

Queensland **EXPLORATION** **SCORECARD**

TRACKING QUEENSLAND'S PROGRESS
TOWARDS BECOMING AN EXPLORATION
LEADER BY 2020, WITH BRISBANE
AT ITS HEART



AN INITIATIVE OF THE QUEENSLAND
RESOURCES COUNCIL

2014

FOREWORD

WELCOME TO OUR FOURTH QEC EXPLORATION SCORECARD

On behalf of the Queensland Exploration Council's (QEC) Scorecard Working Group, we are pleased to present their 2014 analysis of Queensland's progress towards becoming an exploration leader by 2020.

While maintaining the key indicators that have informed the previous three scorecards, the 2014 edition has evolved to include an extension of the sector's sentiment index to the drilling industry.

2014 was another difficult year for minerals and energy exploration in Queensland. In response to global price and demand uncertainty, and consistent with decreases in other jurisdictions, Queensland's minerals exploration expenditure fell 35% to \$435 million, and petroleum exploration was down 6.4% to \$613 million.

The impacts of this challenging business environment have been stark with a substantial decrease in equity raisings by minerals explorers; very low levels of internet job vacancies for geology professionals; decreases in enrolments and completions for drilling qualifications; and reductions in the area granted for coal, gas and minerals exploration.

While Queensland has little influence over global commodity prices and investor sentiment, it can take steps to improve the domestic operating environment for explorers. To that end, the most significant findings from our 2014 scorecard are found in our explorers' sentiment survey.

Last year's sentiment survey pulled no punches over explorer perceptions of Queensland's tenure approval system, and to the state government's credit, Natural Resources and Mines Minister, Andrew Cripps wasted no time in forming a Ministerial Advisory Committee on Exploration (MACE) providing explorers an opportunity to have their say.

The results of this initiative speak for themselves, with petroleum explorers winning immediate reforms including amendments to extend exploration tenures by two years, providing greater flexibility for work programs and simplifying applications for production tenure.

The Department of Natural Resources and Mines (DNRM) has restructured, with specialist regional hubs focusing on Queensland's three major export commodities – minerals, petroleum and coal (with a fourth hub for the gemfields and small mining sector). This has resulted in reduced decision times for explorers, and outcomes reflecting well on the department's new service standard targets. Tenure applications backlogged at the start of the 2014 financial year are now either decided or with applicants for action (see charts 23 and 24). These reforms have already led to moderate to significant improvements in explorer sentiment in relation to 'government/departmental assistance, pre-competitive geoscientific data, policy uncertainty and exploration permit processes.'

DNRM's MyMinesOnline initiative has delivered significant time savings and far greater transparency for applicants.

However, there is more work to be done. Explorer sentiment in Queensland remains doggedly negative, and lagging the rest of Australia in regulations covering cultural heritage, Native Title and environment; conduct and compensation agreements, and land availability. The Queensland Government's commitment to ResourcesQ – a 30-year vision for making Queensland a global leader in resources – is another step in the right direction for exploration. Wide ranging reforms to tenure systems and reporting requirements are under way and expected to make inroads into next year's scorecard.

In commending this report to you, we gratefully acknowledge the contributions of the QEC working group as well as those from industry and government who collaborated closely to provide the valuable data and information referenced throughout. Special thanks are also due to the busy exploration and drilling companies who contributed to our survey.

Michael Roche

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Chief Executive
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October 2014

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PERFORMANCE SUMMARY

LEGEND

Good	
No significant impediment	
Cause for concern	
Significant problems	

THE QUEENSLAND EXPLORATION SECTOR 2014¹

LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE	Year to June...			
	2011	2012	2013	2014
Resources prospectivity and endowment (Section 2)				
• Highly prospective - Queensland enjoys significant endowments of coal, minerals and gas.				
Resource prices (Section 3)				
• An uncertain global macroeconomic outlook has weakened prices for most base and precious metals over the past 12 months.				
• Significant global oversupply and a slowing in demand from China have reduced thermal and metallurgical coal prices significantly.				
• Despite falls in the global oil price that caused LNG prices in Japan to fall slightly over the year, the LNG price remains good.				
State government geoscientific funding and activities (Section 4.1)				
• In 2014, the Geological Survey of Queensland (GSQ) invested \$17.3 million in pre-competitive knowledge. This compares with an annual average of \$16.9 million over the previous three years.				
• GSQ approved five projects under Round 2 of the Future Resources Program Industry Priority Initiative ; successfully launched the Queensland Digital Exploration Data and MinesOnlineMaps systems; successfully completed Round 7 of the Collaborative Drilling Initiative .				
Regulatory and policy stability (Section 4.2)				
• The Queensland Government has been responsive to industry feedback in streamlining regulation and improving tenure processes.				
• Some newly introduced controls may materially add to regulatory restrictions on explorers, notably in provisions of the Regional Planning Interests Act 2014 . However, it is too early to measure the net impacts of this legislation on exploration.				
• Controls in relation to strategic environmental areas present barriers to tenures in some areas.				
Operating and investment sentiment (Section 4.3)				
Survey results from exploration companies noted:				
• Queensland's resource prospectivity and endowment is considered the state's most positive attribute (+30) while conduct and compensation agreements (-41) and access to investment capital (-40) are the most negative.				
• There were moderate to significant improvements in sentiment for those factors primarily influenced by the Department of Natural Resources and Mines (DNRM) – Government/Departmental assistance, pre-competitive geoscientific data, policy uncertainty and exploration permit processes. Queensland sentiment still trails the rest of Australia, but the gap has narrowed generally.				
• Compared with previous years, sentiment in Queensland remains strongly negative, and considerably behind the rest of Australia in the areas of cultural heritage regulations, Native Title regulations, environmental regulations, conduct and compensation agreements, and land available for exploration.				
Survey results from drilling companies noted:				
• Whilst sentiment towards all forms of regulation is negative, drilling companies active in Queensland are more negative compared with other Australian jurisdictions in relation to petroleum and gas legislation and policy uncertainty but less negative compared with other Australian jurisdictions in relation to environmental, mining, and workplace, health & safety legislation.				

¹Financial year July 2013 - June 2014

LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE	Year to June...			
	2011	2012	2013	2014
Access to tenure (Section 5.1) - This is the first year of a DNRm customer service standard for processing applications for coal (EPC) and mineral (EPM) exploration. The 12-month target (6 months if there is no native title) has been achieved, a substantial improvement on averages of 21 months (coal) and 22 months (minerals) in 2013 (Table 6). - DNRm has made considerable progress in reducing the backlog of 1,400 EPM/EPC applications with only 17% outstanding (and all of those with the proponent for action). A similar focus on processing petroleum (ATP) applications resulted in the number outstanding down from 143 to 22. - In 2013-14, DNRm achieved time savings of between 50-90% in processing post grant activities (agreements, caveats, mortgages and transfers). - For coal, metals and petroleum, the total area (ha) under grant declined in comparison to 2013.				
Access to human and intellectual capital (Section 5.2) - Internet vacancies for geologists and geoscientists have fallen significantly since early 2012. - Australia-wide geoscience enrolments in 2014 increased in the second year of study with a steady rate of enrolments in honours level programs. - Enrolments and completions in publicly funded drilling qualifications decreased in all jurisdictions (except South Australia), with notable decreases in Queensland.				
Liveability of Queensland (city and regional hubs) (Section 5.2.2) Brisbane is rated the most liveable of the Australian cities and regions most commonly chosen by geosciences professionals to reside.				
Access to equity capital (Section 5.3) - In 2014 companies exploring in Queensland announced \$41 million in capital raisings for minerals exploration. This is down 35% on with 2013. Nationally, capital raising fell 60% from \$342 million to \$139 million. - Raisings for Queensland projects increased significantly as a percentage of total Australian raisings from 18% in 2013 to 29% in 2014.				
LAG INDICATORS – EXPLORATION SUCCESS				
Minerals exploration (Section 6) - In 2014, Queensland recorded a 35% decrease in minerals exploration (\$732 million to \$475 million). Western Australia also recorded a 35% decrease (\$1,774 million to \$1,152 million) - Queensland's Greenfields performance as a percentage of total minerals exploration expenditure improved to 36%. - Queensland spent 1.6% of its minerals revenues (sales) on exploration, a decrease from 2.3% in 2012-13. The Northern Territory spent the most in 2014 with 4% of its sales revenues reinvested in exploration.				
Petroleum exploration (Section 6) Petroleum exploration expenditure in Queensland in 2014 was \$655 million, the second highest year on record. While it declined 6.4% to \$613 million, it compares with a 7.7% decrease recorded in Western Australia (down from \$3,294 million to \$3,038 million).				
Levels of reserves (Section 7) Reserve/production levels for copper, gold, lead, silver, and zinc remain low.				
Based on known resources and current depletion rates, Queensland's coking coal reserves will last 96 years.				
Queensland reserves of coal seam gas continued to increase to 41,598 PJ in 2013 providing a current reserve/production level for Queensland of 140 years. This figure is likely to decrease when LNG operations commence.				
Minerals production and comparison with global demand (Section 8) Over the past 12 months Queensland achieved increased production of bauxite (up 12%), alumina (up 18%) and coal (up 4%). Production of lead, silver and zinc fell by 6%, 10% and 10% respectively. On balance the Queensland resources sector closed the gap between actual production and the growth that would be expected if production increased at the same rate as global demand (approximately 3%).				
Market capitalisation movements (Section 9) The QEC Explorers Index showed a 17% rise in 2014. This compares with a 12.7% increase for the S&P/ASX All Ordinaries, a 13.1% increase in the Queensland Exploration Index (Queensland based ASX-listed companies) and a large 15.7% decrease in the Deloitte Queensland E&R Index (Queensland based ASX-listed energy and resources companies).				

1.0 BACKGROUND

1.1 THE QUEENSLAND EXPLORATION COUNCIL

It is the vision of the Queensland Exploration Council (QEC) to see Queensland acknowledged as a minerals and energy exploration leader by 2020 with Brisbane at its 'heart'. This vision is maximised by fostering investment in Queensland exploration using expertise and services sourced from Queensland.

The QEC was formed by the Queensland Resources Council (QRC) in December 2010 to drive the [2020 Exploration Vision](#). The QEC brings together senior representatives from established and emerging resource companies, government, the finance and broking community and academic leaders.

Under the chairmanship of geologist and former Queensland Deputy Coordinator-General Dr Geoff Dickie, the QEC is putting Queensland on the front foot in the global contest for new resource sector investment.

Key initiatives of the QEC include:

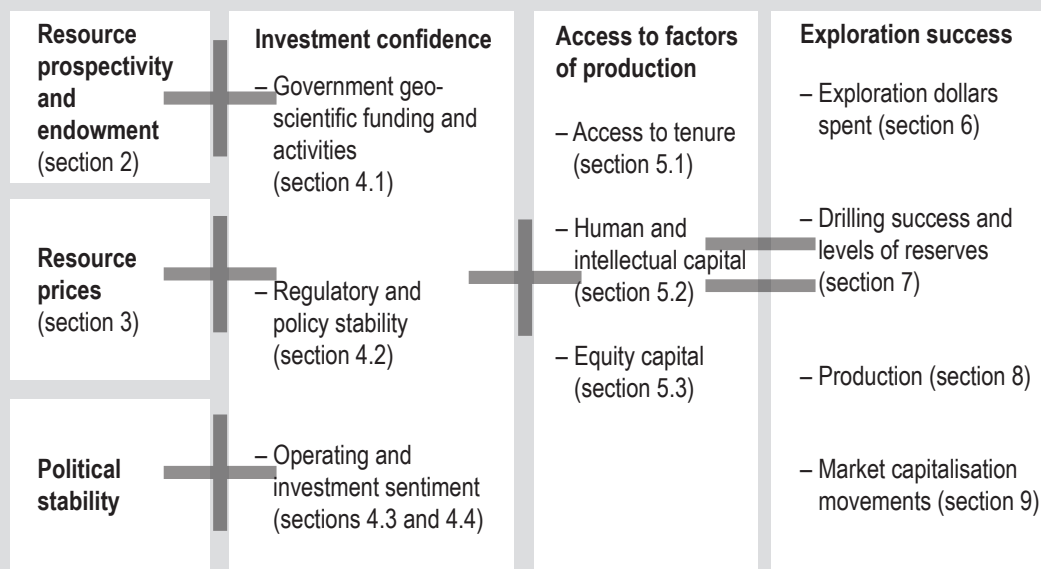
- Monthly investor [forums](#) to profile junior resources companies to potential investors
- Bi-monthly [luncheon](#) series for executives of junior resources companies
- Annual Queensland Exploration [Breakfasts](#)
- Quarterly publication of the QEC newsletter [Queensland Explorer](#)
- Annual publication of the [Queensland Exploration Scorecard](#)
- Annual Capital Raising [Seminar](#)
- Participation in [Mining Resources Convention](#) conference series
- Local and international promotion of Queensland as an attractive investment destination for explorers.
- Engagement with local governments to promote the importance and implications of exploration activities.

For more information, visit the QEC [website](#).

CHART 1: SCORECARD STRUCTURE

LEAD INDICATORS – FACTORS THAT DRIVE EXPLORATION ACTIVITY AND PERFORMANCE

LAG INDICATORS – MEASURING ACTUAL SUCCESS



Source: QRC

1.2

QEC'S QUEENSLAND EXPLORATION SCORECARD

The **QEC Exploration Scorecard** is a valuable tool in tracking the progress towards the 2020 Exploration Vision. This is the fourth edition following publication of the inaugural scorecard in 2011.

Government and industry data as well as survey information from companies actively exploring in Queensland are used to inform the results. The 2014 Exploration Scorecard, with some minor changes, retains the layout of previous editions and continues its analysis of introduced indicators. Through the QEC, the scorecard is developed in close collaboration between industry (e.g. Queensland Resources Council, Australian Drilling Industry Association) and government (DNRM).

The scorecard is developed on the assumption that increasing exploration activity is broadly driven by:

- resources prospectivity and endowment
- resources prices
- explorer and investor confidence
- political stability
- access to the essential factors of production (capital, land, skills).

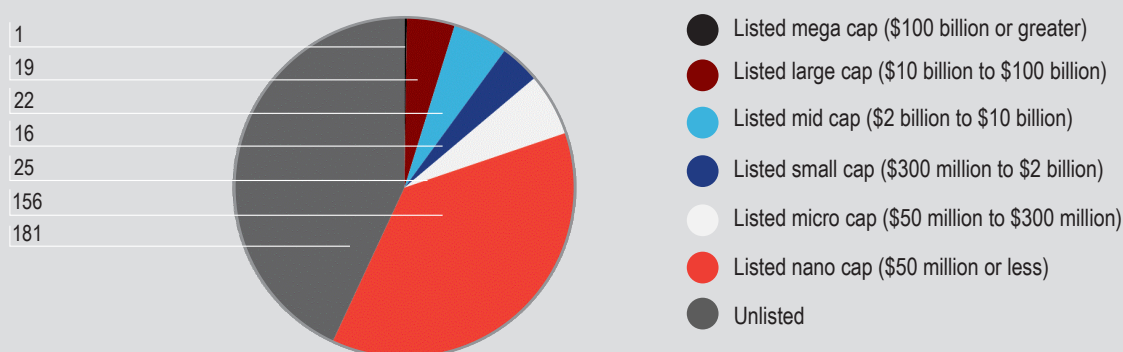
As commodity prices are driven by the market, the Scorecard concentrates on those lead indicators that can be influenced – namely, explorer and investor confidence and access to the essential factors of production. Outcomes or lag indicators that measure actual exploration success are also included (Chart 1).

1.3

EXPLORATION IN QUEENSLAND

It is estimated that around 420 companies conducted exploration activities in Queensland in 2014. The companies are diverse in their size (market capitalisation), business models, and exploration targets.

CHART 2: NUMBER OF COMPANIES ACTIVELY EXPLORING IN QUEENSLAND BY MARKET CAPITALISATION AS AT 30 JUNE 2014



Source: SNL Metals & Mining

2.0 LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE

RESOURCES PROSPECTIVITY AND ENDOWMENT

Prospectivity is a major driver of exploration activity. Queensland's high-level prospectivity for coal, petroleum and minerals is evident and recognised globally.

Queensland's high prospectivity of base metals, gold, and uranium; significant endowment of coal and gas is confirmed in charts 3, 4 and 5.

KEY FINDINGS

- **Queensland base metals prospectivity**

The world-renowned North West Queensland Mineral Province hosts Mount Isa-style copper-silver-lead-zinc ore bodies in addition to other large silver-lead-zinc deposits including George Fisher, Cannington and Dugald River. The Ernest Henry iron-oxide-copper-gold deposit near Cloncurry is a major producer of copper and contains a substantial magnetite resource. Base metals deposits have been identified south of Cooktown, in the Townsville hinterland and along the east coast from south of Mackay to west of Brisbane. There are many lightly explored and prospective base metals areas in Queensland, and further exploration has the potential to identify new deposits (Chart 3).

- **Queensland gold prospectivity**

Gold exploration is centred on historically prospective areas including Charters Towers-Burdekin, Coen-Chillagoe-Palmer-Hodgkinson, Clermont-Drummond-Cracow, Croydon-Georgetown, Gympie, and Warwick. Along the coast from Townsville to the south east corner of the state a number of intrusion-related gold deposits have been identified. In central Queensland, and again in the NWQ Mineral Province, copper-gold associated and skarn-hosted deposits have been discovered, notably in the Selwyn-Mount Dore area (Chart 4).

- **Queensland uranium prospectivity**

Queensland hosts highly prospective uranium deposits. The NWQ Mineral Province has supplied uranium oxide from the Mary Kathleen deposit. Other significant uranium deposits in NWQMP include Valhalla and Westmoreland and Ben Lomond, 50 kilometres from Townsville (Chart 5).

- **Queensland coal endowment**

Queensland has about 14,010 million tonnes of proven and probable coal reserves, an increase from 12,565 million tonnes in 2013. Measured and indicated resources increased significantly to 55,416 million tonnes in 2014 from 44,170 million tonnes in the previous 12-month period. Inferred resources increased from 68,659 million tonnes to 78,120 million tonnes in 2014. The increase is a lag and associated with a high level of coal exploration in previous years (Chart 6).

- **Queensland gas prospectivity and endowment**

Queensland has very high gas prospectivity. A considerable amount of gas is believed to exist in a number of basins across the state. Exploration activity for shale and tight gas has begun in the Cooper, Georgina, Galilee and Bowen Basins, and the Isa Superbasin. This prospectivity is beginning to be converted into endowment. The extensive development in the coal seam gas industry continues with ongoing but declining exploration and appraisal in the Clarence-Moreton, Galilee, Bowen and Surat Basins. Major development and construction activities in the Bowen and Surat Basins are underpinning the CSG-LNG export business. Coal seam gas 2P reserves (proved and probable) increased to 41,124 PJ at 31 December 2013 (Charts 7 and 8).

