minerals and energy

major development projects – april 2007 listing

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- ***Expenditure on minerals and energy exploration in Australia, at an estimated $4 billion in 2006-07, is the highest in real terms (2006-07 dollars) since 1982-83.***
- ***New capital expenditure in Australia's mining industry in 2005-06 was $18.6 billion, more than double the average annual expenditure in real terms (2006-07 dollars) for the past 25 years. Surveys of industry intententions indicate the possibility of further increases to almost $23 billion in 2006-07 and over $30 billion in 2007-08.***

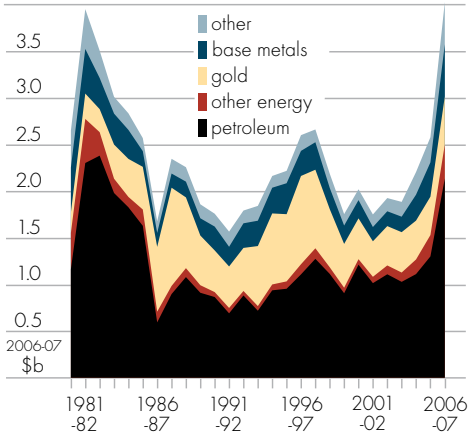
exploration expenditure

Exploration is an investment in knowledge about the location, size and quality of petroleum and mineral deposits. The ability of Australia's minerals and energy sector to sustain its recent strong growth and expand its contribution to national economic performance in the medium and longer term depends on the amount of investment in minerals exploration. The recent strong growth in Australia's minerals and energy sector output and expected future increased contribution to the Australian economy are underpinned by recent exploration activity.

Expenditure on minerals and energy exploration in Australia is estimated to total over $4 billion in 2006-07, an increase of over 56 per cent on exploration expenditure in 2005-06. In real terms (2006-07 dollars), 2006-07 exploration expenditure will be the highest on record and around 72 per cent higher than the average annual expenditure on exploration over the past 25 years. While exploration expenditure has increased recently, it cannot be determined from ABS data what proportion of the increased expenditure is related to increased exploration activity or attributable to higher costs of inputs, such as labour and equipment. In the first half of this decade, exploration expenditure in Australia, in real terms, was well below the annual average of the past 25 years.

The significant number of projects on ABARE's project list indicates that there will be strong growth in minerals and energy production capacity. Average

fig A **private minerals exploration expenditure – Australia**



exploration expenditure will need to be maintained above levels achieved in 2005-06 (in real terms) in order to increase the resource base needed to underpin future development of the minerals and energy sector.

Over the past two years, brownfield exploration – that is, exploration around existing or known deposits – has made up an increased proportion of total exploration expenditure. This can be partly explained by the current trend of developing projects with larger production capacities, which generally require larger resource delineation programs. In addition, mining companies are reassessing reserves at current and depleted mining areas, with the view of extracting additional reserves that are now considered to be economic at current high commodity prices. Mining at or around existing deposits is attractive for companies because projects can be started sooner and generally have a lower capital expenditure because often there is existing infrastructure in place.

In 2006-07, exploration expenditure is expected to increase across all major commodities. Petroleum exploration is estimated to increase to $2.14 billion, an increase of 64 per cent from 2005-06. Petroleum exploration expenditure in 2006-07 is likely to be the

abare's list of major minerals and energy development projects

the full list

ABARE's listing of major minerals and energy projects expected to be developed over the medium term is compiled every six months. Information contained in the list spans the mineral resources sector and includes energy and minerals commodities projects and minerals processing projects. The information comes predominantly from publicly available sources but, in some cases, is supplemented by information direct from companies. The list is fully updated to reflect developments in the previous six months. The projects listing is released around May and November each year.

what's in the list

The latest projects list contains the following details on projects:

- project name
- location
- expected startup date
- additional output capacity
- proponent company or joint venture
- capital cost of the project
- additional employment, where available.
- project status

With one industry exception, ABARE's listing provides details of each announced project for which total capital expenditure is expected to exceed $40 million. The exception is the gold industry, which typically has a relatively large number of smaller projects. For gold, the expenditure threshold for inclusion in the listing is $15 million.

In general, included projects are at relatively advanced stages of planning. That is, for new projects, stage of planning categories range from 'prefeasibility study underway' through to 'under construction'.

