256,697 | 3,769 | 52,026 | 90,318 | 57,763 | 30,730 | 59,757 | 504,244 | 202,229 |
| 2016-17 | 312,835 | 5,318 | 45,597 | 73,812 | 44,944 | 0 | 56,095 | 453,067 | 192,150 |
| 2017-18 | 364,294 | 2,570 | 27,515 | 48,381 | 24,390 | 0 | 45,062 | 637,018 | 171,932 |
| 2018-19 | 567,501 | 2,016 | 0 | 0 | 0 | 0 | 42,256 | 474,084 | 114,050 |
| 2019-20 | 790,054 | 3,141 | 0 | 0 | 0 | 0 | 40,372 | 533,066 | 154,812 |
| 2020-21 | 722,239 | 3,551 | 0 | 0 | 0 | 0 | 42,263 | 662,100 | 172,983 |

\*Gold reported in troy ounces; coal in thousand tonnes; and the remainder in tonnes.

#Gypsum changed from cubic meter unit of measure to tonnes.

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 | Antimony | Mineral Sands1 | Industrial Minerals2 | Coal3 | Others⁴ | Total |
| 2014-15 | $284.7 | $37.8 | $185.1 | $9.8 | N/A | $0.1 | $517.5 |
| 2015-16 | $412.5 | $30.1 | $175.9 | $10.0 | N/A | $0.5 | $629 |
| 2016-17 | $519.8 | $33.6 | $188.5 | $8.0 | N/A | $0.2 | $750.1 |
| 2017-18 | $613.5 | $28.2 | $172.6 | $11.7 | N/A | $0.2 | $826.2 |
| 2018-19 | $1,015.5 | $21.2 | $0 | $10.3 | N/A | $0.04 | $1,047.0 |
| 2019-20 | $1,843.0 | $24.8 | $0 | $10.3 | N/A | $0.3 | $1,878.4 |
| 2020-21 | $1,781.5 | $36.7 | $0 | $13.3\* | N/A | $0.6 | $1,832.1 |

¹ Mineral Sands (zircon, rutile, ilmenite).

² Industrial Minerals (feldspar, gypsum, kaolin and fine clay). \* Correction to $13.3 million from $10.3million

³ 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.

⁴ Others (includes silver, peat and quartz).

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

**Figure 3.2.1 Gold production (ounces) by financial year**

## Mineral tenements

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

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Licence Type | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| Exploration Licence | 247 | 211 | 180 | 200 | 212 | 217 | 291 |
| Mining Licence | 171 | 170 | 162 | 156 | 145 | 141 | 139 |
| Prospecting Licence | 41 | 51 | 54 | 59 | 55 | 60 | 66 |
| Retention Licence | 8 | 11 | 15 | 20 | 21 | 27 | 30 |
| Total | 467 | 443 | 411 | 435 | 433 | 445 | 526 |

**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 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| Exploration Licence | 49 | 32 | 38 | 72 | 67 | 133 | 112 |
| Mining Licence | 3 | 3 | 1 | 2 | 1 | 1 | 1 |
| Prospecting Licence | 15 | 14 | 18 | 17 | 14 | 7 | 10 |
| Retention Licence | 9 | 5 | 3 | 6 | 6 | 14 | 5 |
| Total | 76 | 54 | 60 | 97 | 88 | 155 | 128 |

**Figure 3.3.2 Number of licence applications submitted by financial year**

**Table 3.3.3 Licence applications granted by financial year**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Licence Type | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| Exploration Licence | 37 | 17 | 21 | 63 | 36 | 25 | 89 |
| Mining Licence | 3 | 2 | 0 | 3 | 1 | 2 | 0 |
| Prospecting Licence | 13 | 12 | 11 | 12 | 14 | 14 | 9 |
| Retention Licence | 7 | 3 | 4 | 7 | 1 | 6 | 3 |
| Total | 60 | 34 | 36 | 85 | 52 | 47 | 101 |

**Figure 3.3.3 Number of licence applications granted by financial year**

**Table 3.3.4 Licences renewed by financial year**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Licence Type | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| Exploration Licence | 19 | 13 | 17 | 29 | 19 | 11 | 15 |
| Mining Licence | 14 | 10 | 15 | 26 | 22 | 9 | 4 |
| Retention Licence | - | - | - | - | - | 1 | 2 |
| Total | 33 | 23 | 32 | 55 | 41 | 21 | 21 |

**Figure 3.3.4 Number of licence applications renewed by financial year**

## Mineral work plans and administrative updates by notification

A work plan (WP) is the primary document describing the permitted activities to be undertaken on a licence. A work plan variation (WPV) is submitted by a licence holder when they want to change the scope of work from an existing work plan.