Source: GeoScience Australia

CHART 3: QUEENSLAND BASE METAL PROSPECTIVITY



CHART 4: QUEENSLAND GOLD PROSPECTIVITY



CHART 5: QUEENSLAND URANIUM PROSPECTIVITY

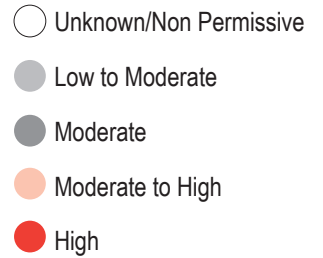
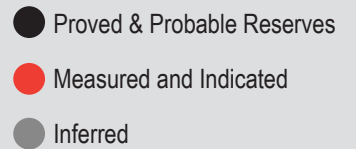
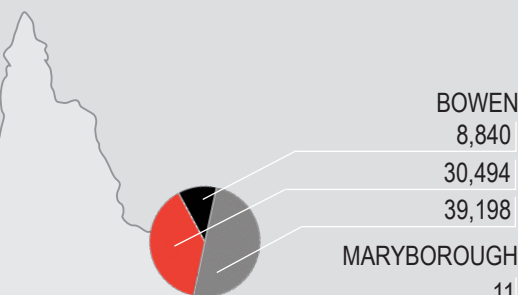
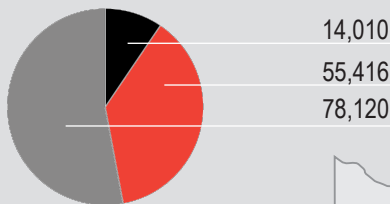


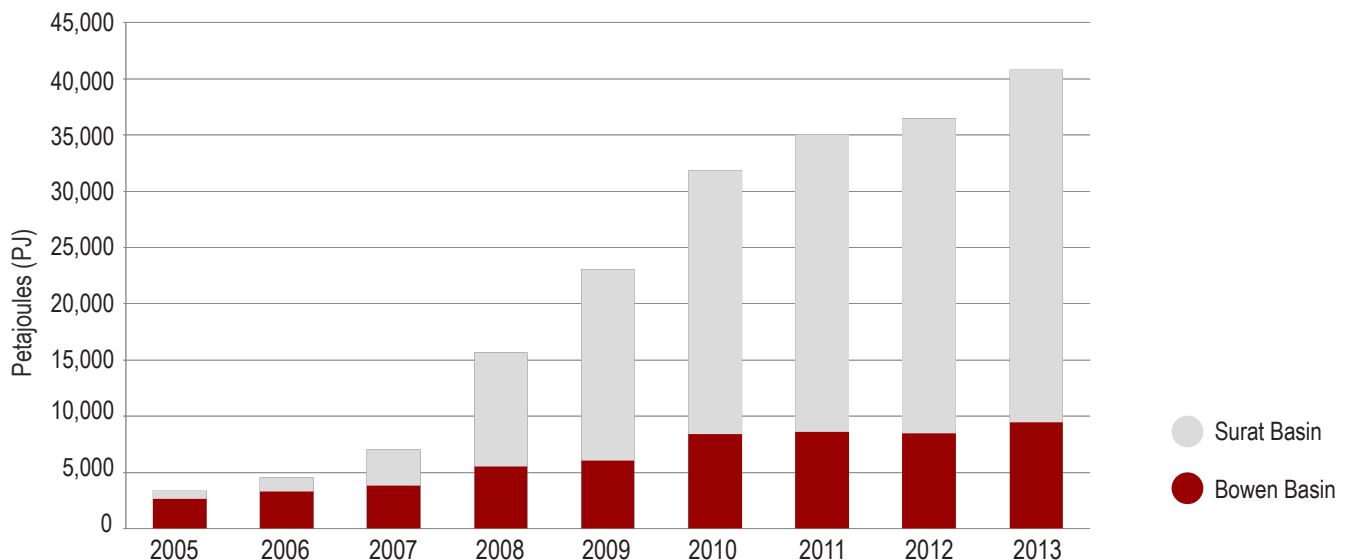
CHART 6: QUEENSLAND COAL ENDOWMENT (TONNES OF RESERVES AND RESOURCES AS AT 30 JUNE 2014)
(All figures shown in Mt)

TOTAL QUEENSLAND: BOWEN, GALILEE, SURAT, TARONG, MARYBOROUGH & CLARENCE-MORETON BASINS



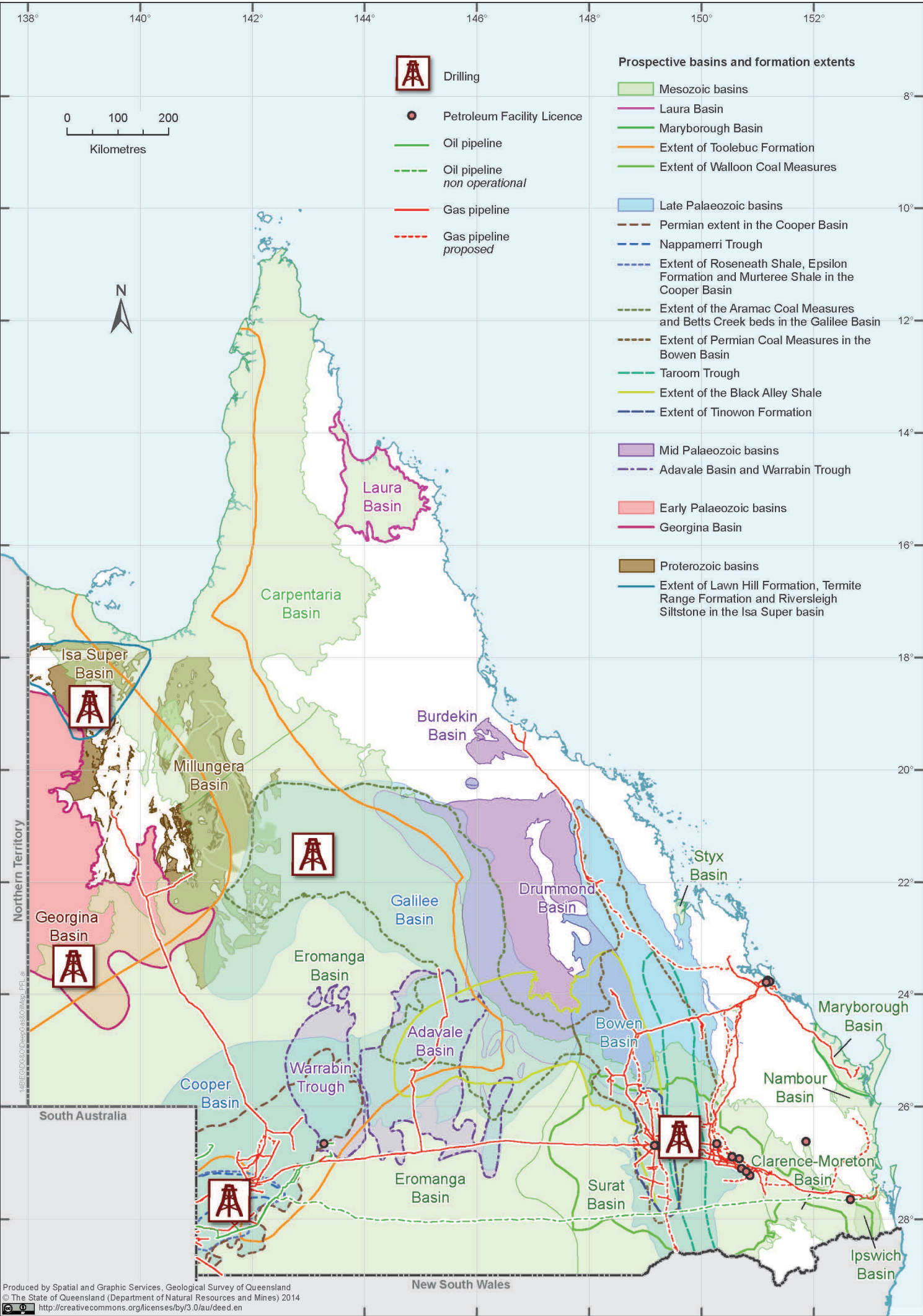
Source: SNL Metals and Mining

CHART 7: QUEENSLAND COAL SEAM GAS 2P RESERVES (PROVED AND PROBABLE)



Source: RLMS

CHART 8: QUEENSLAND GAS PROSPECTIVITY AND ASSOCIATED INFRASTRUCTURE MAP



3.0 RESOURCE PRICES

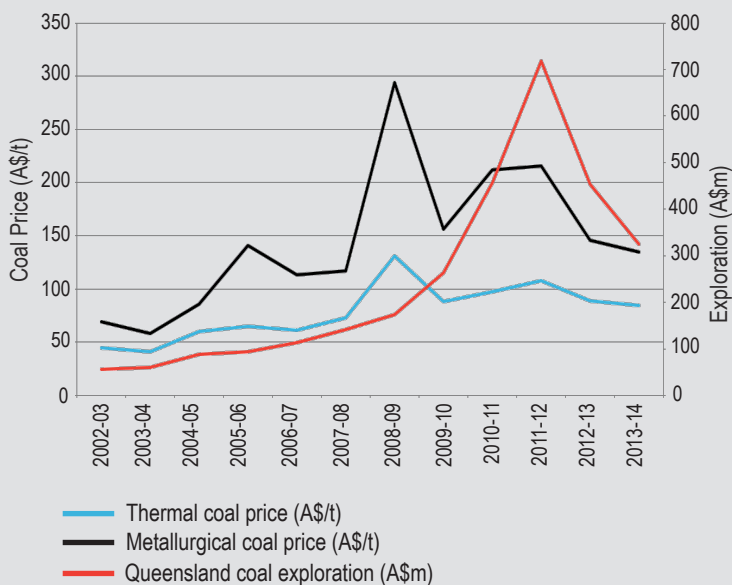
Resource prices are a significant driver of exploration in Queensland. Charts 9-12 show the relationship between average global benchmark prices for coal, gold, copper, and LNG compared with Queensland exploration expenditure for each commodity.

Copper explorers report that along with the challenges facing the junior exploration sector as a whole, there are a number of regional regulations covering Mount Isa that have had a pronounced effect on reducing the areas they can explore within their granted tenure.

KEY FINDINGS

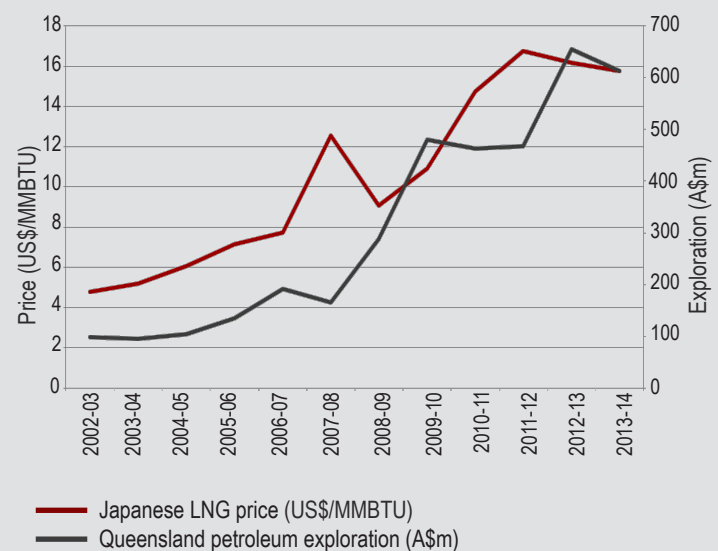
- Coal exploration in Queensland continued to decline in 2014 in line with price decreases and significant oversupply of coal into the seaborne market (Chart 9).
- Queensland petroleum exploration expenditures tapered slightly following a sharp increase in 2014 (Chart 10). This decline in CSG exploration was offset by an increase in tight gas and shale gas exploration. The attractiveness of export LNG prices and the construction of LNG facilities at Gladstone are key drivers underpinning the quantum of exploration.
- In line with a continued deterioration in the gold price, gold exploration expenditure also decreased in 2014 compared with the previous year (Chart 11). Copper exploration in Queensland was significantly lower in 2014 during a time of softer demand, but historically high copper prices (Chart 12).

CHART 9: GLOBAL AVERAGE BENCHMARK COAL PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2013-14



Source: BREE Resources and Energy Quarterly, ABS 8412.0

CHART 10: GLOBAL AVERAGE BENCHMARK LNG PRICES AND QUEENSLAND PETROLEUM EXPLORATION SPEND, 2002-03 TO 2013-14



Source: BP Statistical Review of World Energy, ABS 8412.0



CHART 11: GLOBAL AVERAGE BENCHMARK GOLD PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2013-14

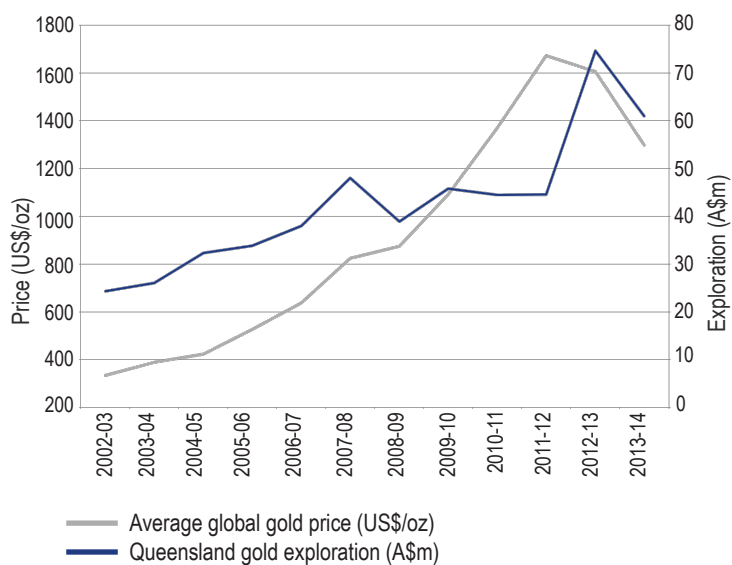
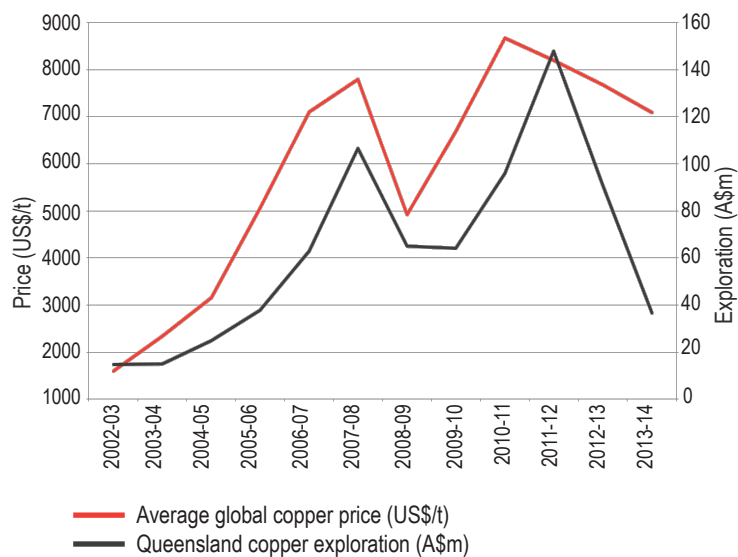


CHART 12: GLOBAL AVERAGE BENCHMARK COPPER PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2013-14



Source: BREE Resources and Energy Quarterly,
ABS 8412.0

Source: BREE Resources and Energy Quarterly,
ABS 8412.0

4.0 EXPLORER AND INVESTOR CONFIDENCE

A key driver of exploration activity is explorer and investor confidence, influenced by perceptions of business risk and the likelihood of success.

Risk and success perceptions are in turn influenced by factors such as geoscientific funding and associated activities, legislative, regulatory and policy stability, and operating and investment sentiment.

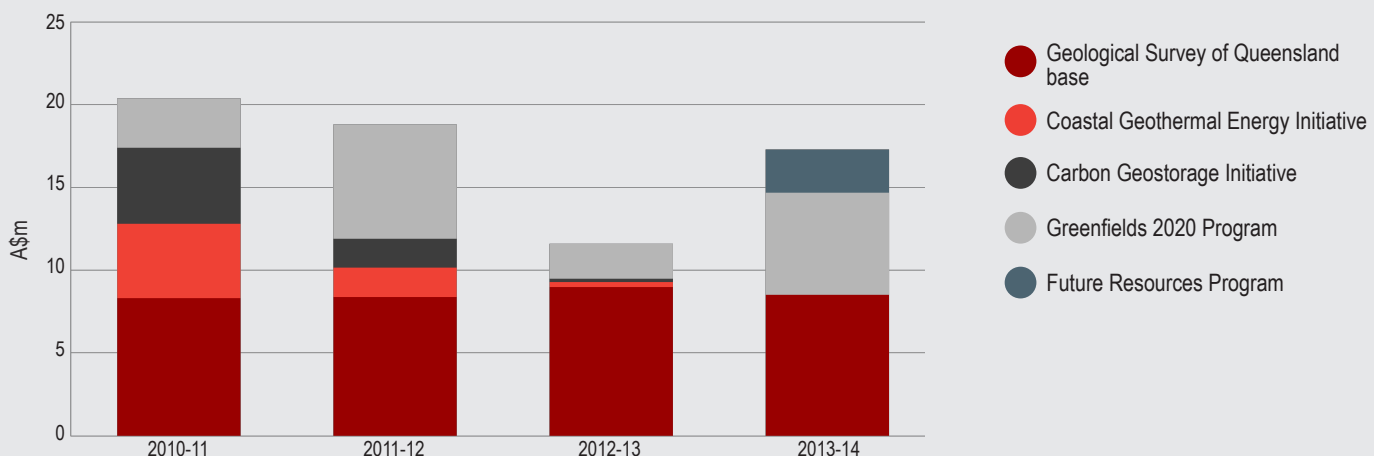
This section outlines a number of measures assessing each aspect.