Projects are listed by the principal mineral commodity to be produced, under the broad headings: 'Mining projects – energy', 'Mining projects – minerals' and 'Minerals processing facilities'. The listing includes new greenfields projects as well as expansions of existing projects.

where to get the list

The list is available only as an electronic product.
The list can be downloaded from 'latest releases' at abareconomics.com
enquiries: abareproducts@abare.gov.au or phone +61 2 6272 2010.

highest (in real terms) since 1982-83 and 74 per cent higher than the annual average over the past 25 years. Increased petroleum exploration has been encouraged by historically high global oil prices. With world oil prices forecast to remain relatively high in the short term, exploration expenditure can be expected to remain historically high.

Iron ore exploration expenditure in 2006-07 is estimated to almost double to $320 million. A number of successive annual contract price rises and the prospect of continued strong Chinese demand for iron over the medium term are important drivers behind the significant increase in expenditure.

Since 2003-04, gold exploration expenditure in real terms has remained relatively stable at around $400 million a year. In 2006-07, however, gold exploration expenditure is estimated to increase by 25 per cent to $515 million. The increase in gold exploration activity is attributable to the increase in Australian dollar gold prices, which in 2006 averaged $800 an ounce, an increase of 37 per cent from 2005.

Base metals exploration expenditure in 2006-07 is estimated to total $560 million, an increase of 52 per cent from 2005-06. This increase is mainly attributable to strong rises in expenditure on copper, nickel and silver–lead–zinc exploration, reflecting substantial rises in global prices for these commodities. For example, in 2006, copper prices increased by over 80 per cent, while nickel prices rose by more than 65 per cent. In real terms, exploration expenditure on base metals in 2006-07 is expected to be more than double the 25 year average ($260 million) and the highest on record.

In general, decisions to invest in exploration depend on the probability of discovering an economic mineral deposit or extending the resource base of a known deposit. A range of economic and policy factors will also influence companies' expectations of the likely return on investing in exploration. Such factors include: expectations and risks relating to mineral prospectivity; prevailing and expected mineral prices; existing mining and processing technologies; input costs more generally; land access; and government policies.

medium term exploration expenditure

Over the medium term, exploration expenditure is expected to be influenced by a different set of factors in each of the main exploration sectors.

In the petroleum sector, short term oil prices are an important factor in encouraging increased exploration activity. However, there are a number of other factors that are likely to have a significant bearing on decisions relating to exploration activity. These include: longer term oil price trends, Australia's relative prospectivity for petroleum; prospects for Australian companies' share of growing global LNG trade; the need for long term planning, particularly for relatively expensive offshore petroleum exploration; exploration costs; availability of skilled labour; and the concurrent commitment of resources (funds, equipment and labour) to other in such as project development.

Movements in the Australian dollar price of gold will be a key factor influencing gold exploration expenditure. However, expected future costs of exploration and development will also play an important role in determining future expenditure. Rises in the costs of labor, fuel and other inputs (such as steel) have increased development costs and could be a negative influence on gold exploration expenditure over the medium term.

In the base metals sector, the price outlook will clearly be important, as demonstrated by the rise in copper and silver–lead–zinc exploration expenditure. Other important factors are expected to be: future Chinese demand for base metals (including nickel); assessments of the development potential of several known (but as yet undeveloped)

base metal deposits in Australia; costs of exploration; and Australia's relative attractiveness for exploration.

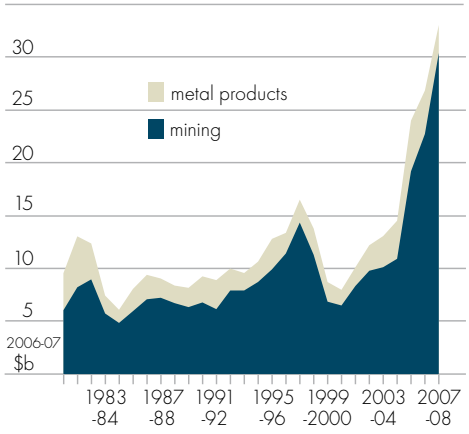
capital expenditure

Data from the Australian Bureau of Statistics survey of new capital expenditure in the mining and metal products industries give an indication, in aggregate terms, of the pace and scale of development in the minerals and energy sector, both historically and in the short term (figure B).

ABS survey data show that new capital expenditure in the mining industry was $18.6 billion in 2005-06, 80 per cent higher than in 2004-05. In real terms (2006-07 dollars), new capital expenditure in 2005-06 was more than double the average annual expenditure for the past 25 years ($8.6 billion).

