



2022 Teacher Earth Science Education Programme ([TESEP](https://tesep.org.au))

Annual Report by Jill Stevens (Chairperson) (statistics, as of 18 February, 2023)

TESEP – a 2022 Summary of Activities and a Look Back over the last 15 years (2008-2022)

TESEP's aim is to develop confident, well-informed, enthusiastic teachers of Earth and Environmental Science, with the multiplier effect of flow-on to tens of thousands of students over the years of most Science teachers working lifetimes. These Earth and Environmental Science-oriented students would have the potential to do tertiary studies and take up Australian positions in industry as professionals or technicians.

TESEP has an impressive track record having developed eleven professional development (PD) workshops covering a diverse range of earth science topics including the rock cycle, ore bodies and crustal geology, climate change, the hydrocarbon and coal stories, ground water, geothermal, nuclear and renewable energy, plate tectonics, critical minerals, 3D geological visualization and our place in space. New topic: Energy & the Energy Transition is being finalized for 2023 Term 2 webinars/PDs.

TESEP relies upon the support of partners to provide the required funding to develop and sustain PD workshops. However, recent reduction in partner support has applied pressure to the TESEP effort. A full list of programs, resources and partners is available on the TESEP website (<https://tesep.org.au>).

TESEP 15 Years On, STATISTICS (to 18 February 2022)

(PD workshops/fieldtrips/conference talks/class session incursions/RocksExpo school visits)

- TOTAL PD workshops **227** (**2804** teacher attendances)
- Fieldtrips/site visits **60** (**793** teacher attendees)
- Webinars **76** (**1934** teacher attendances mostly 2020-2022) Incl **995** in 2020, **618** in 2021 (lockdown years), **263** in 2022
- Incursions **82** (**1986** students attended incursions in 2022, with face-to-face visits restarting from Oct 2021),
- Virtual Incursions **4**
- Conference Talks (**644** teacher attendees)
- RocksExpo school visits **5** in early 2021, increased to **57** school visits in 2022
- Educators: One Executive Officer (on staff, until 30 June 2021, retired) and Part-time consultant State Coordinators 6 in 2008-2014, 3 in 2015-2019 and the move to regionally-based, consultant Regional Coordinators (6 started in October 2021) 7 in 2021-2022 (with 2 occasional-support educators) and 7 in 2023.

TESEP coverage of eastern-central states/territories has changed from:

A) one-day Professional Development PD WORKSHOPS for Science/Geography teachers & lab technicians, in **30 locations** in eastern state/territories (2008-2019) to

B) national teacher/labtech participation in free nationwide WEBINARS (2020-2023) (webinar recordings & powerpoints are available for teachers to utilise),

C) new face-to-face PD workshops/incursions school visit sponsored RocksExpo days (with **2.5- to 4-hour PD** for teachers and class session **incursions** for students) (Oct 2021 - 2023) in **54 locations** in ACT, NSW, Qld, SA, Vic (with Tas & WA booked for 2023) and **D) virtual PD workshops & virtual incursions** – when presenters cannot be present in person.

TOPICS: TESEP's The Challenging Earth series of earth and environmental science topics has grown from 8 to 11, with the addition of:

Rocks & How to Use the Rock Kit teaching pack (as part of Round and Round with Rocks PD1) and

Critical Minerals (to build awareness of the need for key minerals, when transitioning to renewable energy sources).

Energy & the Energy Transition (Topic 11) to start webinars & PD in Term 2 2023.

2022 TESEP SUCCESSES:

Ability to keep a dedicated attendee list of teachers, which keep growing each year.

In 2022, TESEP has successfully run:

Professional Development (PD) workshops for teachers -

54 school visit PD events in Qld (10), NSW (13), Vic (9), ACT (4) & SA (14) in 2022

6 X online webinar 1-hour, 6-part series (generally 2/term) Rocks & Minerals, Plate Tectonics, Our Place in Space, Fossils, Evolution & 5 Big Extinctions & Critical Minerals (36 webinars)

3 X short 1.5hr webinars Intro to Rocks & Fossils of Australia - have ben run - with national participation.

So TESEP has influenced a Total of **2804 teachers/labtechs across the country & 1986 students** (at school visits).