4.1 STATE GOVERNMENT GEOSCIENTIFIC FUNDING AND ACTIVITIES

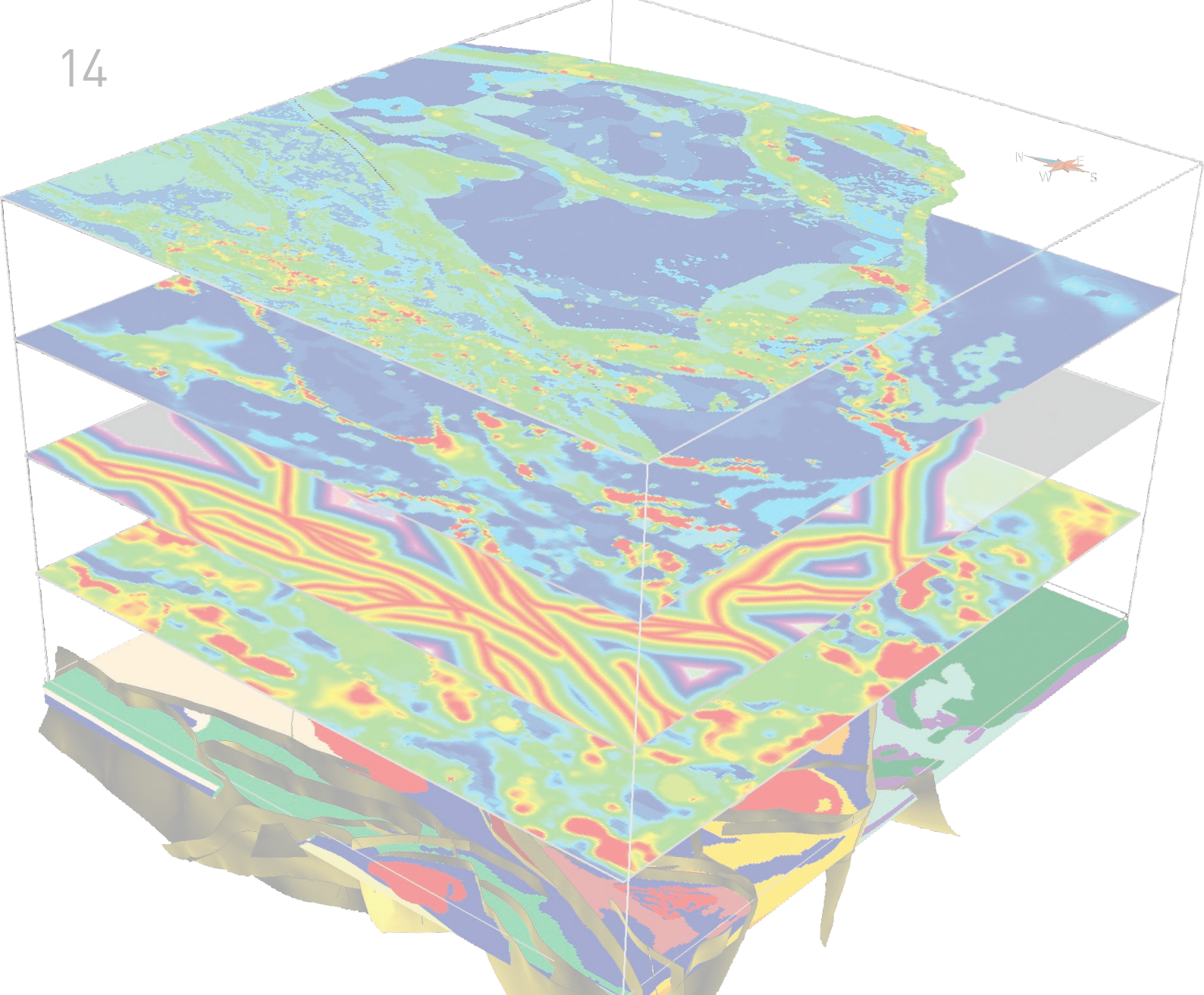
Total state government geoscientific funding and the breakdown of that funding across the various programs is shown in Chart 13.

A summary of the major Geological Survey Queensland (GSQ) achievements in 2013-14 is provided below.

CHART 13: TOTAL GSQ EXPENDITURES (A\$M) 2010-11 TO 2013-14



Source: Department of Natural Resources and Mines



MAJOR GSQ ACHIEVEMENTS IN 2014

- Five successful projects from the second round of the Future Resources Program Industry Priority Initiative submissions were selected and approved:
 - A deep-penetrating aerial electromagnetic survey south of Cloncurry over highly prospective ground for gold and copper in the Mount Isa Eastern Succession
 - A two-year project to provide the mining industry with a series of region-wide calibrated spectral datasets, allowing detection of subtle geochemical signatures of buried mineral systems in North Queensland
 - A two-year study into advanced bulk mining methods to upgrade the economic viability of ore bodies in the Cloncurry region
 - A mapping and test drilling program to uncover a potential new economic mineral sand resource on central western Cape York
 - A study to identify possible hydrocarbon source rocks in the Adavale and Georgina Basins to determine the likelihood of petroleum and deep gas discoveries in these little-explored basins of North West Queensland.
- [Queensland Digital Exploration \(QDEX\)](#) Data, a new online system enabling search and download of large data sets such as airborne geophysics, 3D models, seismic surveys, wireline logs and geochemistry data was launched in June 2014.
- GSQ successfully completed Round 7 of the [Collaborative Drilling Initiative](#) in June 2014. Final reports were received from the 10 projects, three of which were technical successes, and payments totalling about \$551,000 were made. Applications for Round 8 closed in April 2014 with 16 successful applications.
- [MinesOnlineMaps](#), replaced the Interactive Resource and Tenure Maps (IRTM) system in May 2014 with both systems running in parallel until later in 2014 to allow users time to adapt before IRTM is decommissioned after 13 years of reliable service.
- Technical surveys and a pre-design study were completed on the proposed expansion of core storage at the Exploration Data Centre at Zillmere. Material previously held at the Mount Morgan mine site was relocated to Zillmere for expected inclusion to the new facility.

KEY FINDINGS

- GSQ expenditure in 2014 was \$17 million, consistent with the average expenditure over the previous three years (Chart 13).
- The major increase in GSQ 2014 expenditure compared with 2013 (\$12 million) was due to an increase in Greenfields 2020 funding (\$6.2 million) and the addition of the Future Resources Program (\$2.6 million) (Chart 13). Both the Coastal Geothermal Energy Initiative and the Carbon Geostorage Initiative are now completed.
- GSQ approved five projects under Round 2 of the Future Resources Program Industry Priority Initiative; successfully launched the Queensland Digital Exploration data and MinesOnlineMaps online applications; and successfully completed Round 7 of the Collaborative Drilling Initiative.

4.1.1

ACCESS TO GEOSCIENCES DATA

The Interactive Resource and Tenure Maps system (IRTM) online spatial data viewer has been superseded by the new [MinesOnlineMaps](#) system so the figure for the number of hits has declined as the new system rolled out in late 2014. This will be the last scorecard showing IRTM statistics as new measures will be determined for future comparisons.

The IRTM data download service was also made available through the Queensland Spatial Portal during 2014 prior to decommissioning. The download figures in Chart 14 are for IRTM only. Total data downloads have increased as a result of delivering data through the whole of government system in addition to IRTM. Some of this activity is from users outside the mining industry, which means download statistics will no longer be a realistic representation of industry activity. Also, due to technical differences, the file sizes delivered from the portal are larger than the same files from IRTM.

CHART 14: INTERACTIVE RESOURCE AND TENURE MAP (IRTM) DOWNLOADS, 2010-11 TO 2013-14

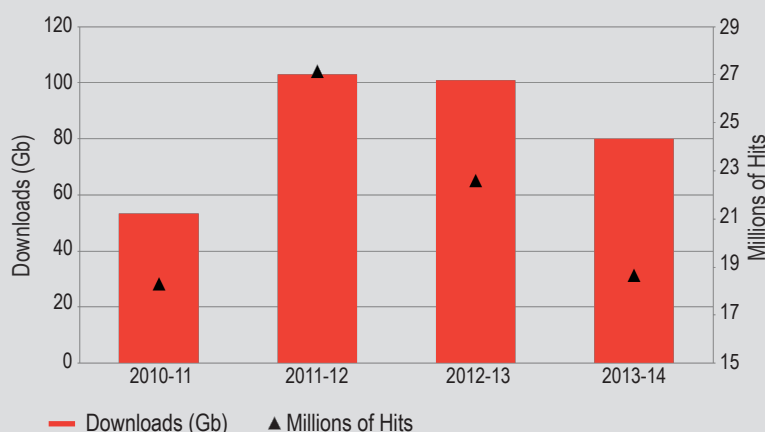
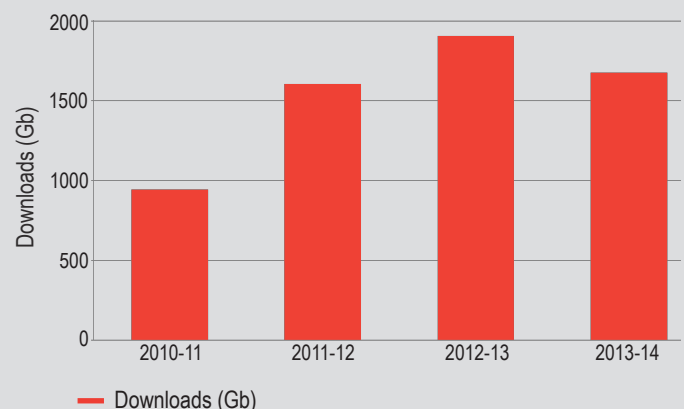


CHART 15: QUEENSLAND DIGITAL EXPLORATION REPORTS (QDEX) DOWNLOADS, 2010-11 TO 2013-14



Source: Department of Natural Resources and Mines

KEY FINDINGS

- Total downloads increased significantly as a result of the download being available from the Queensland Spatial Portal (figures not included) in addition to the Interactive Resource and Tenure Maps (IRTM) system, although file size differences affect any comparison (Chart 14). With the introduction of the new QDEX Data system at the end of 2014 a new tool for obtaining geoscience data offers possibilities for other measures to be reported to replace the IRTM statistics in future.
- Downloads for the Queensland Digital Exploration (QDEX) Reports system decreased back to 2012 levels. (Chart 15).

4.2

REGULATORY AND POLICY STABILITY

In a globalised and increasingly competitive operating environment, governments must provide a workable regulatory framework to attract exploration and drilling activity.

This section provides an annual snapshot of the year to year regulatory changes as they relate to exploration activities in Queensland. Information on key streamlining initiatives both implemented and proposed are also outlined.

TABLE 1: CHANGE IN REGULATORY CONTROLS – YEAR TO JULY

Types of exploration controls in Queensland	Changes between 2011 and 2012	Changes between 2012 and 2013	Changes between 2013 and 2014
A. Foundation requirements for exploration- processes that most holders of exploration permits must meet on application and continuously through the life of the tenure:			
• Cultural heritage (aboriginal and non-aboriginal)	○	○	○
• Application for environmental authority (this requirement removed in 2013 in some circumstances)	○	●	○
• Application for exploration rights (applications for coal subject to tender process in 2012 - minerals applications are unchanged)	○	○	○
• Application for exploration rights (petroleum and gas rights subject to tender process)	○	○	●
• Landowner compensation	○	○	○
• Native title considerations	○	○	○
• Remediation obligations	○	○	○
• Renewal of exploration rights	○	○	●
B. Gateway controls on exploration – policies that present barriers to tenure in some areas:			
• Land regulated as “Restricted Area”	○	○	○
• Land otherwise off limits for environmental reasons (e.g. National Parks and strategic environmental areas)	○	○	●
• Restrictions on exploration activity in other areas of regional interest (e.g. priority agricultural areas (including strategic cropping areas) and priority living areas)			●
• Land subject to other third party interests (e.g. overlapped exploration rights for other commodities)	○	○	○
C. Conditioning controls on exploration - policies that impose additional conditions:			
• Applications and approvals to disturb native vegetation	○	○	○
• Applications and approvals to work in waterways	○	○	○
• Transfer duty – became payable in 2012 – farm-in agreements exempted in 2013	●	●	○
D. Controls on production (but indirectly relevant to exploration):			
• In 2012, some relaxation of controls on oil shale		●	○
• Lifting of ban on uranium mining in 2013. First MDLs granted in 2014		●	○
• Introduction of new federal controls on impacts of coal seam gas and large coal mining developments on water resources		●	○

LEGEND

- Favourable reduction in regulatory control occurred in that year
- No change in regulatory control occurred in that year
- Potentially unfavourable but too early to tell
- Unfavourable increase in regulatory control occurred in that year

Source: Ashurst Australia, QRC

REFORM INITIATIVES IMPLEMENTED

Following release of the 2013 Exploration Scorecard, the Minister for Natural Resources and Mines, Hon. Andrew Cripps MP, formed the Ministerial Advisory Committee for Exploration (MACE). They provided a [detailed report](#) published in June 2014. The 18 MACE recommendations have informed the ongoing work of the Queensland Government to modernise the regulatory framework for exploration through a combination of service delivery, legislative and policy reforms.

Service delivery reforms included:

- The [MyMinesOnline](#) and [MinesOnlineMaps](#) systems further improved the efficiency and introduced transparency of key tenure assessment processes.
- The introduction of specialised assessment hubs to deliver responsive case management.
- Setting customer service standards for coal and mineral exploration permits to 12 months (6 months where applications are not subject to Native Title).
- Prioritising the technical assessment of work programs at the start of the application process so that explorers are advised within 90 days of lodgement whether their exploration program has been approved or rejected.

Legislative reforms included:

- *Land and Other Legislation Amendment Act 2014* made three significant amendments:
 - A two-year extension on all current Authority to Prospect (ATP) work programs and relinquishment dates
 - Allowing flexible relinquishment arrangements and the ability to amend a work program for an ATP
 - Changes to the level of knowledge requirements for petroleum lease (PL) applications expediting the grant process.
- The Mineral and Energy Resources (Common Provisions) Bill 2014, (introduced in June 2014) has started the process of moving from five separate Acts to one common resources Act in Queensland.
- Removal of out-dated or duplicated regulatory controls through the making of the [Mineral Resources Regulation 2013](#).

Ongoing policy reforms include:

- [ResourcesQ](#) – developing a 30-year vision to establish Queensland as a resource leader.
- The Tenure Reform Taskforce is developing a new tenure framework in collaboration with industry stakeholders through the [Modernising Queensland's Resources Acts \(MQRA\) Program](#).

KEY FINDINGS

- The Queensland Government has been responsive to industry feedback and has streamlined regulations and improved tenure assessment processes. Promising progress in improving approval times is outlined at Section 5.1.
- Some newly introduced controls may materially add to regulatory restrictions on explorers, most notably, provisions introduced in the *Regional Planning Interests Act 2014*. However, it is too early to measure the net impact of this legislation on the exploration sector (Table 1).
- Successful implementation of government initiatives in development have the potential to further rationalise the regulatory burden on the exploration sector. As with all transitions, the cost may be significant, particularly for small companies who may not have in-house expertise.

4.3 EXPLORATION COMPANY SENTIMENT

For the fourth year, the QRC asked companies actively exploring in Queensland for their views on a range of factors believed to influence operational and investment confidence.

Operating sentiment reflects the degree to which 13 different factors were perceived to positively or negatively impact commercial objectives. Investment sentiment indicates the degree the various macro factors were perceived to positively or negatively impact on decisions to headquarter their exploration activities in Queensland.

The online survey received 69 responses representing a 25% response rate. Respondents varied in terms of market capitalisation (Table 2), exploration interests (Table 3) and where headquartered (Table 4). Not all participants answered every question.

TABLE 2: SURVEY RESPONDENT - BY MARKET CAPITALISATION, 2013-14

2013-14		
Your company's market capitalisation	Response (percent)	Response count
Large cap (\$10 billion or greater)	16%	11
Mid cap (\$2 billion to \$10 billion)	1%	1
Small cap (\$300 million to \$2 billion)	7%	5
Micro cap (\$50 million to \$300 million)	15%	10
Nano cap (\$50 million or less)	60%	41
TOTAL		68 (1 skipped)

TABLE 3: SURVEY RESPONDENT - BY MAIN EXPLORATION TARGET, 2013-14

2013-14		
Your company's main exploration target	Response (percent)	Response count
Coal (all types)	38%	26
Oil	4%	3
Gas	6%	4
Base and/or precious metals	45%	31
Bauxite	-	-
Phosphate	-	-
Other	7%	5
TOTAL		69

TABLE 4: SURVEY RESPONDENT - EXPLORATION HEADQUARTERS, 2013-14

2013-14		
Where exploration activities headquartered	Response (percent)	Response count
Queensland	56%	32
New South Wales	16%	9
Western Australia	16%	9
South Australia	4%	2
Victoria	2%	1
Tasmania	-	-
Northern Territory	-	-
International	7%	4
TOTAL		57 (12 skipped)

In order to coalesce the responses into a single value it was necessary to apply weights to the responses. 'Strongly positive/negative' responses were given a weighting of 1 (-1); 'positive/negative' responses were given a weighing of 0.5 (-0.5) and 'not at all' responses were given a weighting of 0. The weightings were applied to the number of responses to arrive at a single value reflecting the sentiment for that factor. Hence, the higher the positive score on a factor indicates more positive sentiment. As different numbers of participants responded to each question, it was necessary to reduce each factor to a percentage in order to enable responses for each factor to be compared with the others. Consequently, if every survey participant indicated their sentiment for a factor was "very positive" the score would be 100 for that factor.

This is illustrated in Table 5 below. Here, in relation to resources prospectivity, there were:

- 5 respondents out of 53 (or 9%) who indicated resources prospectivity very positively influenced the operating and investment sentiment; each response attracted a weighted score of 1.0, resulting in a weighted score of 5 (or 9%)
- 18 respondents out of 53 (or 34%) indicated resources prospectivity positively influenced the operating and investment sentiment; each response attracted a weighted score of 0.5, resulting in a weighted score of 9 (or 17%)
- 26 respondents out of 53 (or 49%) indicated resources prospectivity did not influence the operating and investment sentiment, each response attracted a weighted score of 0, resulting in a weighted score of 0 (or 0%)
- 3 respondents out of 53 (or 6%) indicated resources prospectivity negatively influenced the operating and investment sentiment, each response attracted a weighted score of -0.5, resulting in a weighted score of -1.5 (or -3%)
- 1 respondent out of 53 (or 2%) indicated resources prospectivity very negatively influenced the operating and investment sentiment, each response attracted a weighted score of -1.0, resulting in a weighted score of -1 (or -2%).

These values summed to a score of 11.5 out of a possible 53 (which would have occurred if every participant responded 'very positively' or 21%).

TABLE 5: CALCULATION OF WEIGHTED SURVEY RESULTS (EXAMPLE)

Resources prospectivity	Weights	Response count	Response (percent)	Weighted responses
Very positively	1	5	9%	9
Positively	0.5	18	34%	17
Not at all	0	26	49%	0
Negatively	-0.5	3	6%	-3
Very negatively	-1	1	2%	-2
		53	100%	21

Note: For interpretation, the higher the positive score, the higher the positive sentiment and vice versa.

4.3.1

OPERATING SENTIMENT

Companies were asked to indicate to what degree 13 individual factors positively or negatively impacted upon their commercial objectives for their Queensland operations in 2014. The factors chosen were considered important in the day-to-day operations of a resources exploration company.

