



Mining in Australia

2011 – 2026



EXTRACT TO INDICATE THE GENERAL NATURE OF THE REPORT

INFRASTRUCTURE AND MINING

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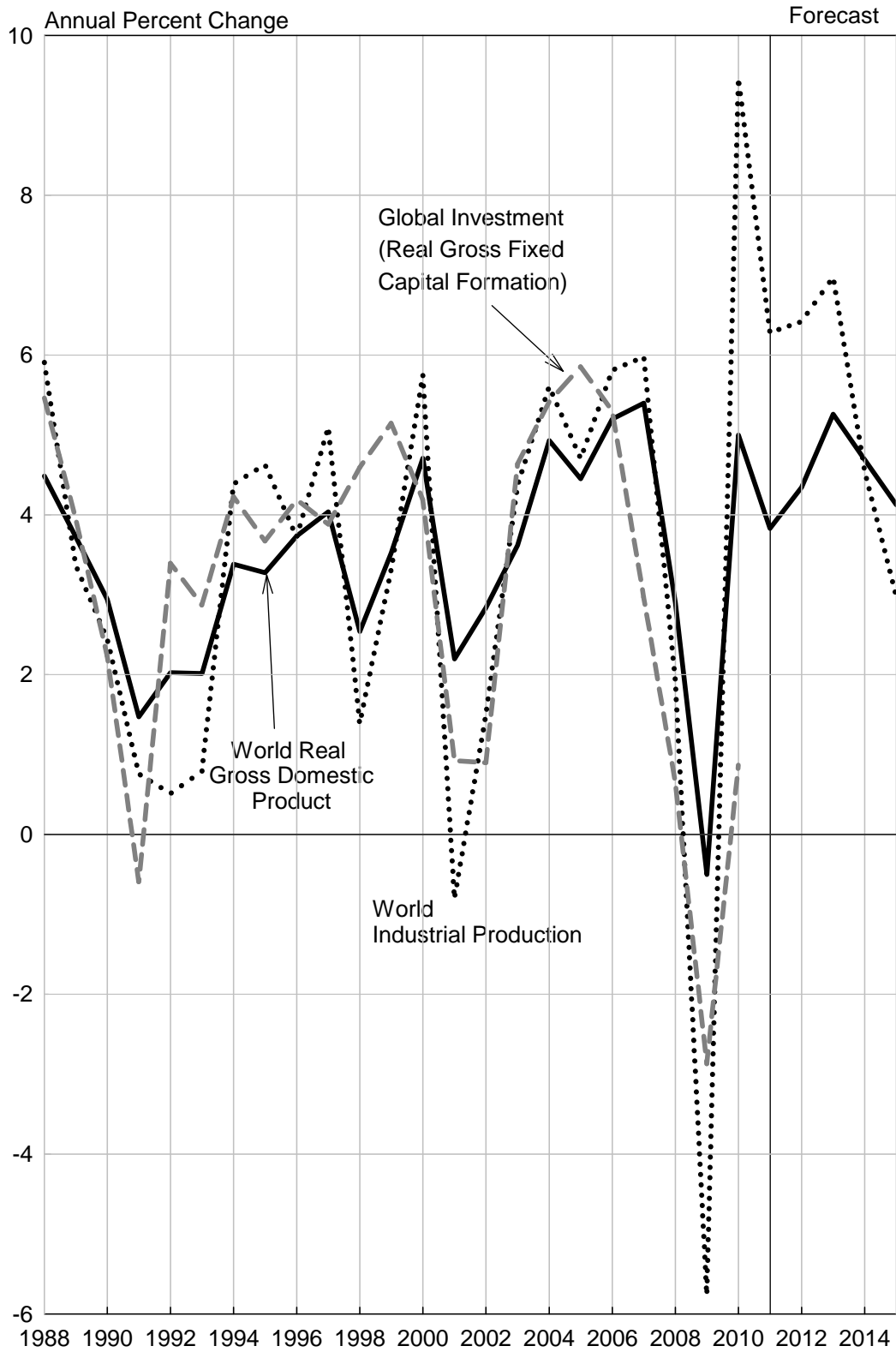
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Chart 1.1: World Economic Growth, Industrial Production and Investment Expenditure



Year Ended December

Source: BIS Shrapnel, ABS

By 2012/13 we anticipate these drivers will see inventory levels hover below 5%. By 2015/16, we expect zinc prices to have recovered more than 95% from the trough of 2008/09.