TEACHER FEEDBACK:

- *Philip's presentation (Rocks & Plate Tectonics) was really interesting, just over too soon!*
Science teacher from Indooroopilly SHS
- *The information was incredible! I liked how the information was broken into sections.*
Packenham SC teacher
- *Well planned and engaging. Students enjoyed the hands-on experience with rock samples.*
Most useful – 3D models & Critical Minerals talk. Lithgow HS teacher
- *Will integrate critical minerals approach to a combined chem/geo/environmental unit*
- *I will definitely look at increasing the content and detail about critical minerals, their distribution in Australia and worldwide and who controls their mining, refinement and distribution.* Lithgow HS teacher
- *I'm Assistant Principal at Nyngan Public School and went on the mine tour with you. I enjoyed your talk at our school and the mine tour- so much so, I enrolled in and began a Bachelor of Science, with the hope to transfer to a B Geoscience next trimester. I just wanted to thank you for such an inspiring presentation and field trip. I've always loved science and seemed to have forgotten that during my teaching career.*
- *A Brisbane high school teacher said "I have done all your PD workshops over the years and I am enjoying doing TESEP webinars on Fossils & Plate Tectonics. They have helped me so much."*

2022 TESEP ISSUES:

1. Jill is handling EXECUTIVE OFFICER & CHAIRPERSON work – (Greg McNamara retired 30 June 2022) – program being driven by Jill Stevens' & Philip Sansom's guidance, Jill – Chairperson & EO - doing a variety of jobs (volunteer hours) – none of the current presenters have the time to take on EO/bookings/sponsorship/media roles, Philip available a few hours per week
2. LOGISTICS HELP is NEEDED (preferably, part-time paid positions) to keep the program progressing & developing, positions:
Bookings Secretary \$30kpa for 1.5 to 2 days/week,
Advertising/Media Secretary (a Facebook presence is needed to build & maintain a visible online presence) \$120 for *2hr per week position, student wanted to handle Facebook*
Sponsorship Secretary – assistance needed (*\$13kpa needed to cover this one-day/week work*) 2-year to 3year Partner-FUNDING is needed to keep the program running.
3. TESEP is EDUCATOR-PRESENTER LIMITED - short on presenters (in 2021-2022 – significant turn-over of staff - they are all doing other jobs, industry, academia etc) – all presenters are trained earth scientists with industry/academia experience & has a lack of YOUNG presenters, PRESENTER-DEVELOPER Team are paid casual teacher rates/travel expenses.
4. TESEP Aust ROCK KIT for SCHOOLS - Jill has been driving/coordinating, visiting quarries, rock sources & voluntarily coordinating team of 5 volunteer retired geos - for 5 years now – (*self-funding TESEP at \$25-\$30k pa - helping TESEP's budget*).
5. TESEP WEBSITE is well-handled by Malte Ebach webmaster/presenter-developer.
6. ADMIN Administration/audit/insurance – is well-handled by ASTA Office Manager \$23,600pa
7. **FUNDING is being used up rapidly**, in the face-to-face school visit presentation model –

TESEP is digging into general Partner carryover funds – to run school visits @\$1250-\$1550/day Annual running costs 2022-2023 \$140-\$170kpa, with volunteer time in most positions, apart from ASTA admin, presenter-developers.

Residual TESEP funding (after 54 school visits & 6 webinar series) is low – new funding partners & annual increases from existing long-term partners, is being sought, to keep going at the current pace/delivery model.

SPONSORSHIP – The new model – as of May 2022 (now accepted by industry sponsors): to cover the travel/presenter fee costs of school visits - asking for:

- a) \$1500 Bronze Partner funds (to help with overheads – insurance/development of teaching resources), as well as
- b) Sponsoring of schools visit costs @\$1250 to \$1550/day depending on remoteness of school. Suggest \$4,000 to \$4,650 for a 2- to 3-day visit (incl 1- to 1.5-day travel, 0.5-day prep time)
- c) Option to support Special Project – development of new topics, poster printing etc (\$1500 to \$2500)

NEW TEACHING RESOURCES (as of Feb 2023):

Critical Minerals PD & webinar series – Phil Gilmore (with additional material by Rob Kirk)

Fossils, Evolution & Extinctions PD & webinar series (Rob Kirk & Malte Ebach)

Our Place in Space PD & webinar series (rewritten Malte Ebach)

Energy & the Energy Transition (written by Glen Nash, compilation of Energy PDs & updated Science)

Volcanoes – South Grampians Fieldtrip (worksheets & fact sheets by Dr Stephen Carey)

TESEP AUSTRALIAN ROCK KIT for SCHOOLS:

a) Over 100 rock kits were assembled & distributed nationally in 2022, b) quarries & monument stonemason sites were visited to collect rock, c) 2 rock-breaking days were held (volunteer team of 5).