**Table 3.4.1 Minerals work plans and work plan variations submitted and approved**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **WP Submitted** | 25 | 20 | 20 | 30 | 22 | 22 | 12 |
| **WP Approved** | 30 | 12 | 4 | 15 | 20 | 14 | 7 |

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

**Table 3.4.2 Extractive work plans and work plan variations statutory endorsed**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **WP/WPV Endorsed** | \* | 9 | 1 | 1 | 5 | 4 | 3 |

\*Data not readily available

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 FY2017-18.

**Table 3.4.3 Minerals administrative updates by notifications received and acknowledged**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
| **Received** | - | - | - | 2 | 11 | 10 | 7 |
| **Acknowledged** | - | - | - | 2 | 8 | 9 | 7 |

# Petroleum, geothermal, offshore pipelines and greenhouse gas

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

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

A legislative moratorium was in place for onshore conventional gas until 30 June 2021. Hydraulic fracturing is banned under Victorian legislation.

## Gas production and storage

Gas production located within Victoria’s three nautical mile zone.

**Table 4.1.1 Gas production by financial years**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Condensate (Barrels) | Gas Production (MMscf\*\*) | Gas Production (Petajoules^) | CO2 Production. (Tonnes) | Comments |
| 2015-16 | 3.7 | - | - | 32,991 | Ex wellhead figures |
| 2016-17 | 201,972 | 19,598 | 21.26 | 34,937 | Ex wellhead figures |
| 2017-18 | 134,178 | 13,118 | 13.91 | 33,643 | Ex wellhead figures |
| 2018-19 | 146,186 | 14,523 | 15.40 | 32,293 | Ex wellhead figures |
| 2019-20 | 99,094 | 9,069 | 9.83 | 31,029 | Ex wellhead figures |
| 2020-21 | 122,569 | 7,534 | 8.17 | 27,149 | Ex wellhead figures |

\*\*MMscf = million standard cubic feet.

(Unit Conversion: 1 Sm3 of oil = 6.29 bbl and 1 Sm3 of gas = 35.3 Scf.)

^ Convert Gas MMscf to petajoules using online sales gas converter: https://www.convert-me.com/en/convert/energy/mscfgas.html

**Table 4.1.2 Underground gas storage by financial years**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Condensate (Barrels) | Gas Storage (MMscf\*\*) | Gas Storage (Petajoules^) | Gas Injection (MMscf) | Comments |
| 2015-16 | 1,967 | 16,881 | 18.31 | 9,970 | Storage |
| 2016-17 | 587 | 9,668 | 10.49 | 13,952 | Storage |
| 2017-18 | 465 | 11,670 | 12.38 | 13,745 | Storage |
| 2018-19 | 1,220 | 13,100 | 13.89 | 12,514 | Storage |
| 2019-20 | 944 | 15,959 | 17.31 | 12,231 | Storage |
| 2020-21 | 283 | 16,144 | 17.51 | 10,201 | Storage |

\*\*MMscf = million standard cubic feet.

(Unit Conversion: 1 Sm3 of oil = 6.29 bbl and 1 Sm3 of gas = 35.3 Scf.)

^ Convert Gas MMscf to petajoules using online sales gas converter: https://www.convert-me.com/en/convert/energy/mscfgas.html

## 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 |
| 2014-15 | 0 | 2 | 0 | 0 | 2 |
| 2015-16 | 0 | 1 | 0 | 0 | 1 |
| 2016-17 | 0 | 0 | 0 | 0 | 0 |
| 2017-18 | 0 | 0 | 0 | 0 | 0 |
| 2018-19 | 0 | 0 | 0 | 1 | 1 |
| 2019-20 | 0 | 1 | 0 | 0 | 1 |
| 2020-21 | 0 | 1 | 0 | 0 | 1 |
| Total | 0 | 5 | 0 | 1 | 6 |

**Figure 4.2.1 Number of exploration wells drilled by financial year**

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

**Table 4.3.1 Overview of onshore petroleum tenements as at 30 June 2021**

|  |  |
| --- | --- |
| Onshore Petroleum Licences | No. of Licences |
| Onshore Petroleum Production Licence | 12 |
| Onshore Petroleum Exploration Permit | 10 |
| Onshore Petroleum Special Drilling Authorisation | 2 |
| Onshore Petroleum Retention Lease | 1 |
| Total | 25 |

**Table 4.3.2 Overview of offshore (Victorian waters) petroleum tenements as at 30 June 2021**

|  |  |
| --- | --- |
| Offshore Petroleum Licences | No. of Licences |
| Offshore Petroleum Exploration Permit | 5 |
| Offshore Petroleum Access Authority | 1 |
| Offshore Petroleum Retention Lease | 1 |
| Offshore Petroleum Production Licence | 1 |
| Total | 8 |

**Table 4.3.3 Offshore pipeline licences as at 30 June 2021**

|  |  |
| --- | --- |
| Offshore pipelines | No. of Licences |
| Offshore Pipeline Licence | 14 |

