

Canberra observed



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2017: a better year for the resource sector

Resource stocks do well on the ASX

2017 was a better year for the resource sector than 2016, particularly in the Stock Market.

Figure 1 shows the All Ords Index for the ASX and the total value of the market capital of the resource companies listed in the top 200 companies in the ASX. The numbers have been adjusted to \$A December 2017.

Before the Global Financial Crisis (GFC) in 2008, changes in these two parameters were strongly correlated, probably because of the dominance of the resource companies in the ASX before the GFC.

After the GFC the correlation is much weaker, with the resource values showing considerable volatility.

Without the income from dividends, the long-term investor with a wide portfolio of shares in 2005 would not have done well. Using CPI adjusted numbers, the All Ords Index only increased by 12% in this period – a growth of less than one percent per year. However, since the end of the GFC the All Ords Index rose steadily and in 2017 it rose by a very solid 6 percent.

If you held shares in resource companies you would have done much better, even if the ride was more unpredictable. The increase from 2005 to 2018 was about 44%, a very healthy 3.4% per year, and since the start of 2016 the resource companies have continued to prosper with an 80% increase over two years.

In 2017, apart from the small downward excursion in the first half of the year, the upward trend has continued. Some of the outstanding performers were the giants; BHP, which increased its value by 18% in 2017 from \$81 billion to \$95 billion, and Rio Tinto by 23% from \$25 billion to \$31 billion. Table 1 shows the result from some of the major companies.

Beach Energy and Whitehaven were two of the top performers with increases over the year of 66% and 71% respectively. The Whitehaven result is at odds with the expectation in some quarters the death of coal is imminent. King Coal is clearly alive and kicking and there was a 28%

increase in the average price of thermal coal in 2017 from 2016. The only negative performer in table is Fortescue, which is unexpected because the average price of iron ore rose by 21 percent over the 2016 average.

Table 1. Changes in market capital of selected resources companies 2016–2017

Company	Value in \$billion on 30 Dec 2016	Value in \$billion on 29 Dec 2017	Percentage Change
BHP	80.48	94.97	18
Rio Tinto	25.41	31.26	23
Woodside	26.25	27.87	6
Fortescue	18.34	15.20	-17
Newcrest	15.53	17.51	13
Oil Search	10.927	11.87	9
Origin	11.56	16.56	43
Santos	8.17	11.35	39
Whitehaven	2.68	4.58	71
Beach	1.71	2.83	66

Prices for main commodities firm during 2017

During 2017 the prices for oil, iron ore, coal, gold and aluminium all firmed and, as indicated from the results in ASX, most companies are doing better than they did in 2016.

Figure 2 shows the results for aluminium and gold. Aluminium has done well with a price increase of 23% over the 2016 average price, but there has been

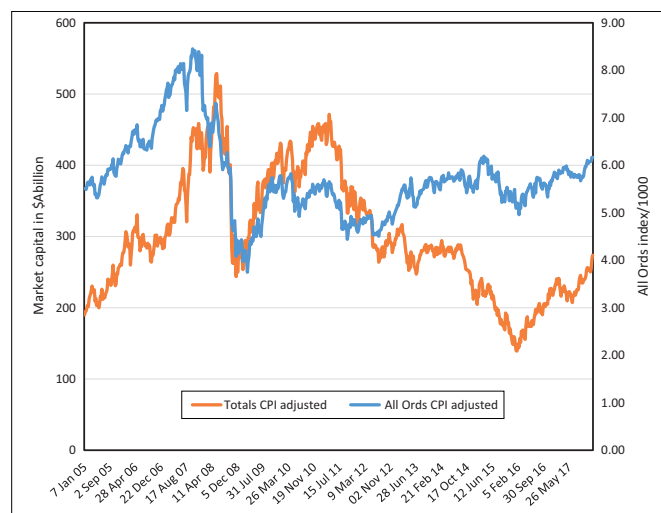


Figure 1. Total market capital of resource companies for the top 200 in the ASX and the All Ordinaries Index for the period 2005–2017. The numbers have been adjusted to \$A in December 2017.