Zinc is predominantly used in galvanised steel as an anti-corrosive coating, with around 70 per cent of zinc consumed in the building and construction and automotive sectors. With this in mind, the ongoing construction boom in China will underpin strong demand going forward. We expect inventory levels to remain relatively tight, and accordingly the price remaining high, over the foreseeable future. The extent to which the price grows will predominantly be affected by new projects coming on-stream, increasing global supply.

7.4 Mining investment

Investment reached historic lows in 2010/11, recovering in 2011/12

Due to the fundamental oversupply in the early years of this decade, prices for lead and zinc fell to unsustainable lows, resulting in the closure of a significant amount of global capacity and discouraging new exploration and investment. When added to a robust global economy and strong Chinese demand for base metals, the excess supply was quickly soaked up, with stocks levels falling rapidly and prices rising fast over the two years to 2007/08.

With the deterioration of the global economy in 2009, prices for these commodities rapidly fell to historical lows. Meanwhile, increased production capacity, which had been due to come on-stream in this period, was either sitting idle or operating well below its maximum capacity limiting new investment.

Mining investment fell from \$1.1 billion in 1998/99 to around \$197 million by 2003/04 (in constant 2008/09 prices). With prices rising rapidly thereafter, investment reached a high of \$943 million in 2006/07.

However once again, the global financial crisis stifled confidence and investment hit an all time low of \$165 million in 2009/10. With prices also at historic lows in 2009/10, much investment and capital expenditure was delayed. Currently, total investment has rebounded to just less than \$700 million with buildings and structures investment increasing five times and plant and equipment rising fourfold year on year.

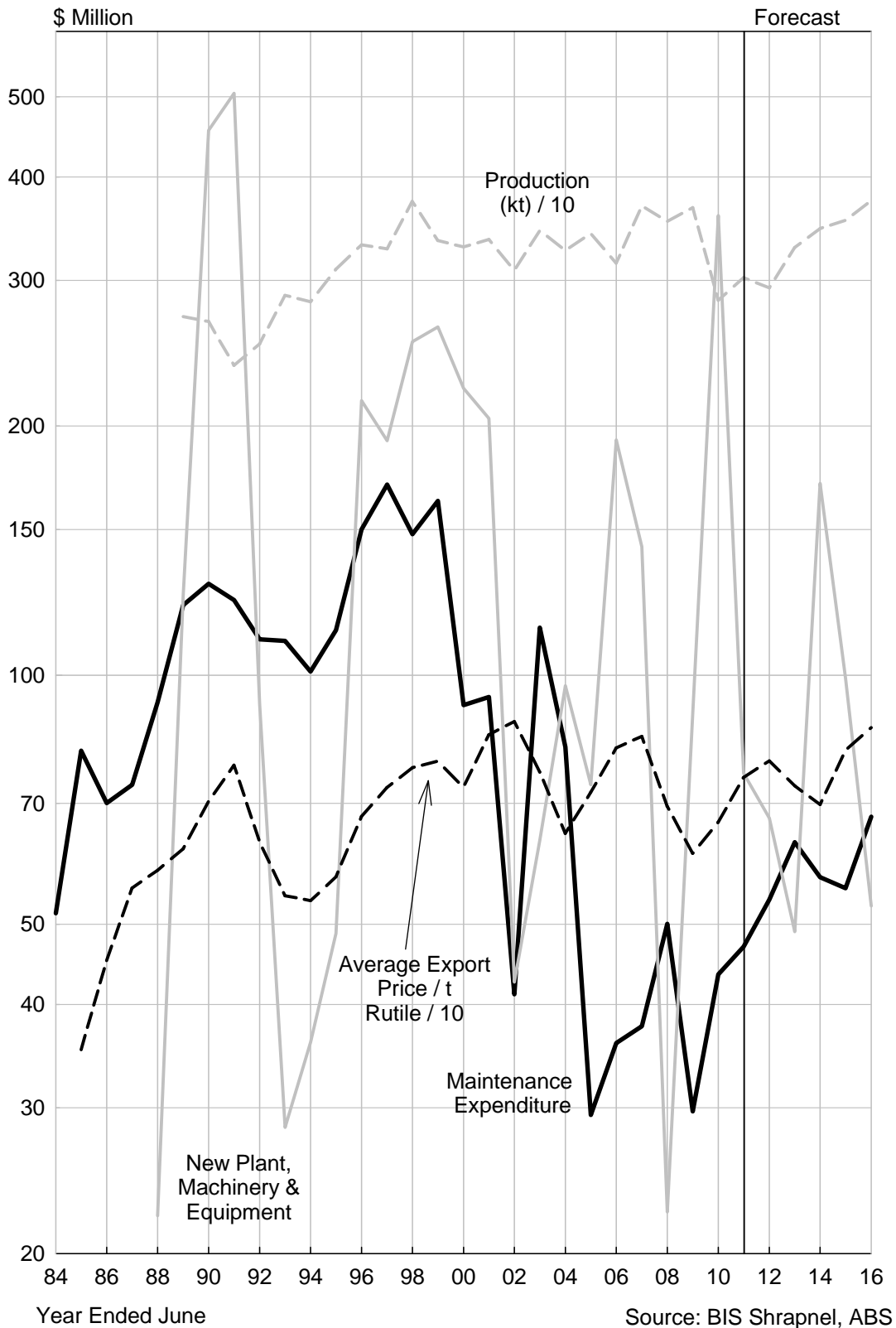
We estimate investment remained above \$650 million in 2010/11, with investment ramping up in 2013/14 to over a \$1.1 billion encouraged by high prices and increasing demand from a recovering economy. By 2015/16, we predict investments will ease slightly to \$930 million. Our forecasted investment numbers are significantly larger than the five years leading to 2011 with an average investment of \$990 million compared with \$570 million between 2007-2011.