**Table 4.3.4 Overview of geothermal exploration permits as at 30 June 2021**

|  |  |
| --- | --- |
| Geothermal energy | No. of Licences |
| Geothermal Exploration Permit | 1 |

**Table 4.3.5 Offshore greenhouse gas assessment permits as at 30 June 2021**

|  |  |
| --- | --- |
| Greenhouse gas storage | No. of Licences |
| Offshore Greenhouse Gas Assessment Permit | 1 |

# Revenue

## Royalties payable

**Table 5.1.1 Royalties payable by financial year ($ million)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year | Extractives  ($ million) | Gold\*  ($ million) | Other Minerals  ($ million) | Petroleum  ($ million) | Coal  ($ million) | Total  ($ million) |
| 2015-16 | $6.2 | - | $5.7 | $0.1 | $36.6 | $47.7 |
| 2016-17 | $5.9 | - | $6.1 | $4.2 | $66.9 | $83.1 |
| 2017-18 | $6.2 | - | $5.6 | $3.2 | $84.0 | $99.1 |
| 2018-19 | $6.2 | - | $1.9 | $7.9 | $80.4 | $96.4 |
| 2019-20 | $5.9 | $25.4\* | $1.7 | $4.1 | $78.7 | $115.8 |
| 2020-21 | $6.8 | $48.2 | $1.7 | $5.3 | $82.8 | $144.8 |

\*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 5.1.1 Royalties payable by financial year ($ million)**

## Regulatory fees

**Table 5.2.1 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 |

**Figure 5.2.1 Regulatory fees by financial year ($ million)**

# Rehabilitation bonds

## Bonds held

The total monetary value of the rehabilitation bonds held by the State under the MRSDA in 2020-21 was $814.4 million as at 30 June 2021. Up to date bonds held by the State can be found on the Earth Resources Regulation website: https://earthresources.vic.gov.au/community-and-land-use/rehabilitation

**Table 6.1.1 Value of rehabilitation bonds by authority type by financial year ($ million)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year | Extractives  ($ million) | Mining Licence  ($ million) | Exploration Licence  ($ million) | Prospecting Licence  ($ million) | Retention Licence  ($ million) | Total  ($ million) |
| 2014-15 | $85.8 | $153.0 | $1.9 | $0.1 | $0.050 | **$241.0** |
| 2015-16 | $88.6 | $239.6 | $2.0 | $0.2 | $0.1 | **$330.5** |
| 2016-17 | $91.7 | $380.5 | $2.0 | $0.2 | $0.1 | **$474.5** |
| 2017-18 | $92.2 | $717.7 | $2.0 | $0.2 | $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** |

**Figure 6.1.1 Extractives and mining rehabilitation bonds held at the end of financial year ($ million)**

**Figure 6.1.2 Exploration, prospecting and retention licence rehabilitation bonds held at the end of financial year ($ million)**

## Bond reviews

**Table 6.2.1 Rehabilitation bond reviews by financial year**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Result of review –  increase or initial | Result of review - no change | Result of review – decrease or release | Number of bonds reviewed |
| 2014-15 | 54 | 10 | 42 | **106** |
| 2015-16 | 48 | 6 | 46 | **100** |
| 2016-17 | 46 | 12 | 33 | **91** |
| 2017-18 | 49 | 8 | 57 | **114** |
| 2018-19 | 31 | 5 | 35 | **71** |
| 2019-20 | 40 | 1 | 28 | **69** |
| 2020-21 | 85 | 1 | 22 | **108** |

**Figure 6.2.1 Outcome of bond reviews by financial year**

# Compliance

Earth Resources Regulation 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. Inspector field activities were limited to responding to critical incidents and key preventative measures during the period of COVID-19 restrictions.

**Table 7.1 Compliance activities by financial year**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Activities | Audits | Inspections^ | Meetings | Enforcement Notices\* | Total |
| 2015-16 | 186 | 478 | 199 | 59 | 922 |
| 2016-17 | 170 | 468 | 106 | 61 | 805 |
| 2017-18 | 160 | 533 | 91 | 8 | 792 |
| 2018-19 | 164 | 460 | 58 | 27 | 709 |
| 2019-20 | 108 | 515 | 69 | 62 | 754 |
| 2020-21 | 75 | 378 | 77 | 61 | 591 |

\*MRSDA s110 and s110a Notices issued.

^Inspections include site closures and site visits.

**Figure 7.1 Compliance activities by financial year**

## Industry annual returns submission rate

Annual report requirements:

All 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 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 7.1.1 MRSDA tenements FY2020-21 annual report submission rate as at 05 Nov 2021**

****

\*Due date: Work authority 31 July 2021; mining and prospecting 28 July 2021.

\*Annual returns submitted includes regulator approved extensions.

†Annual returns received, data not satisfactory: Some components of the annual return were not satisfactory and therefore awaiting more details to be provided by tenement holders. The data from these records are included in this report.

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