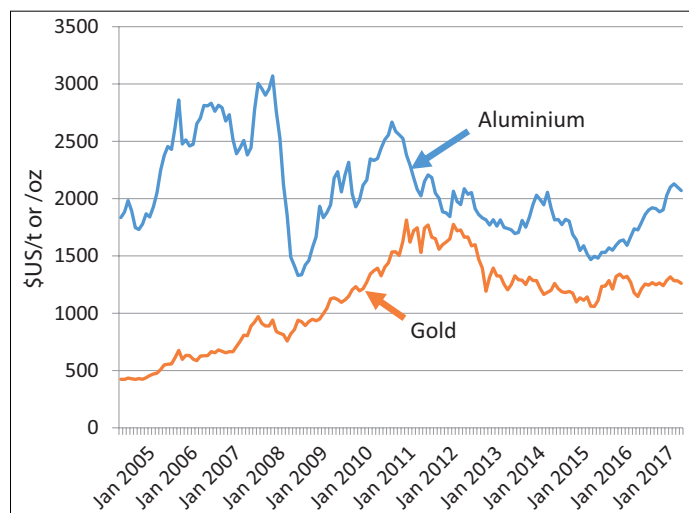
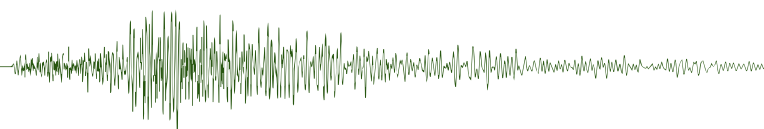


Figure 2. Price of gold (\$US/oz and aluminium (\$US/t) from 2005–2017. Data taken from the London Metals Exchange (<https://www.lme.com/metals>). They have not been adjusted for any CPI increases.



considerable volatility during the last 12 years. On the other hand, the gold price shows very little volatility during the same period. It seems to have been almost unaffected by the GFC. However, the increase in average price of only 1.3% would be very close to the annual rate of inflation. Gold would not have been a good investment in the past few years.

Figure 3 shows how the prices of coal, iron ore and oil have tracked from 2010 through 2017. As can be seen the price of each commodity bottomed in 2016 and since then they have all, except for gold, increased steadily by more than 20%.

The average numbers are shown in Table 2 and, if the trend in the first few days of 2018 continues, we can look forward to a good year ahead!