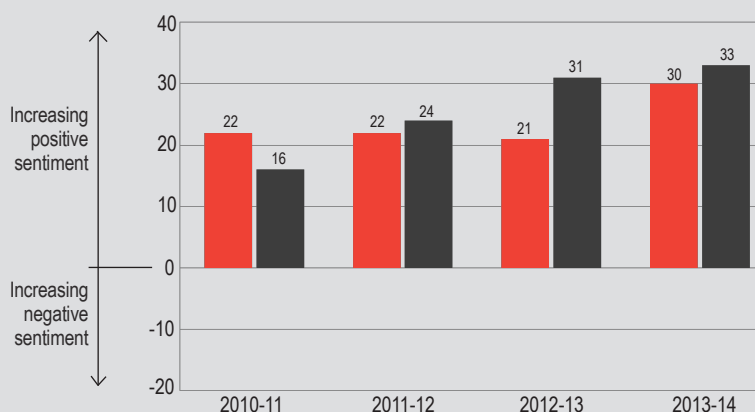
Companies were also asked to nominate which Australian jurisdiction they are most active in apart from Queensland. For that jurisdiction, they were asked to indicate to what degree the same factors positively or negatively impacted upon their commercial objectives in that jurisdiction during 2014. These results were aggregated to present a 'Rest of Australia' comparison. For Queensland-specific factors the responses totalled 57, and for other jurisdictions the number was 27.

The survey results of the 13 factors (charts 16A to 16M) that influence operating sentiment are presented in four clusters that align generally with the broad factors thought to drive exploration activity and performance:

- resource prospectivity
- pre-competitive data and state government assistance
- regulatory and policy stability
- access to the factors of production.

SENTIMENT TOWARDS RESOURCE PROSPECTIVITY

CHART 16A: RESOURCE PROSPECTIVITY



LEGEND

- Queensland
- Rest of Australia

SENTIMENT TOWARDS AVAILABILITY OF PRE-COMPETITIVE DATA AND STATE GOVERNMENT ASSISTANCE

CHART 16B: GOVERNMENT AND DEPARTMENTAL ASSISTANCE

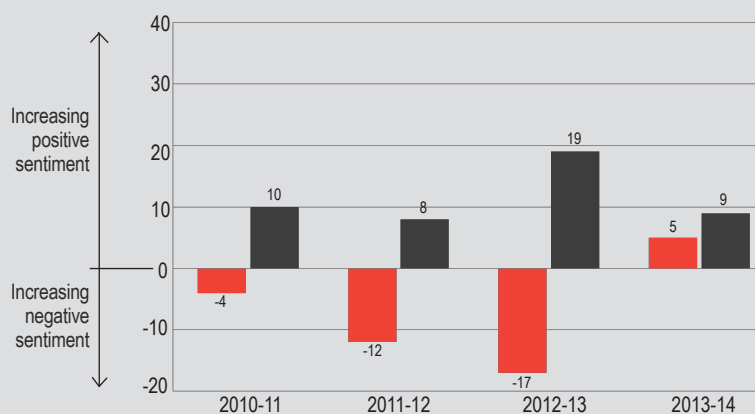
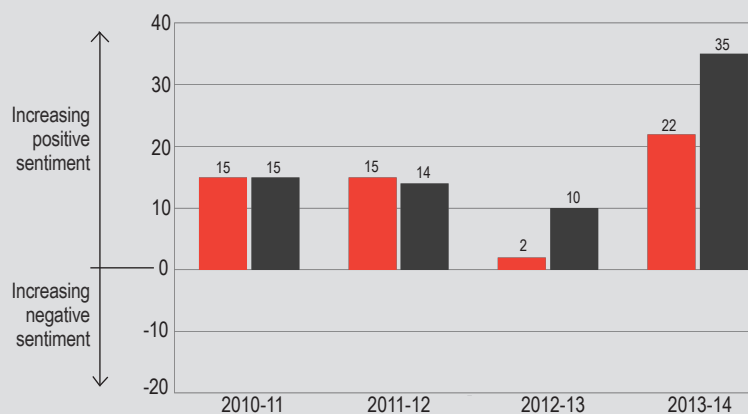


CHART 16C: PRE-COMPETITIVE GEOSCIENTIFIC DATA



SENTIMENT TOWARDS REGULATORY AND POLICY STABILITY

LEGEND

- Queensland
- Rest of Australia

CHART 16D: CULTURAL HERITAGE REGULATIONS

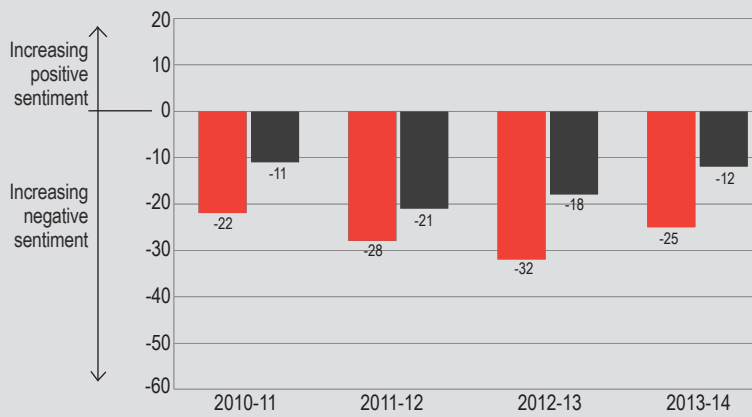


CHART 16E: NATIVE TITLE REGULATIONS

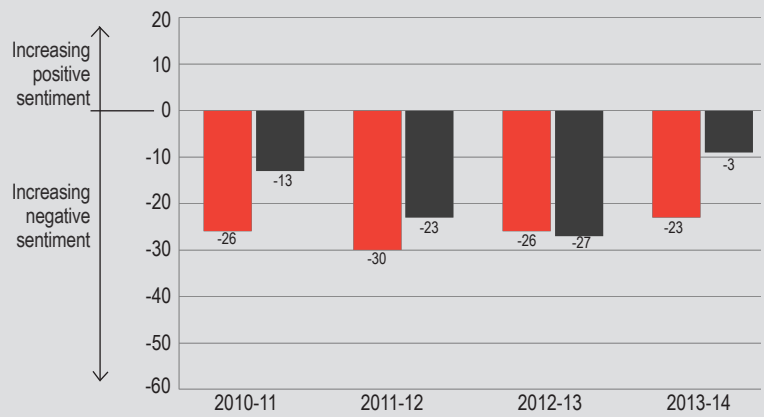


CHART 16F: EXPLORATION PERMIT PROCESSES

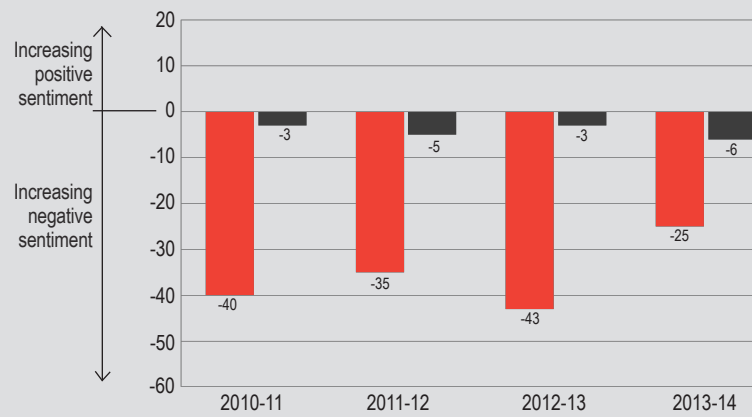


CHART 16G: ENVIRONMENTAL REGULATIONS

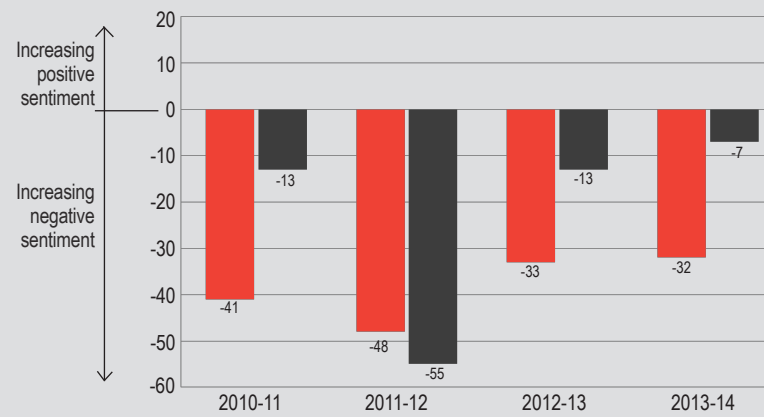


CHART 16H: CONDUCT AND COMPENSATION AGREEMENTS

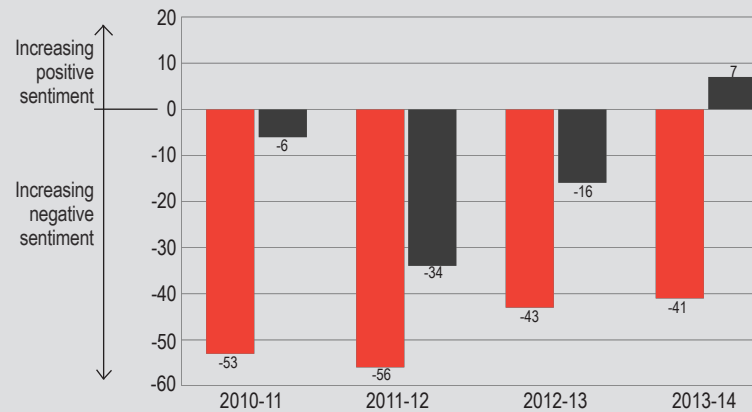
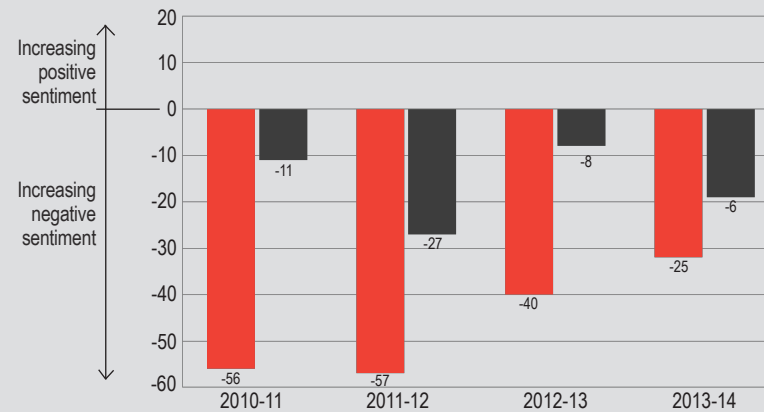


CHART 16I: POLICY UNCERTAINTY



SENTIMENT TOWARDS FACTORS OF PRODUCTION

LEGEND

- Queensland
- Rest of Australia

CHART 16J: EQUIPMENT AVAILABILITY

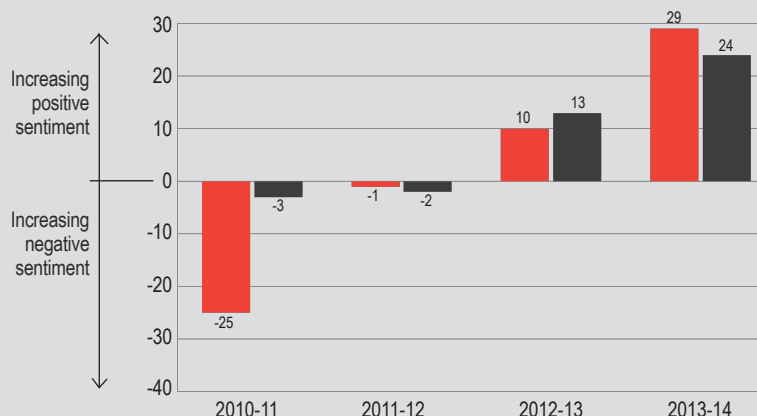


CHART 16K: LABOUR AND SKILLS AVAILABILITY

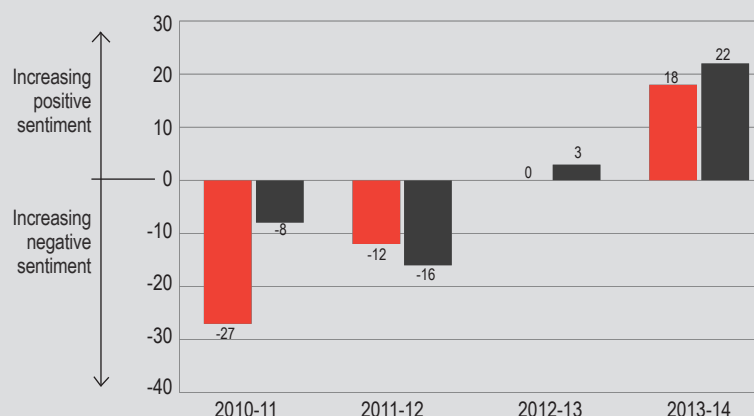


CHART 16L: LAND AVAILABLE FOR EXPLORATION

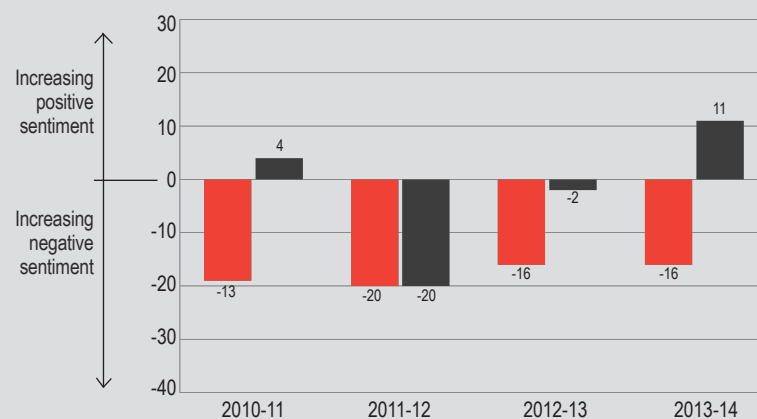
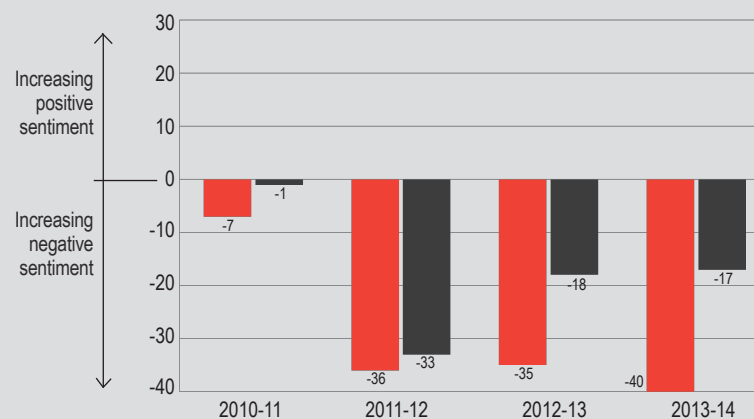


CHART 16M: ACCESS TO INVESTMENT CAPITAL



Source: 2014 QRC survey of exploration companies

KEY FINDINGS

- In 2014 sentiment towards all factors in Queensland improved (or remained constant) with the exception of access to investment capital.
- Of the 13 factors, Queensland's resource prospectivity and endowment is considered the most positive (+30) whereas conduct and compensation agreements (-41) and access to investment capital (-40) are considered the most negative (Charts 16A, 16H and 16M).
- There were significant to moderate improvements in sentiment for those factors primarily influenced by the Department of Natural Resources and Mines – being Government/departmental assistance, pre-competitive geoscientific data, exploration permit processes and policy uncertainty. Of note however is that Queensland sentiment for these factors against the rest of Australia stills lags (Charts 16B, 16C, 16F and 16I).
- Compared with previous years, sentiment in Queensland remains strongly negative, and considerably behind the rest of Australia in the areas of cultural heritage regulations, Native Title regulations, environmental regulations, conduct and compensation agreements, and land available for exploration (Charts 16D, 16E, 16G, 16H and 16L).
- Reflecting the slowdown in activity, sentiment towards equipment availability and labour/skills availability continues to improve in Queensland and to levels comparable with the rest of Australia (Charts 16J and 16K).

4.3.2 INVESTMENT SENTIMENT

Applying the same weighted average scoring methodology, companies were also asked to indicate to what degree individual factors positively or negatively impact upon their company's decision to continue to headquarter their exploration activities in Queensland and if not in Queensland currently, what would influence their company to move and headquarter in Queensland. The number of responses to Charts 17 and 18 was 26.