Total **850+ distributed** across Australia by Haines Educational &

Total **50 rock kits were distributed of the 70+ sponsored** by mineral/energy companies/societies - distributed to schools at RockExpo day visits.

Industry representatives attended 10 school visit PD/incursion events/rock kit hand-overs in 2022.

What's New? What's Changed?

- a) **Mix of geological society & industry partners** **AIG, MCA (Vic), South32, Yancoal** and recently, **Evolution Mining**, are most significant, with longterm **SA Dept. for Energy & Mining support** much appreciated. (2- to 3-year support is being requested of Partners to assist in forward-planning)
- b) **Industry Sponsoring of school visits/rock kits has attracted significant support, but does not cover full cost of travel/fees/resources development/insurance-admin – hence the new model of Sponsorship of kits/school visits/overheads is being applied.**
- c) TESEP has **lost the funding** of significant geological society funding partners **PESA, ASEG and AusIMM** in the last few years.
- d) **Self-funding continues, with:**
sales of the **TESEP Australian Rock Kit for Schools** - a huge effort of volunteer work
sales of the **TESEP Plate Tectonics poster**, through Haines Educational.
- e) **In-kind support from ANU, GA & others** is much appreciated.
- f) **One-off support** from anniversary dinner profits by **SMEDG Sydney Mineral Exploration Discussion Group** is much appreciated.

New corporate funding model – local/regional school visits (started in late 2021) –

a) with **sponsoring of rock kits & PT poster sets to schools** in regions, where corporates/industry are exploring/mining (sponsors of rock kit-poster sets in Vic, SA, NSW, Qld, WA (none in NT, ACT & Tas, so far), and,

b) by **three new partners - South32, Yancoal and recently, Evolution Mining joined** (name to be added to list) **(all with a 2-year commitment** to 2022-2023 or 2023-2024 funding support), as well as some sponsoring of rock kits to schools in Qld, NSW & WA.

2022 TESEP EVENTS MAP - See map

DISAPPOINTMENTS

- **Loss of significant longterm funding partners** **PESA, ASEG, AusIMM**
- **Dependance on volunteers to support** a) the self-funding projects (e.g. Rock Kit) and b) some of the hours, in development of teaching resources.
- **Funding: General Partner funding is at an all-time low** (*national programs are less-favoured compared to local/regional sponsoring*), to the point that, to be viable in 2018-2023, we still need to do our own fund-raising (rock kit sales) & start the regional school visit approach in

late 2021 (to attract sponsors for local/regional school visits). We will continue to utilize some carryover funds, until they run out (projected - 2024).

- **Budget 2021-2022 & 2023** – significant drawing down on carryover funds (from 2020-2021 lockdown years) See Profit & Loss Report (31 December 2022) – separate attachment.
- **Additional financial stress to TESEP** –
 1. **RocksExpo school visits travel/presenter fees** – additional (un-sponsored) costs in the preparation of location-specific teaching material, field worksheets for students (requested by some schools), and
 2. **In-part, un-supported costs of development of teaching resources - TESEP webinar online development and presenting of webinar 6-part series** (converting PD workshops to Webinars) and the additional presenting costs of webinars (with helpers in the Zoom chat room, fees to presenters/host etc).

So, in summary – TESEP is powering away, but is using up significant carryover funds

1. Enthusiastic educators on our experienced educator team, with Jill Stevens & Philip Sansom guiding these educators.
2. New presentations – new excited and enthusiastic regional coordinators team, new PD webinars series - **Critical Minerals**, revisions of Fossils webinar – to **Fossils, Evolution & Extinctions** and of the previous 4 X Energy PDs revised/updated into the new, **Energy & the Energy Transition** 6-part PD webinar series.
3. Jill Stevens, still as Chairperson/Team guide/Bookings Secretary/Sponsorship & Media and Rock Kit Team coordinator. None of Jill's time is supported by funding.
4. Much needed - help in logistics.