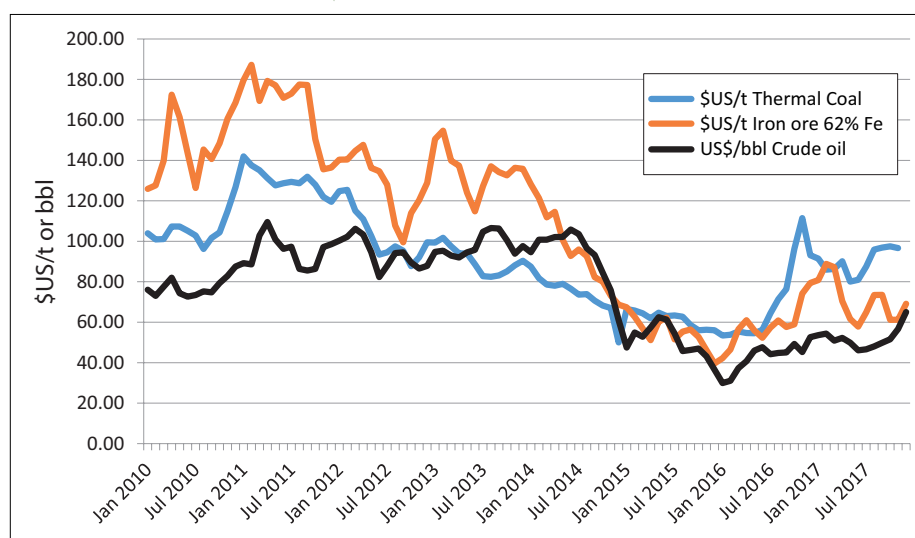


Figure 3. Prices for thermal coal, iron ore and oil (West Texas Crude) for the period 2010 through 2017. Data taken from http://www.imf.org/external/np/res/commmod/External_Data.xls, https://www.quandl.com/data/COM/FE_TJN-Iron-Ore-62-Fe-CFR-China-CME and <http://www.economagic.com/em-cgi/data.exe/var/west-texas-crude-long>. No adjustments have been made to correct for CPI increases.

Table 2. Average prices for key commodities in 2016 and 2017

Commodity	2016	2017	% change	units
Aluminium (LME)	1604	1967	23	\$US/tonne
Gold (LME)	1248	1264	1.3	\$US/oz
Iron Ore 62% Fe China	58.6	70.8	21	\$US/tonne
Oil (West Texas Crude)	42.8	52.1	22	\$US\$/bbl
Thermal Coal	70.1	89.9	28	\$US/t

Coal's uncertain future analysed by the IEA

In 2016 the world consumed the equivalent of 13 billion tonnes of oil equivalent energy¹ (Figure 1). Although the annual increase in consumption in that year was, at 1%, well below the 10-year average of 1.8% and the third consecutive year at or below 1%, the global demand for energy continues to increase relentlessly. Oil, coal and natural gas continue to be the main source materials and, although coal still provides almost 30% of the energy consumed, it is now at the centre of a major national policy issue.

The challenge for coal, as the world's largest source of electricity, is that it is the largest source of energy-related man-made CO₂ and SO₂ emissions, and a major contributor to global warming and air pollution. At the same time coal's role

is still central to providing energy in many developing countries, which are growing more rapidly than most OECD countries.

The International Energy Agency (IEA) found, in its Coal 2017 market and analysis report² released in December 2017, that: 'after a period of record growth for coal demand from 2000–12, our data and forecast show that the global demand for coal will have been stagnant over the decade 2013–22. Looking ahead, this stagnation masks important regional variations. As coal use continues to decline in many parts of the world these declines are offset by continued growth in India and Southeast Asia, as well as several other countries where today coal's role is small but is on the rise, such as Pakistan and Bangladesh'.

²IEA (2017) *Market Report Series: Coal 2017*, IEA, Paris. http://dx.doi.org/10.1787/coal_mar-2017-en.

The report identifies eight highlights:

- 1. Global coal demand declined 1.9% to 5 357 million tonnes of coal equivalent (Mtce) in 2016, in energy terms.** Although the decline since 2014 (4.2%) matches the largest percentage drop registered in IEA statistics (that of 1990–92), it is the largest drop in absolute terms. Coal's share in global primary energy supply declined to 27%, but it remains the second-largest source of energy after oil.
- 2. Coal use declined in all sectors in 2016.** The drop in the power sector (0.5%) was driven by Europe and the United States and was partially offset by the People's Republic of China and India; the fall in the non-power sector (7%) was led by China. Metallurgical coal demand decreased by 0.5%.
- 3. In China, coal demand declined for the third consecutive year in 2016.** The decline of 4.7% (–178 Mt) in

¹BP Statistical Review of World Energy, June 2017.