CHART 17: INFLUENCE ON MOVING HEADQUARTERS TO QUEENSLAND, 2010-11 TO 2013-14

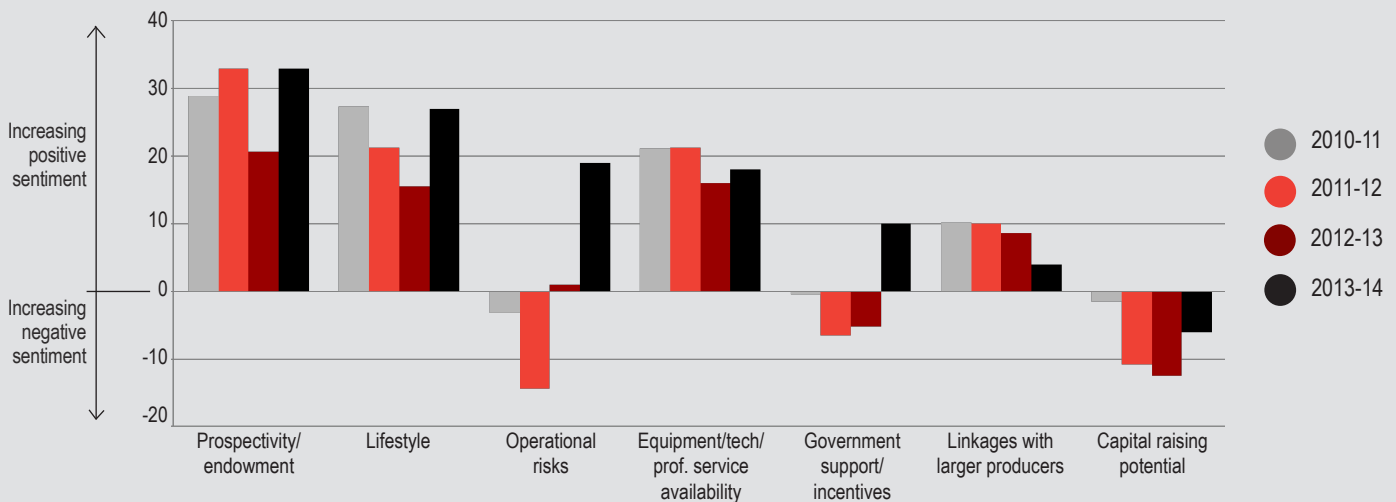
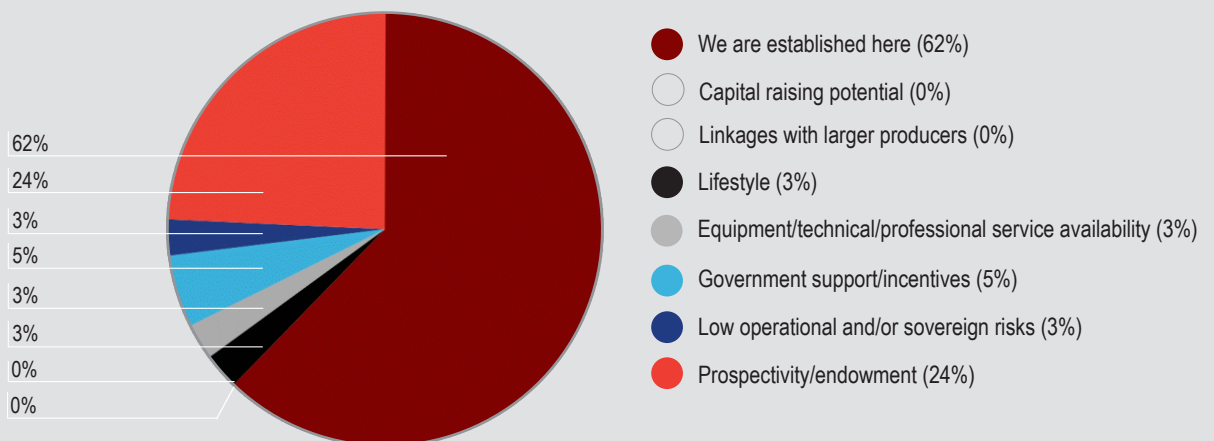


CHART 18: INFLUENCE STAYING HEADQUARTERED IN QUEENSLAND, 2013-14



KEY FINDINGS

- Prospectivity/endowment followed by lifestyle consistently rate as the number one and two reasons why a company may be influenced to move and headquarter their exploration operations in Queensland. Of note is the significant change in importance of low operational risks and government support/incentives as key positive influences compared to previous years (Chart 17).
- We are established here (62%), followed by prospectivity/endowment (24%) and government support/incentives (5%) are the top three reasons why a company already headquartered in Queensland would opt to maintain their exploration operations in Queensland. Interestingly, linkages with larger producers and capital raising potential had no influence on a company's decision to stay headquartered in Queensland (Chart 18).

4.4

SENTIMENT OF DRILLING COMPANIES

The Australian Drilling Industry Association (ADIA) asked 85 companies with drilling interests in Queensland a number of questions to gauge the operating outlook and sentiment, including the degree to which eight individual factors positively or negatively impacted their Queensland commercial objectives in 2014. The factors chosen were considered important in the day-to-day operations of a drilling company.

The online survey received 17 responses representing a response rate of 20 percent. The respondents represent a cross section of drilling companies with operational interests in the fields of petroleum and gas, coal, mineral and geotechnical drilling. The total number of rigs represented by the respondents is 77, consistent with a 2013 sample.

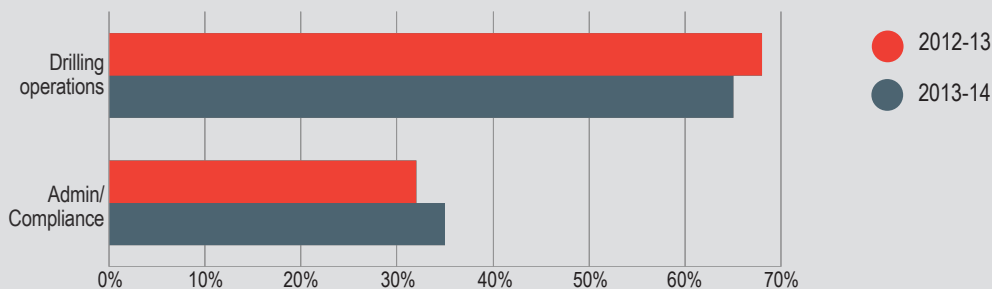
Companies were also asked to nominate which Australian jurisdiction they are most active in apart from Queensland. For that jurisdiction, they were asked to indicate to what degree the same factors positively or negatively impacted upon their commercial objectives in that jurisdiction during 2014. These results were aggregated to present a 'Rest of Australia' comparison. For Queensland-specific factors the number of responses was 17, and for other jurisdictions the number of responses was 10 where companies indicated that they were active in other Australian jurisdictions (predominantly Western Australia with 35%).

4.4.1

CALCULATION OF REGULATORY BURDEN AND PERCEPTIONS OF IMPACT

Companies were asked to calculate the percentage split of operational costs between administrative/regulatory compliance and actual drilling operations.

CHART 19: SPLIT OF OPERATIONAL COSTS



Source: 2014 ADIA survey of members

4.4.2

OPERATING SENTIMENT

It is recognised that the drilling industry plays a pivotal role in exploring and developing Queensland's natural resources. The sentiment expressed in the drilling industry data reflects the immediate impact of negative lead indicators within the resources sector such as access to investment capital and commodity price upon the drilling industry. It also highlights that the drilling industry is the last sector to benefit from positive lag indicators, such as policy changes and improvements in industry confidence.

LEGEND

● Queensland

● Rest of Australia

SENTIMENT TOWARDS REGULATORY & POLICY STABILITY

CHART 20A: SENTIMENT TOWARDS ENVIRONMENTAL LEGISLATION

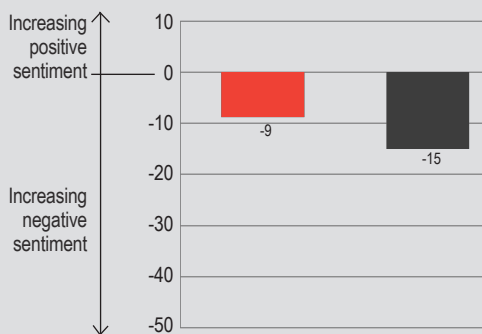


CHART 20B: SENTIMENT TOWARDS MINING LEGISLATION

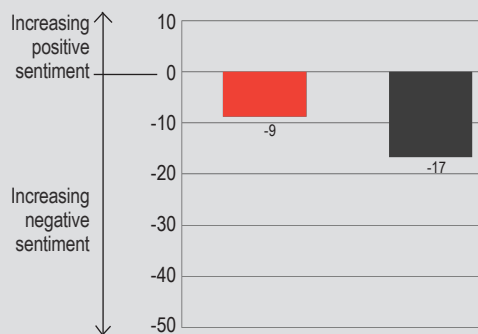


CHART 20C: SENTIMENT TOWARDS PETROLEUM & GAS LEGISLATION

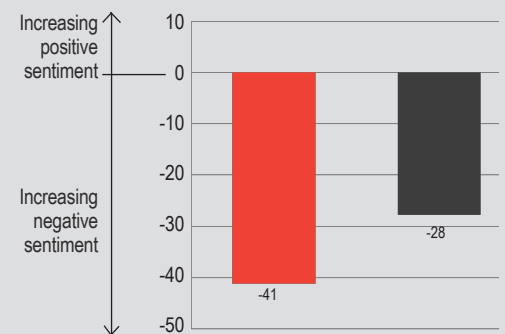


CHART 20D: SENTIMENT TOWARDS WORKPLACE, HEALTH & SAFETY LEGISLATION

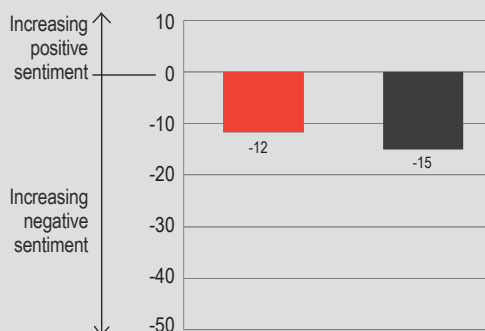
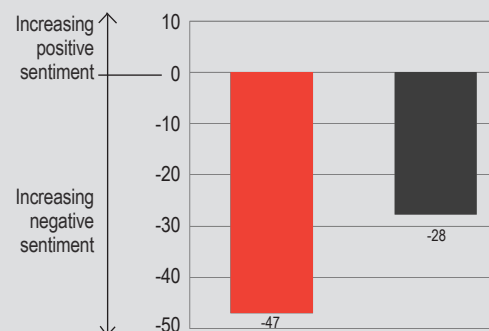


CHART 20E: SENTIMENT TOWARDS POLICY UNCERTAINTY



SENTIMENT TOWARDS FACTORS OF PRODUCTION

CHART 20F: SENTIMENT - LABOUR SKILLS/AVAILABILITY

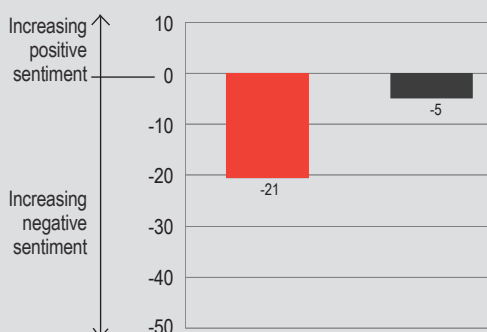


CHART 20G: SENTIMENT - LAND ACCESS

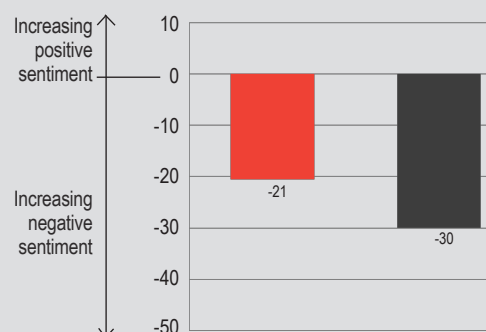
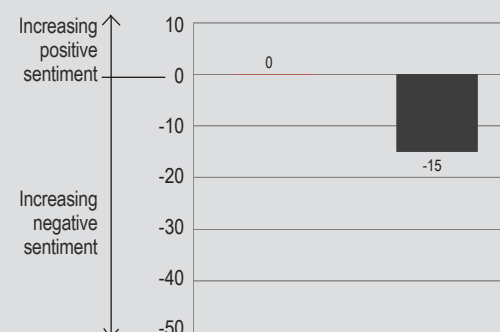


CHART 20H: ACCESS TO CAPITAL



4.4.3

THE OPERATING OUTLOOK

Drilling companies were asked to report if their cash reserves would be sufficient in 12 months, 2 years and 3 years given current market conditions. They were subsequently asked, about their confidence in seeing business conditions improve in Queensland over the next three years.

CHART 21: SUFFICIENT CASH RESERVES TO SUSTAIN OPERATIONS

To what degree are you confident that given the current market conditions that you have sufficient cash reserves to sustain operations for the following time periods?

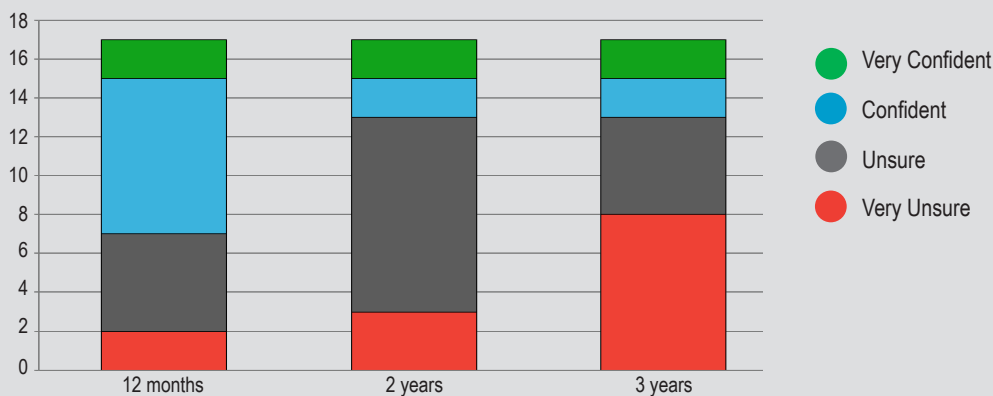
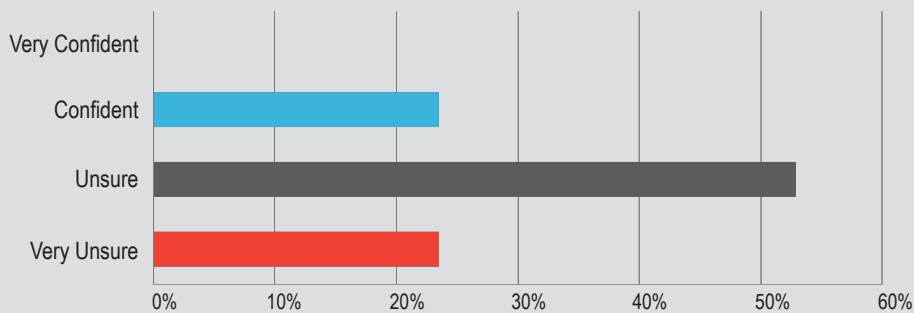


CHART 22: CONFIDENCE IN IMPROVED BUSINESS CONDITIONS IN QUEENSLAND OVER THE NEXT 12 MONTHS

How confident are you of improved business conditions in Queensland over the next 12 months?



Source: 2014 ADIA survey of members

KEY FINDINGS

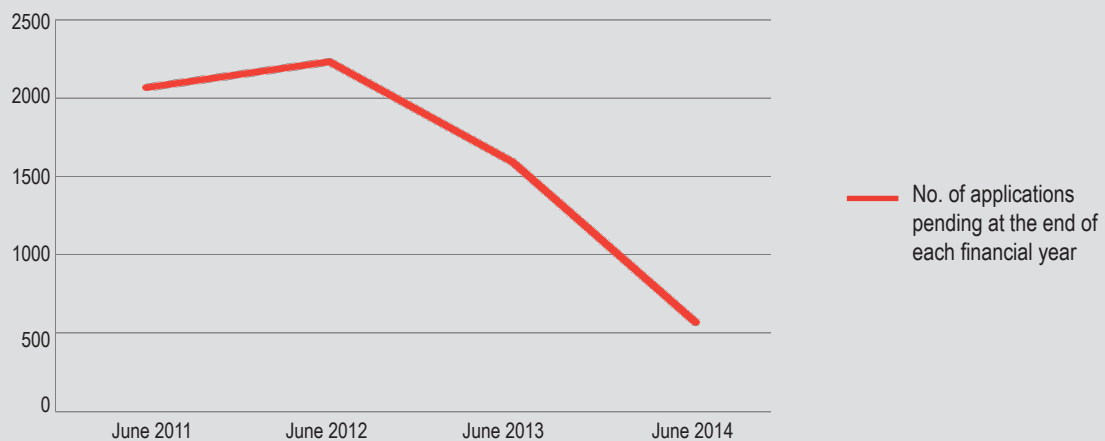
- Drilling company respondents estimate that 35% of operational costs were on administration and compliance and 65% on drilling activities in 2014. This compares with 32% and 68% respectively in 2013 (Chart 19).
- The vast majority of drilling companies are either unsure or very unsure that they will have sufficient cash reserves to sustain their operations beyond two years (Chart 21).
- While sentiment towards all types of regulation is negative, drilling companies active in Queensland are less negative when compared to other Australian jurisdictions in relation to environmental legislation, mining legislation, and workplace, health & safety legislation (Charts 20A, 20B and 20D).
- Drilling companies active in Queensland are more negative when compared to other Australian jurisdictions in relation to petroleum and gas legislation and policy uncertainty (Charts 20C and 20E).
- Labour/skills availability is of a significantly greater concern in Queensland than the rest of Australia and land access and access to capital are lesser concerns when compared to their dealings in other Australian jurisdictions (Charts 20F, 20G and 20H).

5.0 ACCESS TO THE FACTORS OF PRODUCTION

5.1 ACCESS TO TENURE

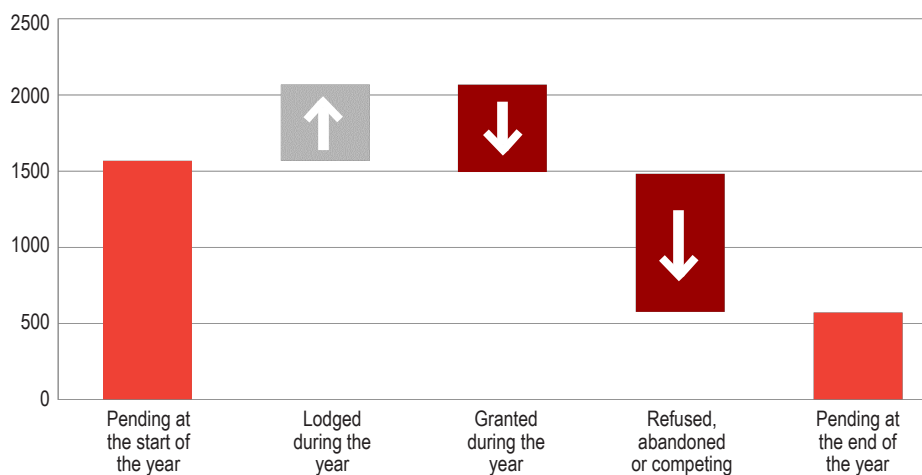
A significant factor influencing exploration success is how quickly exploration companies can secure tenure and then access that land. The scorecard collates available data on how Queensland is performing each year in terms of processing applications, the area granted to each commodity group for exploration and maps where applications have been made.

CHART 23: BACKLOG: TOTAL APPLICATIONS (ALL COMMODITIES) PENDING AT THE END OF EACH FINANCIAL YEAR



There has been a significant fall in the total number of applications for all commodities (including EPC, EPM, ATP and geothermal (EPG)) pending at the end of each financial year (Chart 23). This is attributed to a concerted effort to address a backlog of applications that would otherwise affect the time taken to process all permits.

CHART 24: ANNUAL WORKFLOW FOR EXPLORATION, 2013-14



Source: Department of Natural Resources and Mines

Source: Department of Natural Resources and Mines

TABLE 6: PROCESSING TIMES FOR EXPLORATION PERMITS (MINERALS AND COAL)

Exploration Tenure	Historical Average (in months)				Post reform in 2013-14	
	2009-10	2010-11	2011-12	2012-13	Service standard*	Achieved standard?
Coal (EPC)	13	18	23	22	12	Yes
Minerals (EPM)	21	21	21	21	12	Yes

Note: * In 2013-14, the department introduced a new customer service standard of resolving 80% of all applications within 12 months or within 6 months if they didn't require native title.