Looking ahead, the recent pick-up of exploration activity will provide a modest boost to investment. However, we do not expect this boost to be realised within the next five years and is more likely to result in a boom towards the middle of the next decade.

7.5 Exploration

Up until 2006, silver lead zinc exploration investment declined from \$75 million in 2000 to \$39 million in 2005. With sharply improving prices in 2007, exploration expenditure doubled increasing to \$189 million in 2007/08. Despite the incredible run, the downturn saw exploration decline to \$52 million in 2009/10.

Chart 8.3: Mineral Sands Mining – Maintenance and Indicators
 \$ Million, 2008/09 Prices



9.6.2 Uranium (U₃O₈)

Uranium production has been highly volatile over the past decade. Fluctuating production volumes have been recorded due to varying ore grades recovered at Australia's three uranium mines and equipment or processing failures at one or more of the mines. The Beverly mine produced somewhat higher volumes in 2010/11 as ore grades improved, and Olympic Dam production improved following severe equipment damage late in 2009 that affected 2009/10 production. However Ranger continued to struggle with both poor ore grades and production was also affected by the suspension of processing operations because of exceptionally high rainfall in the first half of 2011. Overall, production of uranium oxide improved by a relatively weak 3.2 per cent and, at less than 7400 tonnes, was the second lowest production level recorded since 1999/2000.

In 2011/12 production levels are forecast to increase by around 15 per cent to 8484 tonnes. Provided mines can avoid further disruptions, production is expected to continue to rise reaching almost 16,000 tonnes in 2015/16 as existing mines bring production back to capacity and a number of new mines and processing facilities are completed. Capacity will also increase with the upgrade of processing equipment at the Ranger mine in the Northern Territory expected to be completed during 2013, before the Ranger deposit is mined out (expected to be around 2015).

With the Federal Government scrapping the three mine policy, it is now politically feasible for state governments to approve new uranium mines and South Australia has been the first to capitalise on this, approving its third and Australia's fourth uranium mine — Honeymoon, which is expected to commence production during 2011/12. The Western Australian government has also lifted bans on uranium mining though no new mines have yet been approved (Toro Energy's Wiluna project is the most advanced with the company aiming to begin construction late in 2012). Queensland has yet to lift its ban on uranium mining but this is expected to occur relatively soon. With new mines commencing, production is expected to continue to rise over the medium term before the completion of expansions of the Olympic Dam mine are completed around 2021 approximately doubling Australia's uranium production capacity.