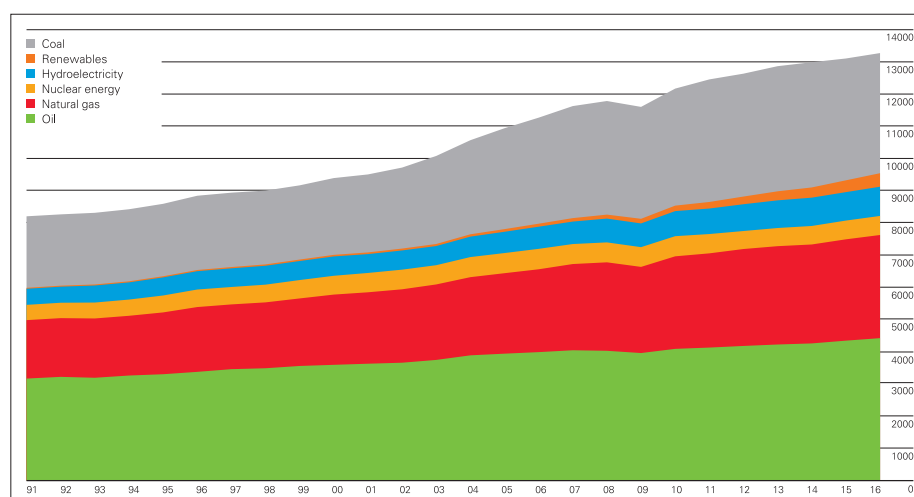


Figure 1. World energy consumption (million tonnes oil equivalent) 1991–2016, from BP Statistical Review of World Energy June 2017, p. 10.

physical volume (1.8% in energy terms) resulted in final consumption of 3 621 Mt, largely driven by reductions in the industrial and residential sectors. China remains key for the coal market, with 49% of global consumption and 46% of global production.

4. India, the second-largest coal consumer in the world, had the largest demand growth in absolute terms in 2016 (+22 Mt, or 2.4%).

This is a significant slowdown compared with 6.8% annual growth recorded over the last decade. However, in Association of Southeast Asian Nations countries, coal demand increased by 6.2% in 2016, driven by coal-fired electricity generation.

5. 2016 was the first year in the United States in which coal was not the largest source of electricity.

The reduction of 121 terawatt hours (TWh) of coal generation was replaced mainly by an additional 71 TWh of renewable generation and 47 TWh of gas generation, driven by very low gas prices. Overall coal consumption declined by 54 Mt (–7.5%) in 2016, but the United States remained the third largest coal consumer in the world.

6. The sharp decline in coal consumption of 8.1% (–56 Mt) in the European Union was led by a drop of 52% (–20 Mt) in the United Kingdom. The UK carbon price floor that supports fuel switching from coal to natural gas in the electricity sector had already resulted in a sharp decline of 23% (–11 Mt) in 2015. Germany and Poland remain the last two large-scale consumers of coal in Europe, accounting for over half of EU coal consumption in 2016.

7. Global production declined by 6% (–460 Mt) in 2016, the largest drop recorded in IEA statistics, also driven by China. Amid declining demand, supply-side reforms in China resulted in an output reduction of 321 Mt (–9%). The closure of 290 million tonnes per annum of mining capacity and the reduction from 330 to 276 working days per year for Chinese miners led to supply cuts and the subsequent rise in global coal prices in 2016/17.

8. India has become the second-largest coal producer in the world,

surpassing the United States. While production in the United States decreased by 17%, India's increased by 4% to 708 Mt in 2016, pushed by increasing energy demand and government policies.

Figure 2 summarises some of the main points in the report. It shows that global peak production of 4.00 billion tonnes appears to have been reached in 2013 and that Australian production probably peaked in 2015. However, if development of the Galilee Basin goes ahead that would significantly increase Australian production rates.

The IEA's global forecasts of coal production from now until 2022, as shown in Figure 2, are based on several assumptions. The first is that coal production in this period will be driven by GDP. The IMF expects this to grow at 3.7% per year over 2017–22 period (see p 68 of IEA Report). The second assumption is that fuel prices will remain at \$US56 per barrel (Brent) throughout the five-year period. If I was a betting man I would have thought that the annual global GDP growth estimate is too high, and the price of oil is too low – but then, I can't forecast the future either!

As with all forecasts we will have to be patient and wait to see what happens.