There are indications that capital expenditure in the mining sector may increase rapidly in 2006-07 and again in 2007-08. Based on industry intentions canvassed in the March quarter 2007, ABS data indicate that capital expenditure on mining in 2006-07 may be just under $23 billion and over $30 billion in 2007-08. If the capital expenditure in 2006-07 and 2007-08 is realised, this would represent increases of 22 per cent and 61 per cent respectively from the record expenditure in 2005-06. The expected continued high level of capital expenditure in the mining industry in the near future is consistent with the development trends shown in the full list of major mineral and energy projects (see map 1).

fig B **new capital expenditure**



Capital expenditure in the metals products sector, which includes the minerals processing activities covered in ABARE's projects list, was $4.8 billion in 2005-06, 41 per cent above expenditure in 2004-05. Paralleling the result in mining, real expenditure in the metal products sector in 2005-06 is the highest on record and more than double the 25 year annual average of $2.5 billion (in 2006-07 dollars). However, surveyed industry intentions suggest that metal products expenditure could fall in 2006-07 to about $4.1 billion and $3.2 billion in 2007-08. The possible decreases in metal products capital expenditure reflect the imminent completion of some large projects and the lack of commitment to any large metal processing projects in the past twelve months.

recently commissioned projects

In the six months ended April 2007, 23 major minerals and energy projects, with a total capital expenditure of $3.36 billion, were completed. The completion of these projects will result in increased production and export capacity for a range of commodities, including coal, natural gas, bauxite, base metals, gold, iron ore, mineral sands and nickel. A summary of these projects is provided in table 1.

The total number of projects completed in the six months ended April 2007 was one less than for the six months ended October 2006 and just below the record number (27)

completed in the six months to April 2006 (table 2, figure C). However, the total capital cost was significantly less than in the six months ended April 2006 and October 2006. The average value of projects completed in the six month period to April 2007 was $144 million, down from the historical nominal average over the past nine years of around $234 million.

Looking ahead, ABARE's project list indicates that the rate of project completions is likely to increase in the short term, with over 45 advanced projects scheduled for completion in the second half of 2007. However, there is the possibility that some of these projects will not meet announced scheduled completion dates or cost budgets, reflecting strong industrywide competition for skilled labour and equipment. In addition, progress on a number of projects has been hampered by unfavourable weather conditions, particularly in Western Australia.

1 major mineral resource developments – projects completed, october to april 2007

commodity	project	location	company	capital expenditure $m
mining – energy projects				
black coal	Ashton longwall	NSW	Felix Resources/Itochu/IMC Pan Asia	150
	Boggabri opencut	NSW	Idemitsu Kosan	35
	Newpac longwall	NSW	Resource Pacific	75
	Tarawonga opencut	NSW	Whitehaven Mining/Idemitsu	38
	Wilpinjong opencut	NSW	Peabody	123
	Curragh North	QLD	Wesfarmers	360
	Ensham Central dragline	QLD	Ensham Resources	100
	Isaac Plains	QLD	Aquila/CVRD	66
	Kogan Creek opencut	QLD	C S Energy	80
	New Acland opencut	QLD	New Hope Corporation	60
	Poitrel	QLD	BHP Billiton/Mitsui	330
	Wilkie Creek (washplant upgrade)	QLD	Peabody Surat	15
petroleum	Goodwyn A Low Pressure Train	WA	Woodside Energy	326
infrastructure – energy projects				
	Kooragang Island coal terminal expansion	NSW	Port Waratah Coal Services	170
	Dampier–Bunbury gas pipeline (Stage 4)	WA	DBP	433
mining – minerals projects				
bauxite	Weipa bauxite mine expansion	QLD	Rio Tinto	156
	Ely bauxite mining project	QLD	Alcan/ Rio Tinto	0
copper	Northern 3500 underground orebody	QLD	Xstrata	38
gold	Charters Towers (Warrior deposit)	QLD	Citigold Corporation	50
	Laverton redevelopment	WA	Crescent Gold	15
iron ore	Tom Price/Marandoo/ Nammuldi mine	WA	Rio Tinto	382
lead–zinc–silver	Lennard Shelf	WA	Teck Cominco/Xstrata	28
mineral sands	Douglas	Vic	Iluka Resources	284