TESEP's aim is to develop confident, well-informed, enthusiastic teachers of Earth and Environmental Science, with the multiplier effect of flow-on to tens of thousands of students, who might continue in Science and have the potential to do tertiary studies and take up Australian positions in industry as professionals or technicians.

So, re-iterating, the first TESEP statement: *TESEP has an impressive track record having developed eleven PD workshops covering a diverse range of earth science topics, involving 2800 Science teachers/labtechs nationally (in PD workshops & webinars) & close to 2000 students (in class incursions)*

TESEP relies upon the support of partners to provide the required funding to develop and sustain PD workshops. However, recent reduction in partner support has applied pressure to the TESEP effort. A full list of programs, resources and partners is available on the TESEP website (<https://tesep.org.au>).

As Chairperson of this dedicated TESEP team, I would like to thank all the TESEP team for a great 2022: with 54 school visits, 6 webinar series and significant new topics/updates to PD.

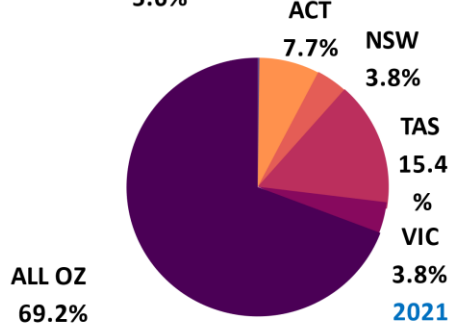
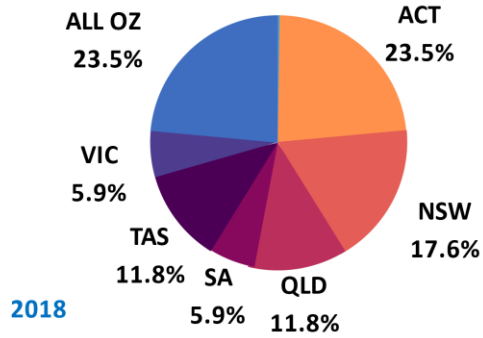
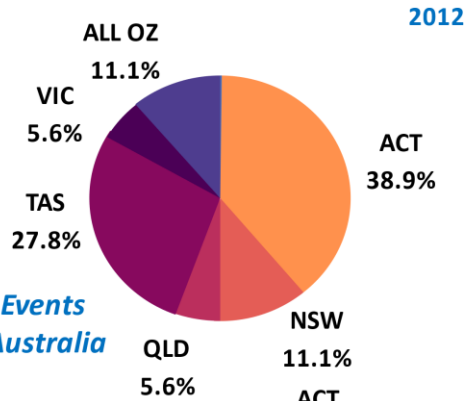
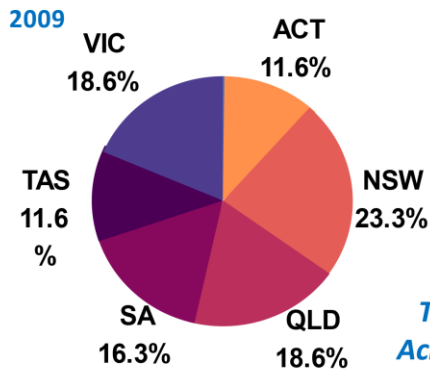
Our administrative support from Australian Science Teachers Association ASTA is gratefully acknowledged.

I would also like to thank the TESEP Advisory Board members and on-going Funding Partners for their continued support and enthusiasm in guiding and developing TESEP, since November 2006, when this was just an idea presented at a geoscience conference education forum.