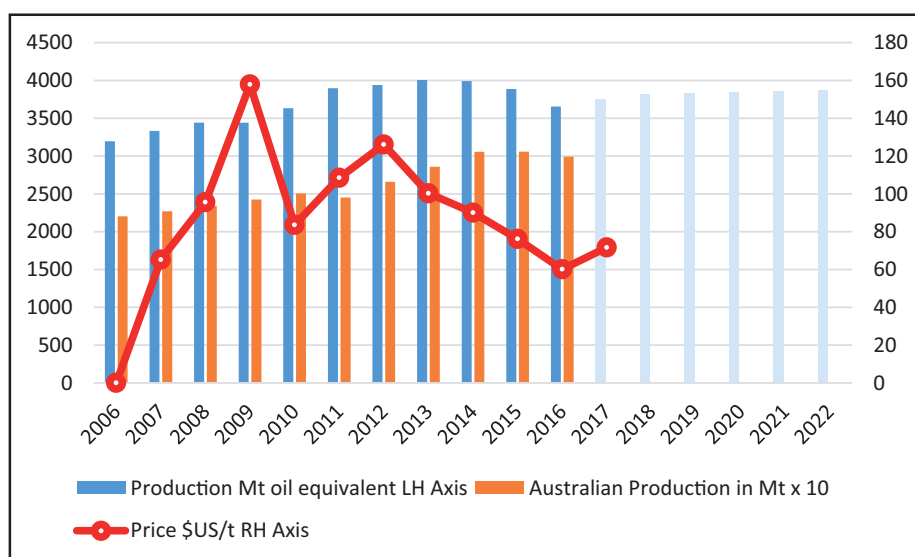
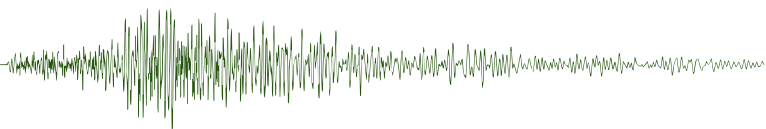


Figure 2. Global and Australian coal production and price 2006–2016. The dark blue columns indicate the global coal production taken from BP and the IEA reports. The light blue columns indicate the IEA forecasts. The coal price is the Japan steam coal spot price from page 36 in the IEA report. A factor of 0.7 was used to conversion Mt coal to oil equivalent.



Acreage release news for Offshore Petroleum Exploration

Proposed areas for the 2018 Offshore Petroleum Exploration acreage release

Following the nomination and short-listing process, 21 areas are proposed for inclusion in the 2018 acreage release (Table 1). These areas are shown on the map in Figure 1. They are in Commonwealth waters offshore Western Australia, Northern Territory, Tasmania and Victoria, and in the Territory of the Ashmore and Cartier Islands.

It is anticipated that the Minister for Resources and Northern Australia, Senator Matt Canavan, will announce the final 2018 acreage release at the annual

Table 1. Areas proposed for inclusion in the 2018 acreage release

State/Territory	Basin	Area
Northern Territory	Bonaparte	AC 18-1
Western Australia	Bonaparte	W 18-1-
Western Australia	Browse	W 18-2 & 3
Western Australia	Carnarvon	W 18-4, 5,6,7,8,9,10,11,12
South Australia	Bight	S 18-1
Victoria	Otway	V 18-1,2,3
Victoria	Gippsland	V 18-4,5,6,7

Australian Petroleum Production and Exploration Association Conference in May 2018. Following the minister’s announcement, full acreage release information including closing dates and

geological write-ups of each area will be available at <http://www.petroleum-acreage.gov.au/>.