Table 6 identifies the average time taken to grant coal and mineral exploration permits and reflects the recent changes to application timeframes. For both coal and minerals, the department has adopted a new customer service standard, a commitment to have applications decided within 6 months if they are not subject to native title and within 12 months if they are.

The introduction of MyMinesOnline allows for the online lodgement and management of permit related information which has enabled DNRM to completely streamline business processes. These ongoing reforms are delivering substantial time savings across all permits including EPMs, EPCs and ATPs. Time savings of between 53 and 96% are being realised in processing post grant activities such as agreements, caveats, mortgages and transfers.

One example of where these timeframes are significantly improving the exploration industry are transfers of tenure without prior indication. As a result of the reforms timeframes have been reduced to 27 days, previously taking 135 business days on average, to process. This is a saving of 108 days or 80%.

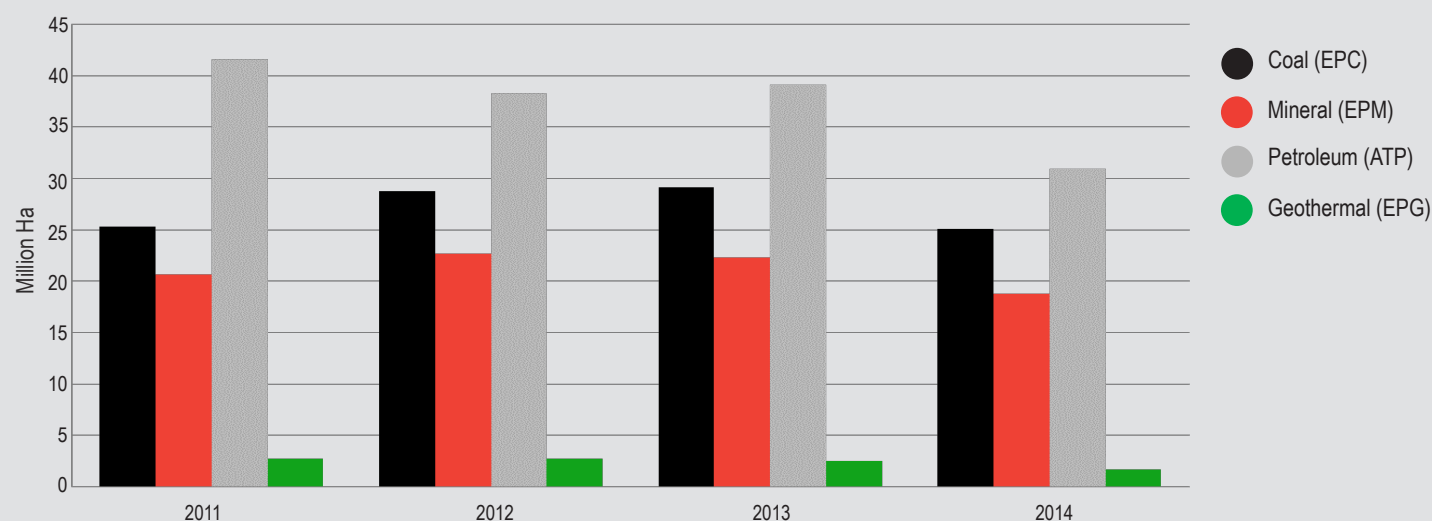
CHART 25: TOTAL AREA GRANTED BY EXPLORATION TENURE TYPE, AS AT 1 JULY EACH YEAR

Chart 25 shows the running total area of exploration tenures granted for the four major tenure types over each of the last four years.

CHART 26: EXPLORATION PERMIT COAL COVERAGE, JULY 2014

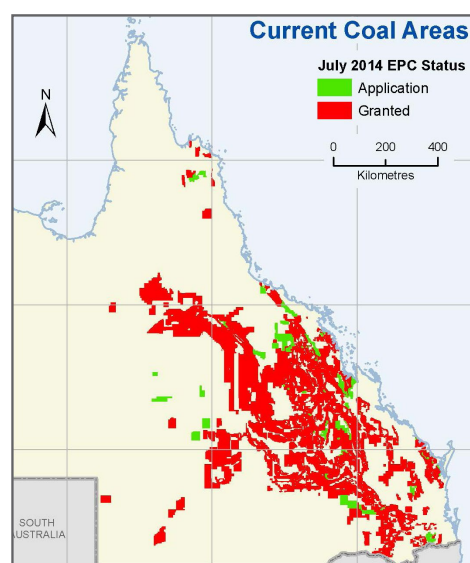


CHART 27: EXPLORATION PERMIT MINERAL COVERAGE, JULY 2014

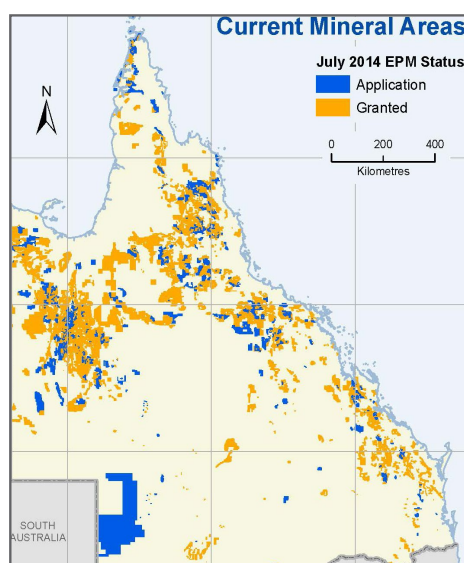
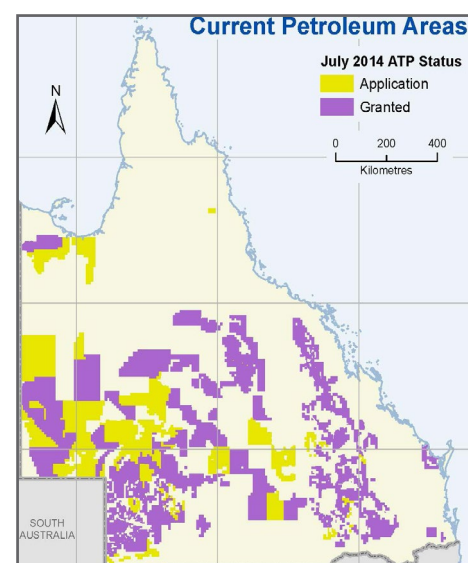


CHART 28: AUTHORITY TO PROSPECT PETROLEUM, JULY 2014



Source: Department of Natural Resources and Mines

Charts 26-28 show the granted tenures in relation to the applications for tenures as at July 2014.

KEY FINDINGS

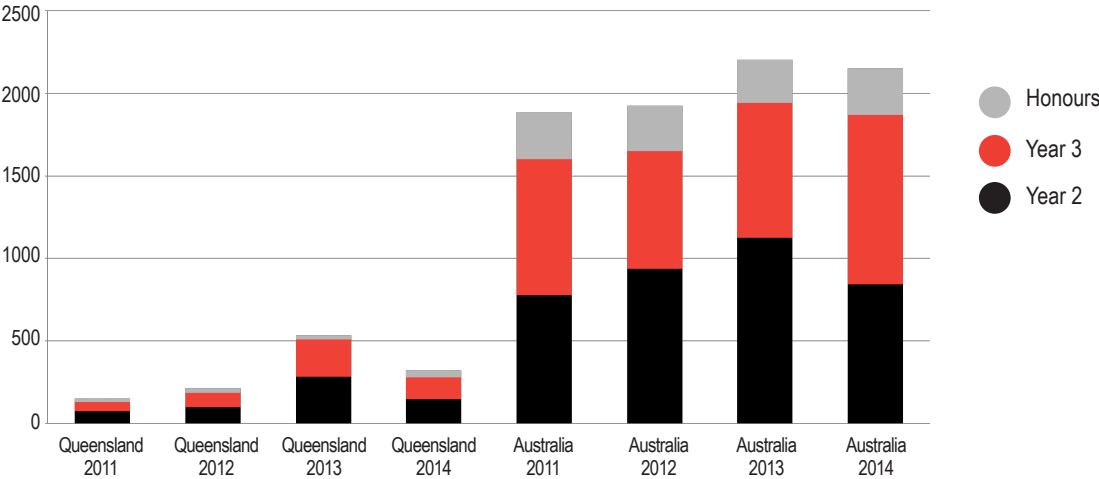
- Granting EPCs (Exploration Permit Coal) and EPMs (Exploration Permit Mineral) was within the new customer service standard target of 12 months for 2014. The outcome of these reforms compare very favourably to 21 and 22 months respectively in 2013.
- DNRM have made considerable progress in progressing the backlog of 1,400 EPM/EPC applications with only 17% outstanding (with all those with the proponent for action).
- Similarly for petroleum, a focused effort on clearing ATP applications reduced them from 143 to 22 by the end of 2014.
- For coal, the area granted decreased 14% to 25 million hectares compared with a 2013 high of 29 million hectares. For minerals, the area granted decreased 16% to 19 million hectares. For petroleum, the area granted decreased 21% to 31 million hectares.
- These changes in the total areas (Chart 25) could reflect a number of factors including smaller new tenures being granted or existing tenures reaching the end of their term and triggering relinquishment requirements.

5.2 ACCESS TO HUMAN AND INTELLECTUAL CAPITAL

Access to a skilled labour force is a significant enabler for growth in the sector. The following charts compare the potential pool of Australian and Queensland educated geoscience graduates with current demand (using internet vacancies) to identify general labour market conditions. Queensland and 'rest of Australia' drilling qualification enrolments and completions are also included.

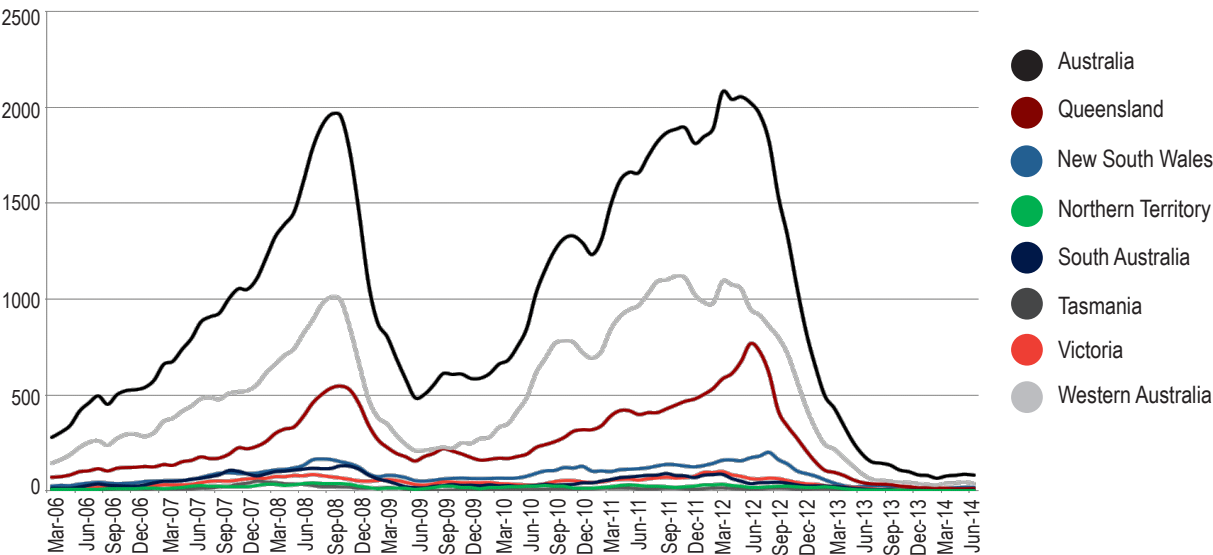
5.2.1 SUPPLY AND DEMAND OF WORKERS

CHART 29: GEOSCIENCE FULL-TIME EQUIVALENT STUDENT LOAD, 2011 TO 2014



Source: Australian Geoscience Council (AGC)

CHART 30: INTERNET VACANCIES FOR GEOLOGISTS AND GEOPHYSICISTS, MARCH 2006 TO JUNE 2014



Source: Australian Government Department of Employment

CHART 31: DRILLING QUALIFICATION ENROLMENTS, 2010 TO 2013

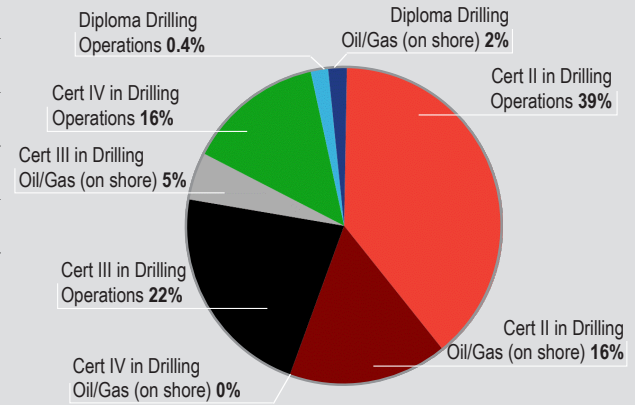
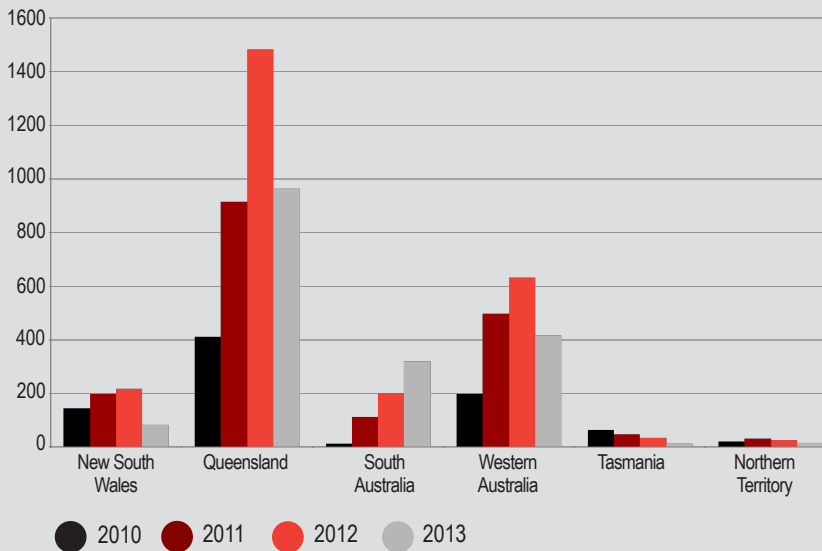
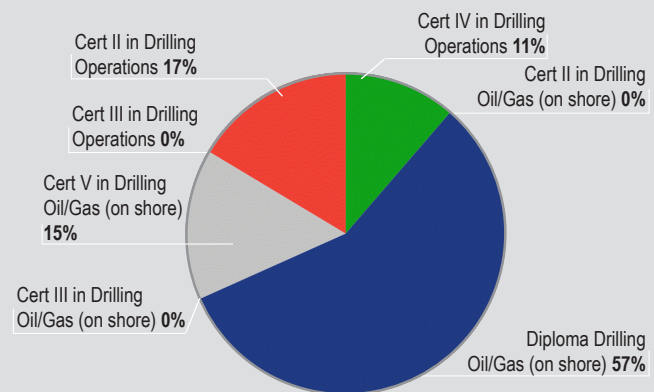
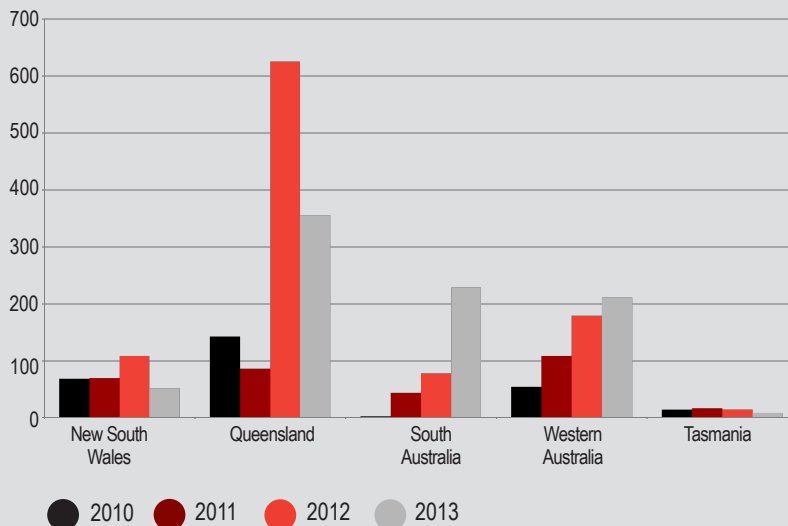


CHART 32: DRILLING QUALIFICATIONS COMPLETED, 2010 TO 2013



KEY FINDINGS

- Australia-wide geoscience enrolments in 2013 increased in the second year of study with a steady rate of enrolments in honours level programs. The number of Queensland students in second and third year declined by 50% (Chart 29).
- Internet vacancies for geologists and geoscientists have fallen dramatically since early 2012 across all jurisdictions and plateaued at very low levels for most of 2014. Fewer vacancies are in line with weaker commodity prices, profitability and investment sentiment, and greater scrutiny of cash-flows (Chart 30).
- Enrolments in publicly funded drilling qualifications decreased in all jurisdictions except South Australia with the most notable decrease in Queensland. Total enrolments across Australia were down approximately 30% (Chart 31). The most popular qualification enrolment was a Certificate II in Drilling Operations.
- Completions in publicly funded drilling qualifications decreased in Queensland, New South Wales and Tasmania while completions increased in South Australia and Western Australia. Significantly, 72% of these enrolments were for certificate and diploma level qualifications in oil and gas (onshore) (Chart 32).

5.2.2

LIVEABILITY OF QUEENSLAND

One of the key factors in attracting and retaining skilled employees is the liveability of host communities and the larger city hubs that typically service resource regions. To assess the comparable liveability of cities and regions where geoscience professionals currently reside (i.e. Brisbane, Cairns, Perth, Kalgoorlie-Boulder and Townsville), Synergies Economic Consulting applied a Liveability Index using the latest available public data.

KEY FINDINGS

- Relatively, Brisbane, Perth and Cairns are perceived as the three most liveable communities among those cities and regions most commonly chosen by geoscience professionals to reside with Brisbane (89.8) perceived as the most liveable city (Chart 33).
- Relatively, Brisbane rates very highly on the economy, health and wellness and leadership dimensions; Cairns rates well on the environmental sustainability and leadership dimensions; Perth rates very highly on the education and learning dimensions; Kalgoorlie/ Boulder rates very highly on the environmental sustainability dimension; and Townsville rates very highly on the social equity dimension (Chart 34).