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TESEP Programme 2022

- ◆ PD workshop
- School incursion
- ★ Field trip
- Conference



TESEP Events Across Australia



Mine visit, Nyngan, NSW (Aeris) Feb'23



Portland, NSW (Energy Aust) Nov'22



Edenhope PD & incursions, Vic (Aust. Rare Earths) Oct'22



Coerwull PS, NSW (Energy Aust) Nov'23



Cobar HS incursion, NSW (Aurelia) Feb'23



Benalla incursion, Vic (Linex) Oct'22



Charlton

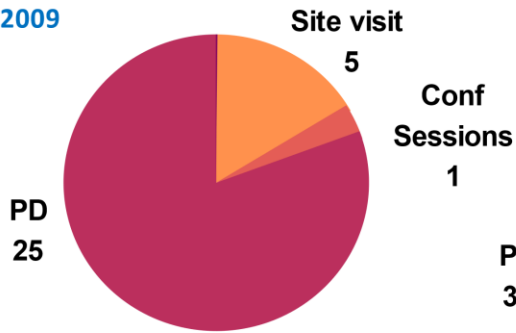
Charlton HS, Vic Aug'22



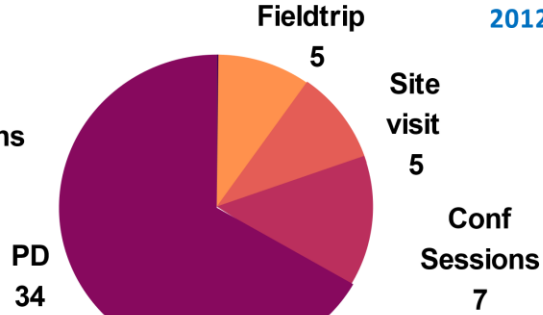
core) Oct'22

Naracoorte HS, SA, (ARE geologist showing rare earths rock-sed

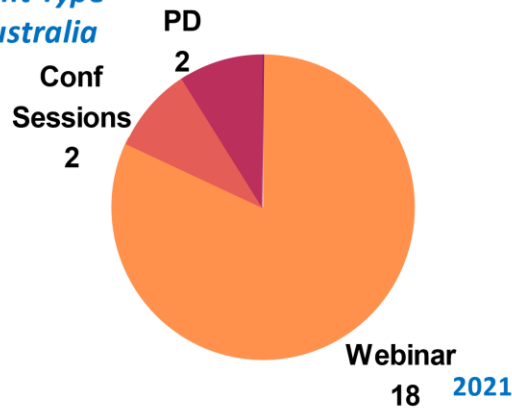
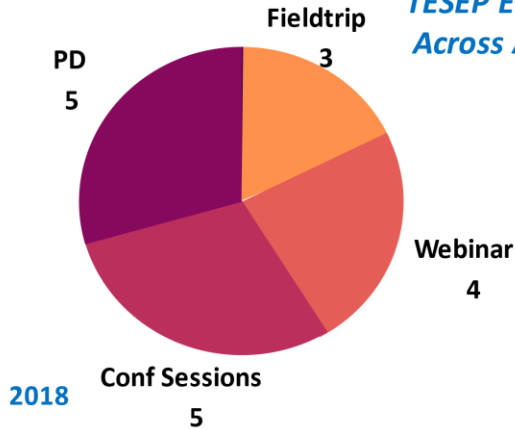
2009