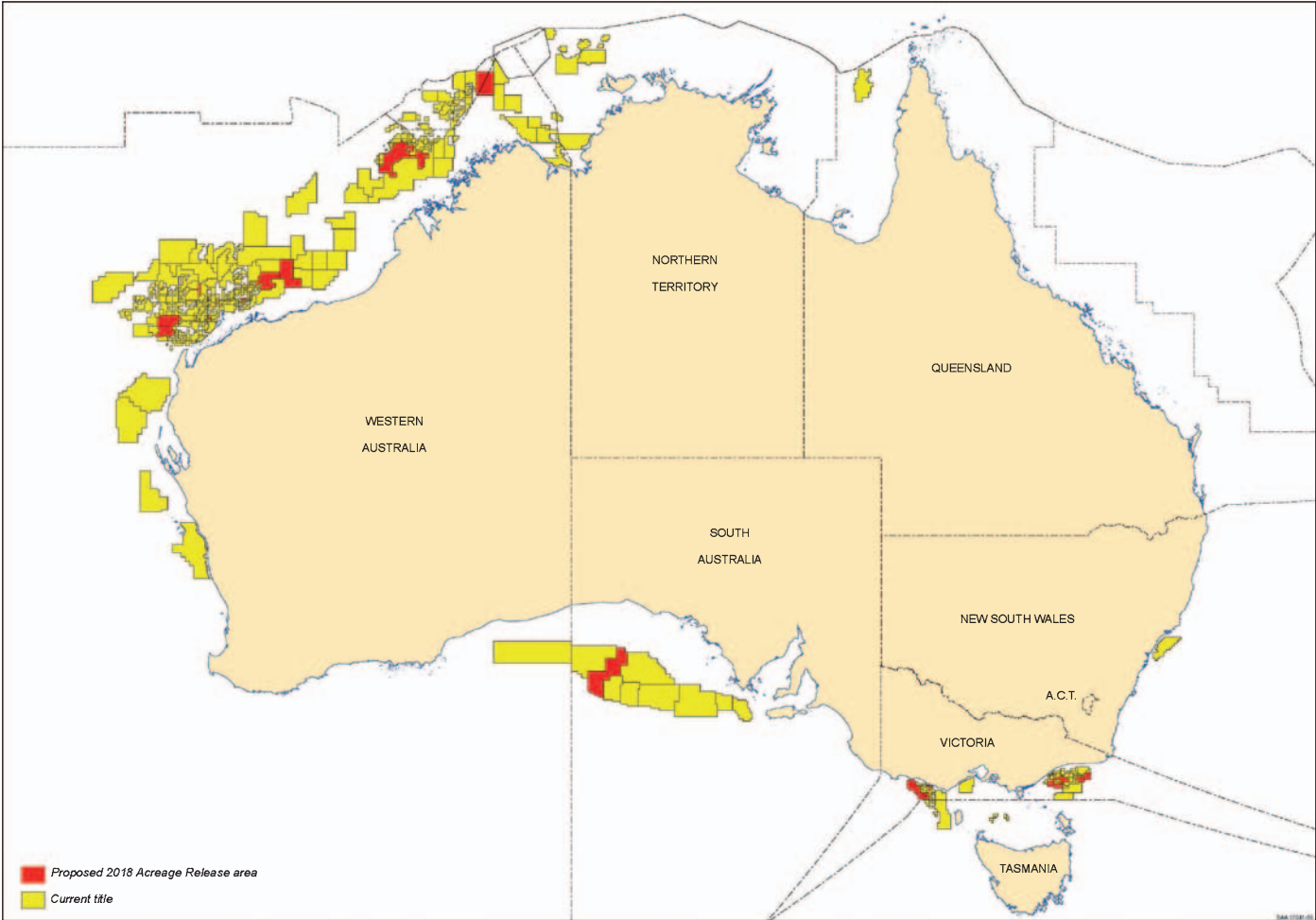


Figure 1. 2018 Offshore Petroleum Exploration acreage release – proposed areas coloured red, and existing leases coloured yellow.

Outcomes of the 2016 Offshore Petroleum Exploration acreage release

The 2016 Offshore Petroleum Exploration acreage releases have been finalised with a total of eight exploration permits being granted. The indicative total exploration investment on these leases is expected to be A\$359 million over the next six years, but this will depend on how many holes are drilled. All these holes, totalling \$285 million, are included in the secondary work

programs and my understanding is that if the companies don't find an attractive target they can walk away from the lease. The details are contained in Table 1.