CHART 33: LIVEABILITY INDEX, OVERALL SCORES

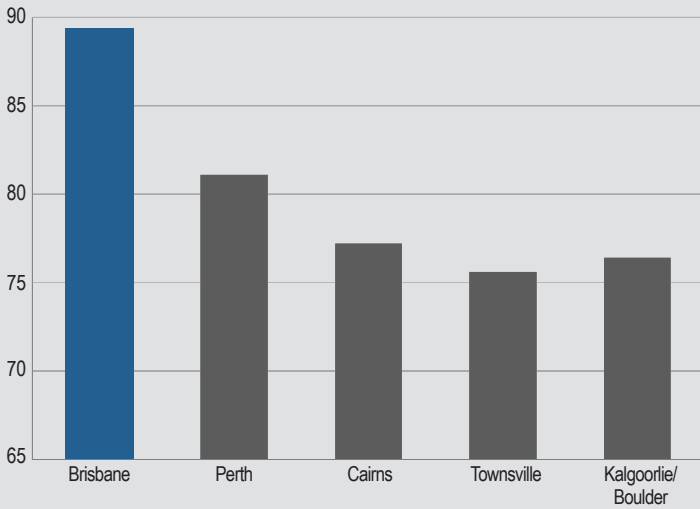
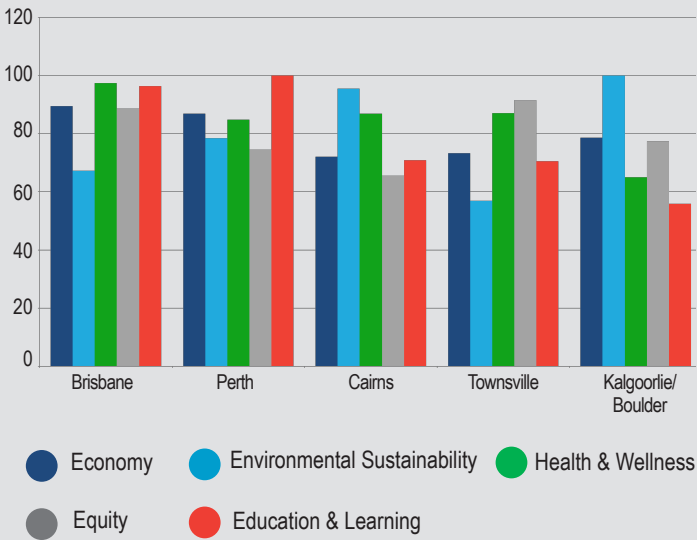


CHART 34: LIVEABILITY SCORE BY DIMENSION



Sources: ABS, Public Health Information Development Unit, Council websites, Airline websites, Australian Conservation Foundation, OESR, generated by Synergies Economic Consulting

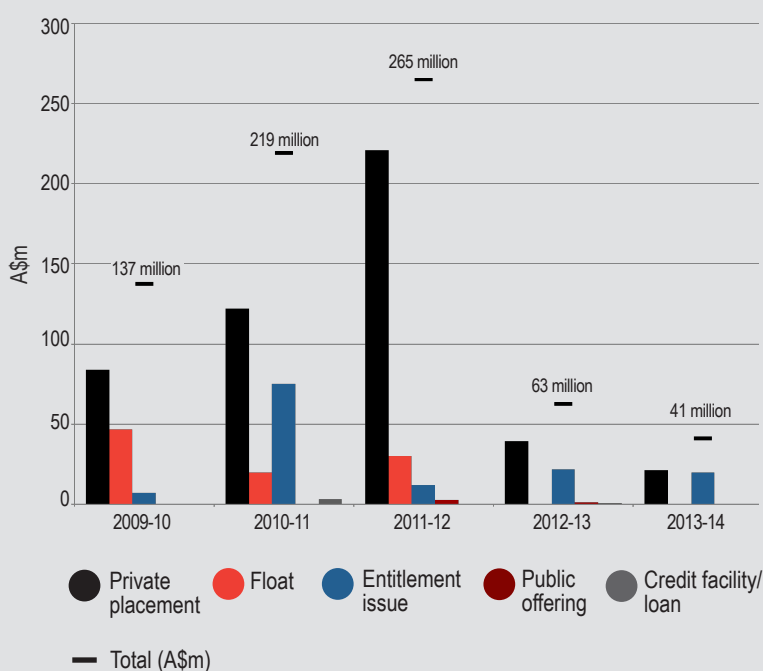
5.3 ACCESS TO EQUITY CAPITAL

As many exploration companies have no regular source of revenue, access to equity capital to fund exploration activities is essential. The following charts show the combined domestic and global equity capital raisings of companies conducting exploration activity for minerals in Queensland by type of raisings and as a percentage of Australian raisings.

KEY FINDINGS

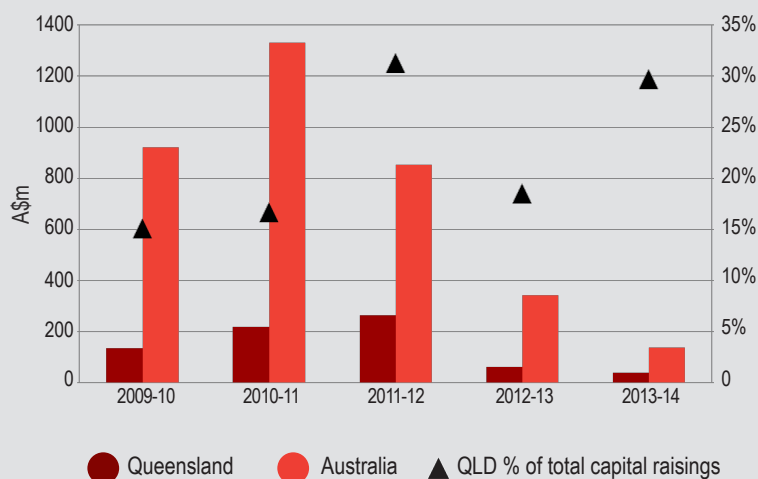
- In 2014 companies exploring in Queensland announced \$41 million in capital raisings for minerals exploration. This is a decrease of 35% over 12 months (Chart 35) and the lowest since the scorecard started.
- The main capital raisings in 2014 were:
 - Private placement (52% of total raisings)
 - Entitlement issue (48% of total raisings)
- Raisings for Queensland projects increased significantly as a percentage of total Australian raisings from 18% in 2013 to 29% in 2014 (Chart 36), but this needs to be read in the context of a marked and broad reduction in capital raisings.

CHART 35: EQUITY CAPITAL RAISINGS OF MINERAL EXPLORERS IN QUEENSLAND, 2009-10 TO 2013-14



Source: SNL Metals and Mining

CHART 36: EQUITY CAPITAL RAISINGS OF MINERALS EXPLORERS IN QUEENSLAND, 2009-10 TO 2013-14



Source: SNL Metals and Mining

6.0 MINERALS AND PETROLEUM EXPLORATION

The following charts display a variety of measures to assess Queensland's exploration activities against other Australian jurisdictions in brownfield and greenfield exploration.

6.1 MINERALS AND PETROLEUM EXPLORATION EXPENDITURE

CHART 37: MINERALS AND PETROLEUM EXPLORATION, 2011-12 TO 2013-14

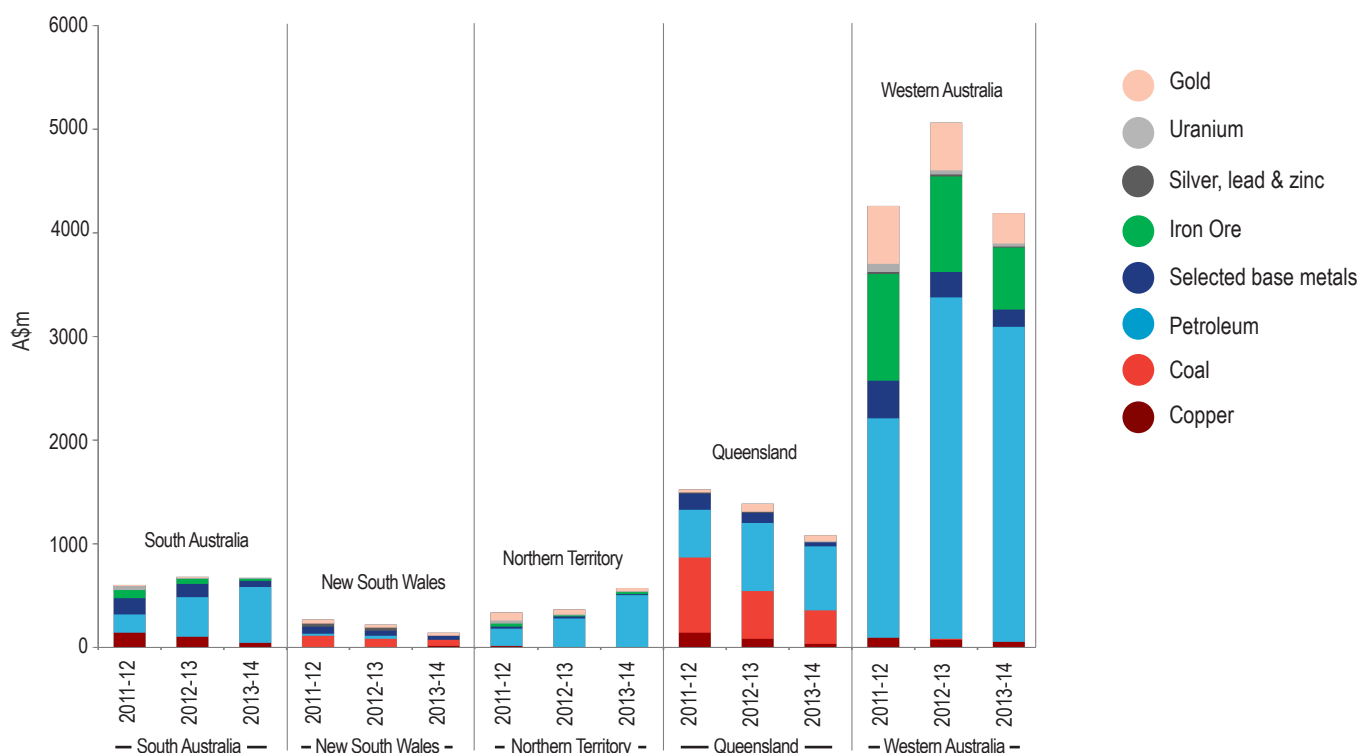
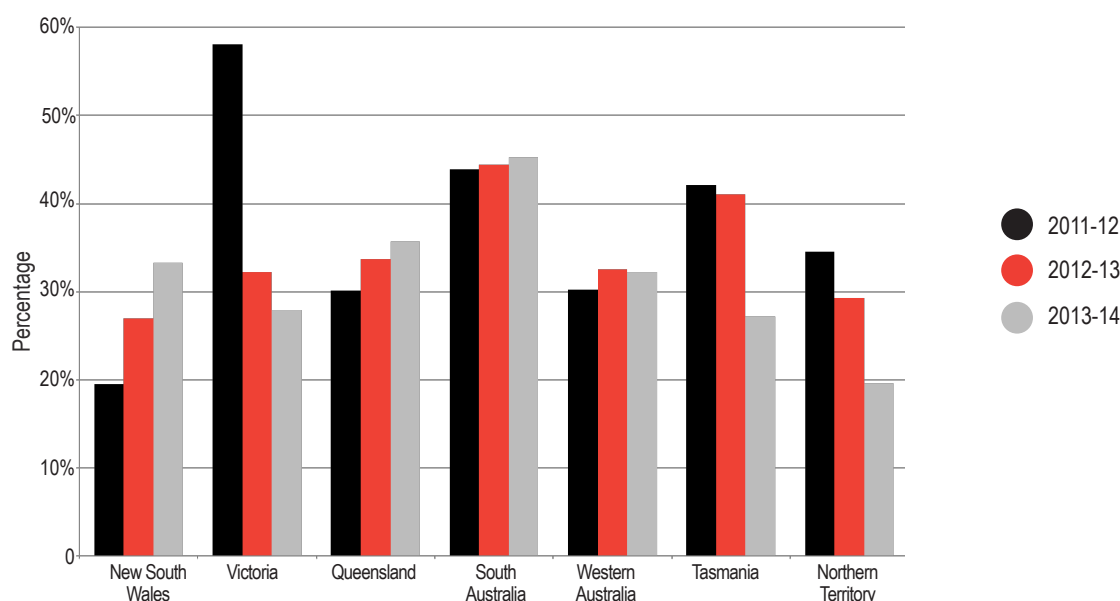
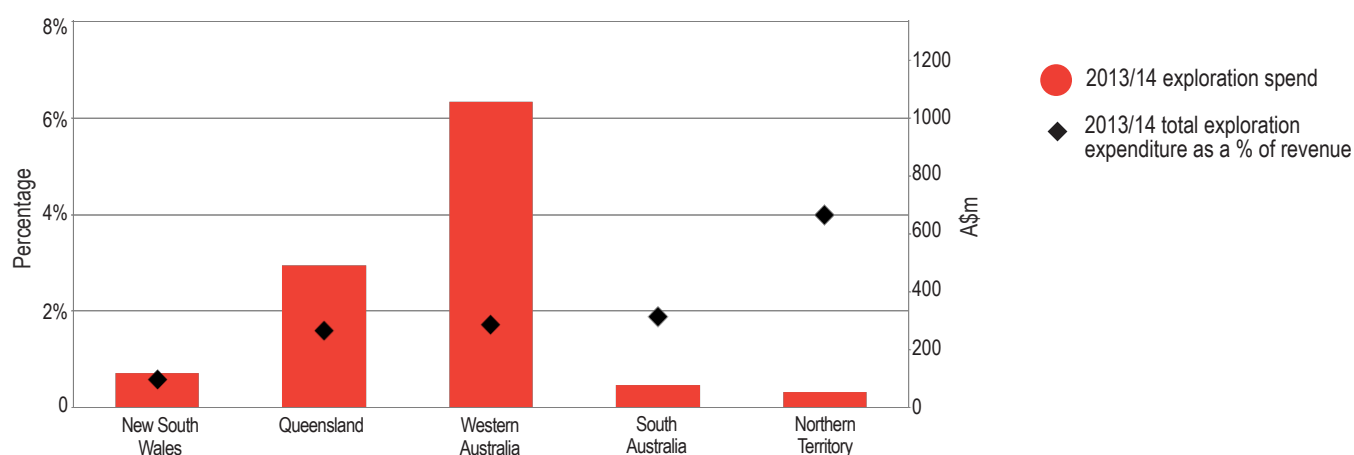


CHART 38: NEW DEPOSITS (GREENFIELDS) AS A PERCENTAGE OF TOTAL MINERALS EXPLORATION EXPENDITURE, 2011-12 AND 2013-14**CHART 39: MINERALS EXPLORATION SPEND AS A PERCENT OF SALES REVENUE, 2013-14**

KEY FINDINGS

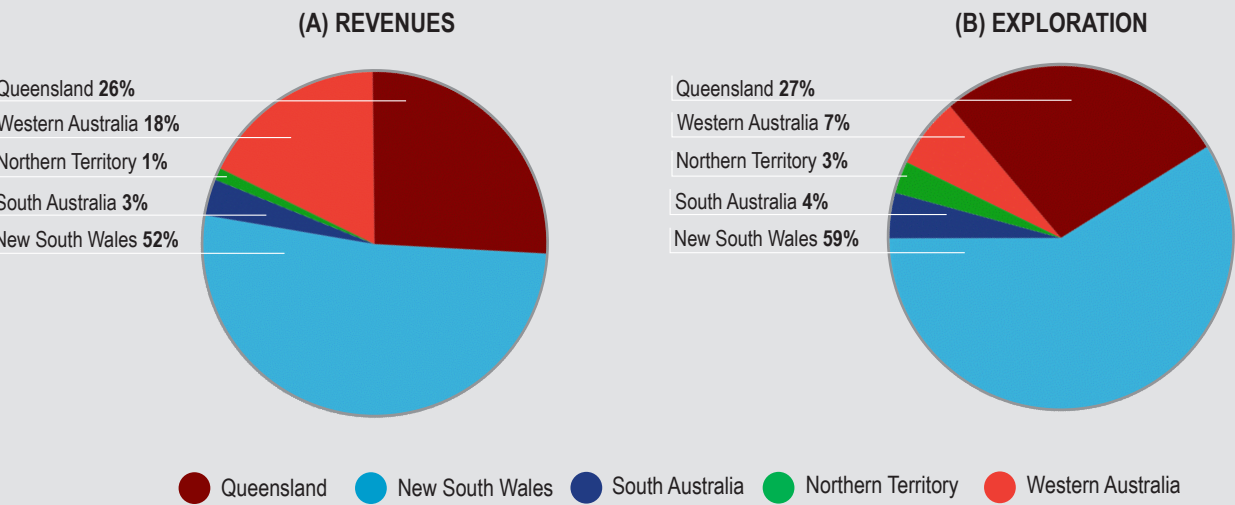
- Queensland in 2014 recorded a 35% decrease in minerals exploration compared with 2013 (\$732 million to \$475 million). Western Australia also recorded a 35% decrease in minerals exploration (\$1,774 million to \$1,152 million) (Chart 37).
- Petroleum expenditure in Queensland declined 6.4% in 2014 (\$655 million to \$613 million). This compares to the 7.7% decrease recorded in Western Australia (down from \$3,294 million to \$3,038 million). Notably, South Australia reported a 38% increase in petroleum exploration (\$386 million to \$531 million) in the same period (Chart 37).
- Queensland's greenfields performance as a percentage of total minerals exploration expenditure improved again in 2014 to 36% compared with 34% in 2013 (Chart 38).
- In 2014, Queensland spent 1.6% of its minerals revenues (sales) on exploration, a decrease from 2.3% in 2013. The Northern Territory spent the most in 2014 with 4% of its sales revenues reinvested in exploration (Chart 39).

6.2

MINERALS EXPLORATION AND REVENUES AS A PERCENTAGE OF NATIONAL TOTALS

Charts 40 (A) and (B) provide a comparison by state of minerals exploration expenditures and revenues as a share of Australian totals.

CHARTS 40 (A) & (B): PERCENTAGE OF COAL AND MINERAL SALES REVENUES AND EXPLORATION SPEND, 2013-14*



* Coal, selected base metals (copper, nickel, silver, lead and zinc), gold and iron ore only

KEY FINDINGS

- In 2014, Queensland represented 26% of Australia's total sales (in dollar terms) of copper, nickel, silver, lead, zinc, gold and iron ore. By comparison, during the same period, Queensland represented 27% of Australia's total exploration (in dollar terms) of these commodities (Charts 40 (A) and (B)).