9.6.3 Bauxite

Bauxite is a key component of aluminium (after being refined into alumina) with demand determined by world industrial production. The demand for bauxite is therefore derived from additions to alumina and aluminium capacity in Australia. Demand for bauxite is expected to remain strong, as a couple of Australia's major alumina refining operations (Worsley and Yarwun) are expected to complete expansions in the next 18 months. While there are also possible greenfield alumina developments slated, we believe it is unlikely new alumina or aluminium refining capacity will be developed in Australia in the near term given our already relatively high electricity prices and the likelihood that prices will rise further.

Over the next five years, bauxite production is expected to increase by around 20 per cent, to approximately 80 Mt as the South of Embley project is developed. Further small-scale expansions at existing mines are forecast to bring capacity to around 100 Mt over the medium term.

**Table 9.6: Maintenance Activity
Other Metal Ores Mining**

Year Ended June	Total Maintenance				Contract Proportion %	Contract Maintenance			
	Current Prices \$m A%Ch		Constant 08/09 Prices \$m A%Ch			Current Prices \$m A%Ch		Constant 08/09 Prices \$m A%Ch	
1979	37		165						
1980	45	21.3	182	10.0					
1981	61	36.2	221	21.8					
1982	71	16.3	228	3.1					
1983	89	25.2	250	9.9					
1984	91	3.0	247	-1.2					
1985	80	-12.8	202	-18.4					
1986	86	7.5	197	-2.6					
1987	64	-25.2	136	-30.7					
1988	61	-4.6	121	-10.9					
1989	57	-7.4	105	-13.7					
1990	77	35.7	133	26.8					
1991	79	3.4	135	1.4					
1992	67	-15.1	120	-10.7					
1993	84	25.2	155	28.7	25.0	21		39	
1994	106	25.8	193	24.6	26.0	28	30.8	50	29.6
1995	81	-23.7	142	-26.6	27.0	22	-20.8	38	-23.8
1996	113	39.3	191	35.0	29.0	33	49.6	55	45.0
1997	148	30.9	248	29.7	31.0	46	39.9	77	38.7
1998	147	-0.3	239	-3.5	32.0	47	3.0	77	-0.4
1999	101	-31.2	160	-33.0	33.0	33	-29.0	53	-30.9
2000	162	60.1	245	53.0	35.0	57	69.8	86	62.3
2001	197	21.6	290	18.2	36.0	71	25.0	104	21.6
2002	184	-6.9	263	-9.2	38.0	70	-1.7	100	-4.2
2003	112	-39.1	156	-40.7	41.3	46	-33.9	64	-35.6
2004	142	26.9	184	17.9	46.0	65	41.5	85	31.5
2005	168	18.2	202	9.9	52.6	88	35.3	107	25.7
2006	192	14.5	219	8.1	55.0	106	19.6	120	13.0
2007	248	29.1	260	19.0	53.0	131	24.4	138	14.7
2008	365	47.3	365	40.2	48.0	175	33.4	175	27.0
2009	250	-31.7	250	-31.7	43.0	107	-38.8	107	-38.8
2010	158	-36.8	162	-35.2	42.5	67	-37.6	69	-35.9
2011e	170	8.1	169	4.4	41.0	70	4.2	69	0.7
Forecasts									
2012	172	1.2	163	-3.6	41.0	71	1.2	67	-3.6
2013	169	-1.7	151	-7.1	40.5	69	-2.9	61	-8.2
2014	201	18.9	169	11.9	41.0	83	20.4	69	13.3
2015	245	21.5	198	17.2	41.5	102	23.0	82	18.6
2016	307	25.4	244	23.1	42.5	131	28.5	104	26.1
Five Year Averages									
2002-2006	159		205		46.6	75		95	
2007-2011	238		241		45.5	110		112	
Forecasts									
2012-2016	219		185		41.3	91		77	
2017-2021	274		214		44.0	94		74	
2022-2026	373		259		46.0	119		83	



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