In addition to the granting of the above leases, the Department of Industry advised that:

- Release area AC16-4 received one bid but has reverted to vacant acreage.
- Release area W16-2 is expected to be awarded, however there has been no formal offer.

- Release areas W16-5, W16-6, W16-9 and W16-24 were re-released as part of round one of the 2017 Acreage Release (bids closed 19 October 2017). Bids for that round are currently being assessed by the National Offshore Petroleum Titles Administrator.
- The following release areas have reverted to vacant acreage: AC16-1, AC16-2, W16-1, W16-3, W16-10, W16-11, W16-13, W16-15, W16-16, W16-19, W16-20, W16-21, W16-22 and W16-25.

Table 1. Details of exploration programs for areas granted exploration permits

Basin and Company	Guaranteed program	Secondary work program
Roebuck Basin, W16-8. 3D Oil Ltd. There were no other bids for this area.	\$3.86 million comprising acquisition and processing of 510 km ² of 3D seismic and geophysical and geological studies.	Further geophysical and geological studies and one exploration well, totalling \$30.8 million.
Carnarvon ?deep water, W 16-17. Chevron Australia New Ventures Pty Ltd	\$3 million, cash bid. No work program provided.	
Ashmore Platform of the Bonaparte Basin, AC16-3. Carnarvon Petroleum Pty Ltd. One other bid was received on this area.	\$6.5 million comprising licensing of 682 km ² of the Cygnus multi-client 3D PSDM seismic data and conducting a number of geological and geotechnical studies.	An exploration well and post-well studies, totalling \$30.5 million.
Exmouth Plateau of the Northern Carnarvon Basin, W16-12. Joint venture between Chevron Australia New Ventures Pty Ltd and Woodside Energy Limited. There were no other bids for this area.	\$14.25 million comprising acquisition and AVO processing of 2000 km ² of PreSDM broadband 3D seismic data and reprocessing and geophysical and geological studies of 600 km ² of the Monuments 3D seismic data set.	Further geological and geophysical studies and an exploration well, totalling \$52.8 million.
Exmouth Plateau of the Northern Carnarvon Basin, W16-14. Joint venture between Chevron Australia New Ventures Pty Ltd and Woodside Energy Limited. There was one other bid for this area.	\$14.5 million comprising acquisition, processing to PSDM and geological and geotechnical studies of 1900 km ² of broadband 3D seismic data. Re-processing work of both the Foxhound Multi-client 3D seismic survey and the Monuments 3D survey.	Geological and geotechnical studies and an exploration well, totalling \$52.8 million.
Exmouth Plateau of the Northern Carnarvon Basin, W16-18. Joint venture between Chevron Australia New Ventures Pty Ltd and Woodside Energy Limited. There were two other bids for this area.	\$10.3 million including reprocessing work of 4700 km ² of 3D seismic data, acquisition of an additional 900 km ² of MC3D seismic data, with AVO processing and seismic inversion of 4000 km ² across these data sets.	Further geological and geophysical studies and an exploration well, totalling \$52.8 million.
Barrow Sub-Basin of Northern Carnarvon Basin, W16-23. Joint venture between Quadrant Northwest Pty Ltd and Santos Offshore Pty Ltd. There was one other bid for this area.	\$1.45 million involving a targeted seismic processing and reprocessing of 3D seismic data from existing 3D surveys over the area.	Geological and geotechnical studies and an exploration well totalling \$30.8 million.
Southern Browse Basin, W16-4. INPEX Browse E&P Pty Ltd. There were three other bids over this permit area.	\$23.6 million including acquisition and processing of 7185 km of 2D seismic data and reprocessing of a further 2000 km of 2D seismic as well as AVO and seismic inversion analysis of the entire data set. It also involves the targeted conduct of these activities over 600 km ² of 3D seismic data.	Geotechnical studies and an exploration well valued at \$34.3 million.