7.0 PRODUCTION BY RESOURCE

Key measures of a successful exploration sector are consistent high quality discoveries (greenfields in particular), increasing levels of resources and reserves (reserves in particular – grade and tonnage), and 'healthy' reserve/production ratios (years of available reserves at current production rates).

TABLE 7A: QUEENSLAND YEARS OF RESERVES, BY COMMODITY, 2013-14

Commodity	QLD Production	QLD Reserves (Proved & Probable)	QLD Years (Reserves/production)
Bauxite ('000t)	26,257	1,533,000	58
Copper (t)	175,254	2,917,723	17
Gold (oz)	524,930	6,124,254	12
Lead (t)	395,858	6,680,091	17
Silver (oz)	34,094,601	527,389,058	15
Zinc (t)	956,740,179	14,002,523	15
Coal (Mt)	146	14,010	96

TABLE 7B: QUEENSLAND GAS PRODUCTION AND RESERVES, 2013-14

Natural Gas	Production (PJ)	2P Reserves	Years at current production	Years with LNG fully operational
Conventional	34	474	14	14
CSG	264	41,124	156	23
Total	298	41,598	140	23

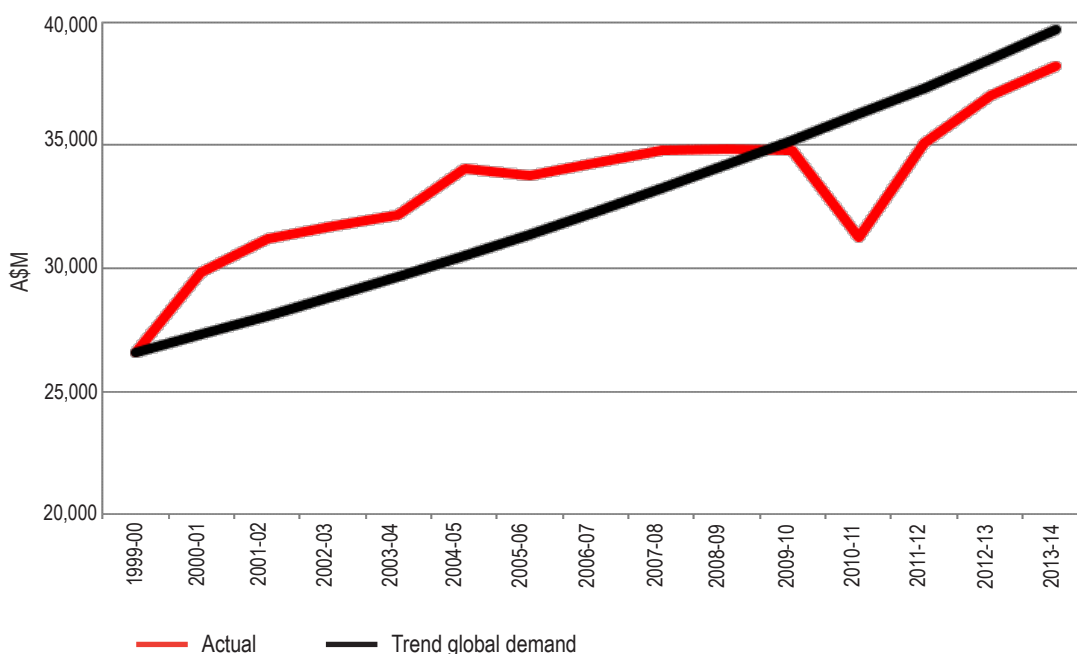
KEY FINDINGS

- Reserve/production levels for Queensland bauxite is currently 58 years.
- Reserve/production levels for copper, gold, lead, silver, and zinc remain steady and at low levels.
- Based on known resources and current depletion rates Queensland's coal reserves will last another 96 years.
- The impact of the LNG industry on remaining reserves is significant, decreasing from 140 years at current annual production to 23 years once LNG projects are fully operational.

8.0 PRODUCTION AND COMPARISONS WITH GLOBAL DEMAND

Chart 41 shows the actual production of resources in Queensland in comparison with trend growth in global demand.

CHART 41: QUEENSLAND MINERAL AND COAL PRODUCTION IN COMPARISON WITH TREND GLOBAL DEMAND, 1999-00 TO 2013-14



Source: BREE Resources and Energy Economics,
Resources and Energy Quarterly Rio Tinto Operations Review

NB: Constant 2009-10 prices

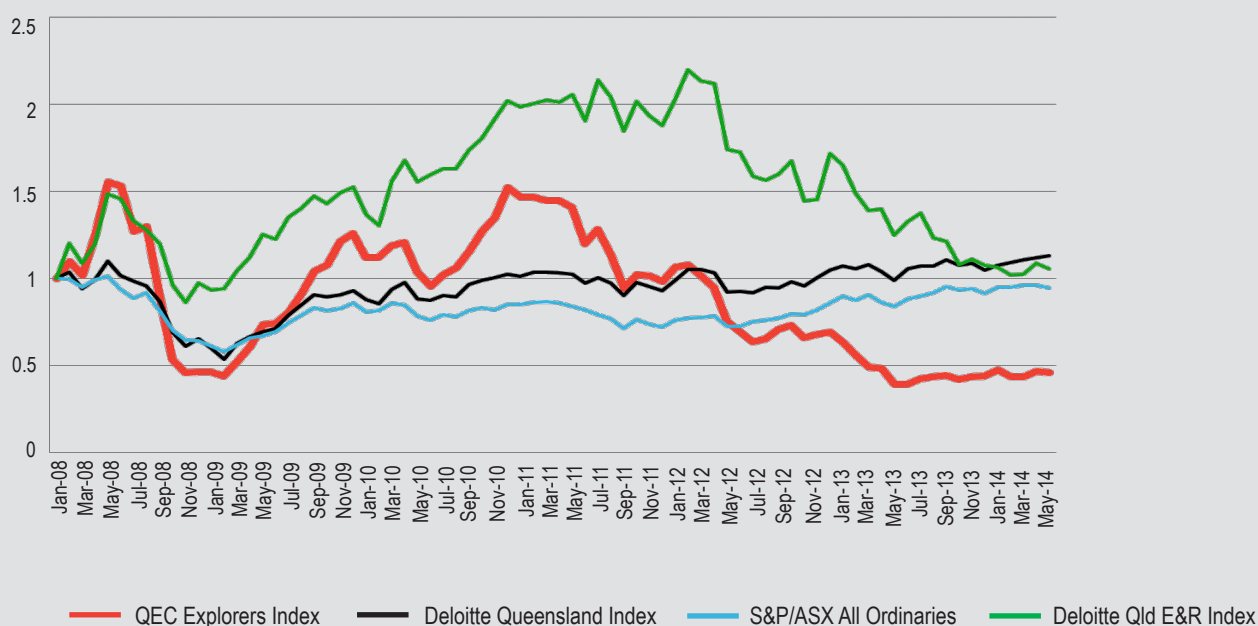
KEY FINDINGS

- The collective value of production of Queensland's bauxite, coal, copper, gold, lead, silver, zinc and nickel and aluminium and alumina exceeded global demand for these commodities during the years 1999-2000 and 2008-09.
- Central Queensland floods in early 2008, heavy statewide flooding in 2010-11, and to a lesser extent, the global financial crisis in early 2009, curtailed production below the trend line of growth in global demand.
- Production has picked up over the past 2 years and the gap between the actual production and the global demand trend has narrowed. However, Queensland's loss of market share after the heavy 2008 and 2010-11 flooding events has not been fully recovered.

9.0 MARKET CAPITALISATION MOVEMENTS

The market's estimates of future profitability, as measured by market capitalisation movements, are a useful measure of anticipated strength in a sector. The performance of Queensland-listed exploration companies on the Australian Securities Exchange (ASX) is compared with various other indices in Chart 42.

CHART 42: QEC EXPLORERS INDEX VERSUS OTHER INDICES



Source: Deloitte Touche Tohmatsu

KEY FINDINGS

- The QEC Explorers Index (Queensland ASX-listed exploration companies) showed a 17% rise in 2014. This compares with a 12.7% increase for the S&P/ASX All ordinaries, a 13.1% increase in the Deloitte Queensland Index (Queensland based ASX listed companies) and large 15.7% decrease in the Deloitte Queensland E&R Index (Queensland based ASX listed energy and resources companies).
- The QEC Explorers Index was buoyed by significant increases in market capitalisation for a number of key constituents such as Aquila Resources, Lamboo Resources, Orbis Gold, Thundelarra Resources and Metals X.
- While the broader commodity price cycle is in a downturn, this is not unexpected given the scale of the global commodity supply response to global demand. Future investment in Queensland exploration prospects are driven by commodity prices but also by factors such as exchange rates, urbanisation in Asia and rising incomes.

GLOSSARY

The **Carbon Geostorage Initiative** was to provide geoscientific data for the assessment of geological storage sites for the safe long-term storage of greenhouse gases.

The **Coastal Geothermal Energy Initiative** was a joint project between the Geological Survey of Queensland and the Office of Clean Energy to investigate potential sources of hot rocks for geothermal energy close to existing transmission lines.

An **entitlement issue** is where shareholders are given the right to subscribe for the new fully-paid share.

Existing deposits as defined by the ABS is exploration that is delineating or proving up an existing deposit, including extensions and infill, which has been classified as an Inferred Mineral Resource or higher.

Exploration expenditure covers all expenditure (capitalised and non-capitalised) during the exploratory or evaluation stages in Australia, Australian waters, and the Joint Petroleum Development Area (JPDA). Costs include cost of exploration, determination of reserves/ resources, engineering and economic feasibility studies, procurement of finance, gaining access to reserves, construction of pilot plants and all technical and administrative overheads directly associated with these functions.

Exploration licence/permit is designed to cover the exploration phase of a project and confers exclusive rights to the exploration for and recovery of samples from the area designated. These rights are granted by relevant Commonwealth, state or territory governments.

A **full-time equivalent (FTE)** measure attempts to standardise a student's actual course load against the normal course load. Calculating the full-time/part-time status requires information on the time periods for actual and normal course loads.

The **Future Resources Program** (\$30m) aims to maximise exploration success by supporting Queensland's resource and exploration industries. The program was funded through competitive cash bidding and represents a return on investment. It includes a number of initiatives outlined here: <http://www.dnrm.qld.gov.au/our-department/policies-initiatives/mining-resources/future-resources-program>.

The **Greenfields 2020 program** is an \$18 million program over four years to focus exploration in greenfield and under-explored areas of the state. It is also designed to revitalise interest in what are perceived to be 'mature' provinces, through the application of new ideas, models and technologies. There are seven initiatives in the program with the New Minerals Frontiers Initiative concentrating efforts in the Northern Economic Region, Southern Thomson, and Galilee areas. A number of new geoscientific information products have been released over the past few years including new airborne magnetic, radiometric and gravity survey. The Greenfields 2020 program also included \$3 million for the continuation of the popular and successful Collaborative Drilling Initiative.

The **Geological Survey of Queensland (GSQ)**, as part of the Department of Natural Resources and Mines, provides geoscience and resource information to improve the understanding of the geology and minerals and energy resource potential of Queensland, and promotes the geoscientific data and exploration potential to attract investment

An **indicated mineral resource** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability.

An **Initial Public Offering (IPO)** or float is the initial raising of capital by public subscription to an offering of securities.

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 Edition (the '**JORC Code**' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The Joint Ore Reserves Committee ('JORC') was established in 1971 and published several reports containing recommendations on the classification and Public Reporting of Ore Reserves prior to the release of the first edition of the JORC Code in 1989.

The **Interactive Resource and Tenure Maps** system (IRTM) is an online spatial data viewer for maps and spatially referenced images. It has a download facility for many layers and also an interactive web map service that can be linked to an online GIS tool for live data feeds. IRTM also has spatial links to the **Queensland Digital Exploration Reports** system (QDEX Reports) which is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. The link allows spatial searches in IRTM for historical tenure exploration reports in QDEX and some other spatial layers also link to QDEX documents.

Lag indicators are the indicators that measure actual exploration success.

Lead indicators are the factors that drive exploration activity and performance.

Liveability Index uses 16 indicators of liveability grouped in six dimensions:

- economy (median individual income; unemployment rate; SEIFA; availability and frequency of direct flights to key cities, Index of retail prices)
- environmental sustainability (air quality; water usage per person per year)
- health and wellness (GP services per capita; percentage of overweight persons; alcohol consumption at levels considered to be a high risk to health)
- equity (residential rental house vacancy rates; proportion of rented house; percentage of female councillors)
- education and learning (proportion of people whose highest year of school attended is year 12 or equivalent)
- leadership (percentage of population volunteering in organisations).

Each of the indicators is benchmarked against the top-performing city, which is assigned a base score of 100. The other cities' scores are derived from ratios that compare their respective performance to the performance achieved by the top-performing city.

A simple average is worked out for each of the six dimensions, after which the average score for each dimension is further aggregated into an equal weighting system.

Market capitalisation represents the public consensus on the value of a company's equity. An entirely public corporation, including all of its assets, may be freely bought and sold through purchases and sales of stock, which will determine the price of the company's shares. Its market capitalization is the share price multiplied by the number of shares in issue, providing a total value for the company's shares and thus for the company as a whole.

A **measured mineral resource** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

A **mineral resource** is a concentration or occurrence of material of intrinsic economic interest in or on the earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into inferred, indicated and measured categories.

The **MinesOnlineMaps** system is an online spatial data viewer replacing IRTM for maps and spatially referenced images. A new download facility and a web map service will be delivered through the Queensland Spatial Portal which is currently being updated. MinesOnlineMaps also has spatial links to the **Queensland Digital Exploration Reports** system (QDEX Reports) which is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. The link allows spatial searches in MinesOnlineMaps for historical tenure exploration reports in QDEX Reports and some other spatial layers also link to documents in QDEX Reports. <http://www.dnrm.qld.gov.au/mapping-data/maps/minesonlinemaps>.

National parks category includes national and state-run parks and nature conservation areas. No mining activity is permitted on an area declared a National Park.

Nature refuges as defined by the Department of Environment and Heritage Protection, is area of land voluntarily agreed between a landholder and the government to dedicate and protect for conservation purposes while allowing compatible and sustainable land uses to continue. There are different classifications of nature refuges, some that allow mining activity and some that prohibit altogether (similar to the Strategic Cropping Land triggers, however for environmental benefit).

New deposits as defined by the ABS is - exploration on previously unknown mineralisations or known mineralisations yet to be classified as an Inferred Mineral Resource or higher. They include:

- exploration resulting in finding mineralisation that was previously unknown
- exploration on previously known mineralisation that has not been subjected to modern exploration
- exploration within an existing mining tenement for the purpose of finding new sources of mineralisation that have not already been classified as at least an Inferred Mineral Resource.

An **Ore reserve** is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

Potential commercial areas are effectively a variation on a petroleum production lease but the usual requirement to commence production within two years is waived. It might be a field with high-quality reserves, but which requires pipeline and other services to make the recovery of the gas economical.

Pre-competitive geoscience data acquisition in Australia refers to the collection, collation and integration of basic geoscientific data by government agencies, essentially Geoscience Australia and the states' geological surveys. These strategic regional geoscientific research programs are generally aimed at upgrading historic data sets and filling data gaps by acquiring, efficiently and economically, modern geoscientific data at geologic province scale 2. Generally, the government agencies assigned priority to upgrading datasets over areas considered to be prospective but under-explored.

A **private placement** is the sale of securities to a relatively small number of select investors as a way of raising capital. Investors involved in private placements are usually large banks, mutual funds, insurance companies and pension funds.

A **probable ore reserve** is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

Probable reserves (oil and gas including CSG) are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves. It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate. (Petroleum Resources Management System, 2007)

Prospectivity refers the likelihood that specific types of mineral deposits are present in a geological province and may be discovered with ongoing exploration.

A **proved ore reserve** is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

Proved reserves (oil and gas including CSG) are those quantities of petroleum, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations. If deterministic methods are used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. (Petroleum Resources Management System, 2007)

The **Queensland Digital Exploration Data system (QDEX Data)** is an online catalogue and download service for publishing large public data sets such as airborne geophysics, seismic surveys, wireline logs, geochemistry, 3D models and any other large items. It uses high compression algorithms and data streaming technology to transfer files over 1Gb in size. It has a simple web search interface but can also be accessed by customers using Oasis Montaj, ESRI ArcGIS or Mapinfo software (a free plug-in is available). <http://www.dnrm.qld.gov.au/mapping-data/qdex-data>. There are links between QDEX Data and QDEX Reports.

The **Queensland Digital Exploration Reports system (QDEX Reports)** is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. There is a link between QDEX Reports and the MinesOnlineMaps system which allows spatial searches in MinesOnlineMaps for historical tenure exploration reports in QDEX Reports and some other spatial layers. <http://www.dnrm.qld.gov.au/mapping-data/qdex-reports>

Recreational areas have features such as trails, ranging from urban cycle and walking paths to river trails and rugged bush tracks. These trails cover 300,000 hectares or less than half a percent of the state. These areas generally do not prohibit mining/exploration.

Retention licence (or MDL) is an intermediate form of tenure between the exploration licence and mining licence allowing the holder of the exploration licence to retain title to the area for a limited time. It is designed to ensure the retention of rights pending the transition of a project from the exploration phase to the commercial mining phase.

State forests are forest reserves set by the Governor-in-Council. Mining/exploration tenure can be granted over a state forest area, however conditions are prescribed by the Forestry Act 1959 to apply to the tenure holder under the resources legislation (for example the Mineral Resources Act 1989).

Selected base metals are made up of the following minerals: copper, silver, lead-zinc, nickel and cobalt.

Smart Mining - Future Prosperity was a package of initiatives designed to double the 2004-05 mineral and petroleum exploration expenditure of \$270 million by 2008-09. This target was easily achieved with expenditure of \$751.4 million in 2008-09, and annual exploration expenditure has continued to rise.



ACRONYMS

ABS	Australian Bureau of Statistics	IPO	Initial Placement Offering
ADIA	Australian Drilling Industry Association	IRTM	The Queensland Government's Interactive Resource and Tenure Maps
ATP	Authority to Prospect	JORC	The Joint Ore Reserves Committee
ASX	Australian Securities Exchange	LNG	Liquefied Natural Gas
CSG	Coal Seam Gas	MACE	Ministerial Advisory Committee on Exploration
DNRM	Department of Natural Resources and Mines	MDL	Mineral Development Licence
EPC	Exploration Permit for Coal	ML	Mining Lease
EPG	Exploration Permit for Geothermal	PL	Petroleum Lease
EPM	Exploration Permit for Minerals other than coal	QEC	Queensland Exploration Council
FTE	Full time equivalent	QRC	Queensland Resources Council
GSQ	Geological Survey of Queensland	QDEX	Queensland Digital Exploration Reports database

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