2012

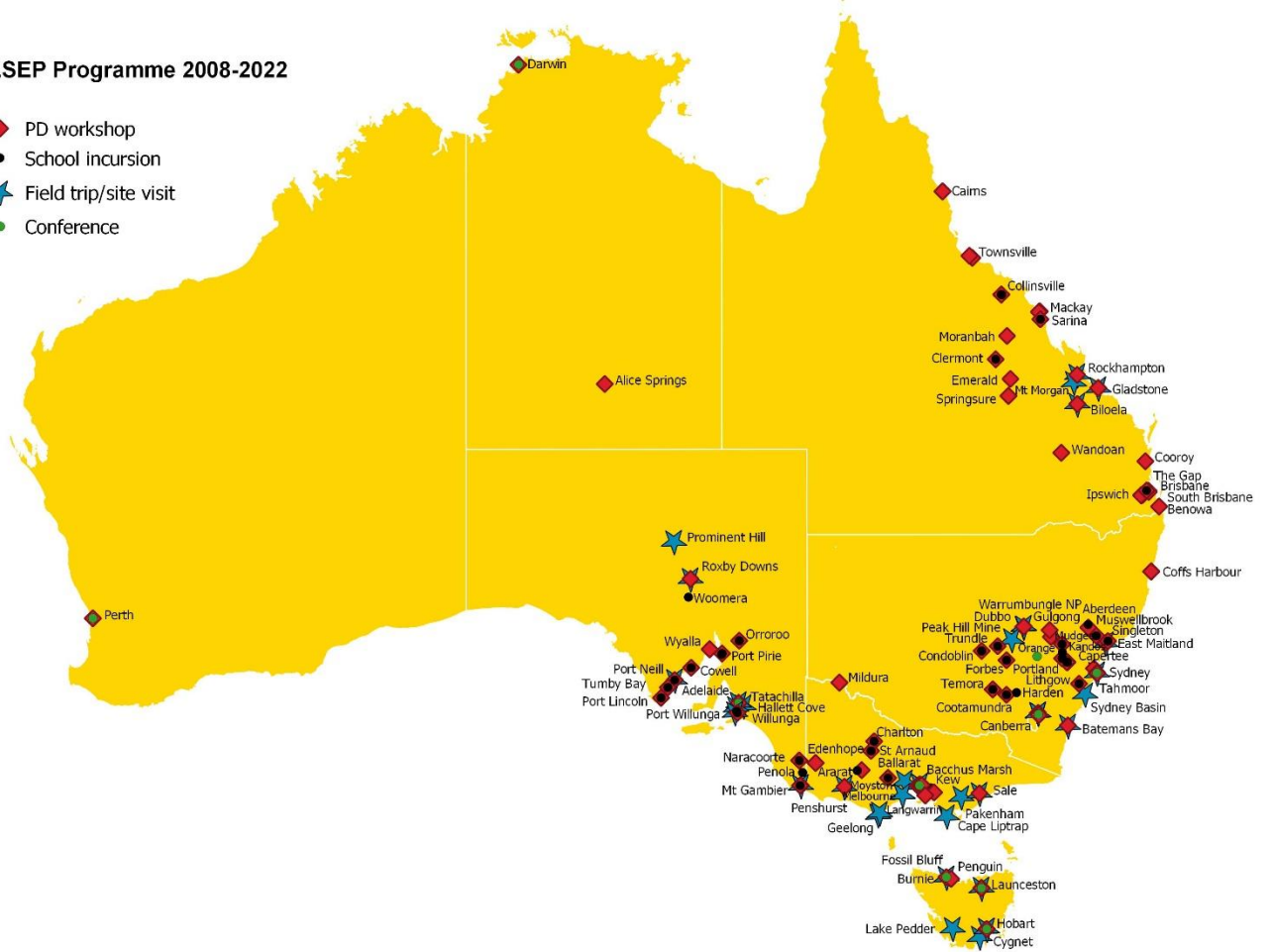


TESEP Event Type Across Australia

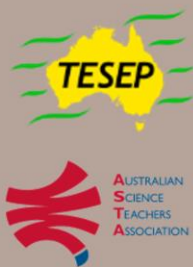


TESEP Programme 2008-2022

- ◆ PD workshop
- School incursion
- ★ Field trip/site visit
- Conference



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2022 PARTNERS

GOLD



SILVER PLUS



- South 32
- Minerals Council of Australia (Vic. Div.)



SILVER

- Yancoal

BRONZE

- Energy Australia
- SA Department for Energy and Mining

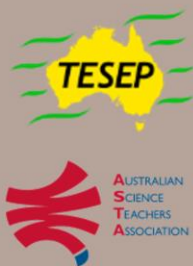
In-kind support

- AusGeol.org – Virtual Library of Australia's Geology
- Australian Geoscience Council
- Australian Museum
- Australian National University – RSES
- Australian Rare Earths Ltd
- Bureau of Meteorology
- Federation University Australia
- Geological Society of Australia
- Geological Survey of New South Wales
- Macquarie University
- Monash University
- OzMinerals
- Pyrenees Quarries
- Quantum Victoria College
- Rob Kirk Consultants
- Scienceworks
- Victorian Space Science Education Centre



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2022 SPONSORS OF ROCK KITS IN SCHOOLS

SILVER PLUS

- BHP Olympic Dam
- Sydney Mineral Exploration Discussion Group (SMEDG)
- South 32



BRONZE

- Aeris Resources Ltd (Tritton Mine)
- Astron Corporation (Donald Mineral Sands)
- Aurelia Metals Ltd (Peak Gold Mines)
- Australian Rare Earths Ltd
- Ballarat Gold
- Bengalla Mining Co (New Hope Group)
- Energy Australia
- Glencore Coal
- Gnomic Exploration Services
- Haines Educational
- iTech Minerals
- Kalbar Operations
- Kingston Resources Ltd (Mineral Hill)
- Linex Pty Ltd
- MACH Energy
- Mercator Gold Australia Pty Ltd
- Navarre Minerals
- OZ Minerals
- Providence Gold Minerals Pty Ltd
- Stawell Gold Mine
- Whitehaven Coal
- WIM Resource
- Yancoal



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