Coal extraction data

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Climate Mitigation Services
File started: 11 January 2005
Last modified: July 2020

BHP, Australia

www.bhp.com Melbourne

yellow column indicates original reported units

Production / Extraction data

Year	Steam coal		Metallurgical Coal		Total Coal	
	Gross production	Gross production	Gross production	Gross production	Gross production	Gross production
	Mill. **long** tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr	Mill. **long** tons/yr	Million tonnes/yr
1950						2.4
1951						2.6
1952						3.1
1953						3.2
1954						3.4
1955	2.38	2.42				3.6
1956	2.52	2.56				3.7
1957	3.01	3.06				4.2
1958	3.17	3.22				4.4
1959	3.37	3.42				4.8
1960	3.53	3.59				5.4
1961	3.61	3.67				6.0
1962	4.17	4.24				6.0
1963	4.36	4.43				6.2
1964	4.72	4.80				6.8
1965	5.33	5.42				6.9
1966	5.95	6.05				6.0
1967	5.92	6.01				7.1
1968	6.10	6.20				6.9
1969	6.72	6.83				7.2
1970	7.10	7.21				6.5
1971	7.14	7.25				8.4
1972	6.16	6.26				9.0
1973	7.38	7.50				9.7
1974		6.89				8.6
1975		7.17				7.2
1976		6.31				9.0
1977		6.56				11.0
1978		6.33				12.5
1979		7.03				17.8
1980		5.81				34.9
1981		7.38				39.8
1982		9.2				39.5
1983		10.3				36.8
1984		9.2				39.5
1985		25.6				38.6
1986		30.2				43.1
1987		27.8				47.4
1988		27.5				53.8
1989		30.8				56.4
1990		31.0				62.1
1991		32.5				48.4
1992		33.8				51.3
1993		37.3				55.9
1994		36.8				90.2
1995		39.6				124.5
1996		22.9				126.7
1997		24.4				115.3
1998		26.5				118.0
1999		60.2				124.1
2000		93.9				124.7
2001		89.2				121.4
2002		79.9				125.5
2003		82.9				116.1
2004		87.4				102.8
2005		87.4				103.5
2006		85.8				102.2
2007		87.0				104.3
2008		80.9				110.5
2009		66.4				80.7
2010		66.1				83.6
2011		69.5				77.1
2012		71.1				69.5
2013		72.9				71.8
2014		43.1				
2015		41.0				
2016		34.2				
2017		29.6				
2018		29.2				
Total		**1,960**		**1,039**		**2,940**

1 long ton 1.016 t

SI or English units?

Imperial tons	tonnes
2.38	2.42
2.52	2.56
3.01	3.06
3.17	3.22
3.37	3.42
3.53	3.59
3.61	3.67
4.17	4.24
4.36	4.43
4.72	4.80
5.33	5.42
5.95	6.05
5.92	6.01
6.10	6.20
6.72	6.83
7.10	7.21
7.14	7.25
6.16	6.26
7.38	7.50

BHP

Incorporated in 1885

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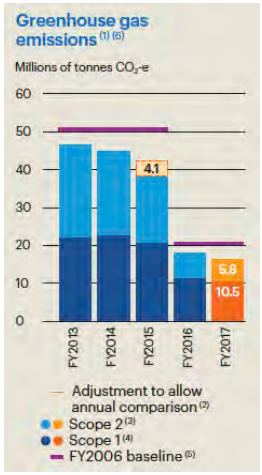
BHP Annual Report 1980, page 39.

Energy coal Mt	Coking coal Mt	
-	6.94	revised data, July 2019
-	6.00	
-	7.15	
0.05	6.89	
0.07	7.17	
0.19	6.31	
1.80	6.56	
2.72	6.33	
2.71	7.03	
2.75	5.81	
	1.4	
	1.6	
	1.8	
	2.2	
	8.6	
	9.3	
	9.6	
	11.7	
	9.4	
no data met. coal	8.8	
1991-1995	7.6	
interpolated	10.6	
interpolated	13.6	
interpolated	16.6	
interpolated	19.6	
interpolated	22.5	
	25.5	revised data, July 2019
	26.9	
	29.4	
interpolated	30.0	
	30.6	
	37.5	
	35.4	
	35.1	
	36.7	
	37.3	
	35.6	
	38.4	
	35.2	
	36.4	
	37.4	
	32.7	
	33.2	
	37.7	
	37.6	
	42.6	
	42.8	
BHP AnnRpt 2017	39.9	BHP AnnRpt 2017
BHP OpsData 2018	42.6	BHP OpsData 2018



BHP AnnRpt 2017, page 23.

BHP share of production (7) Year ended 30 June

Coal	2017	2016	2015
Metallurgical coal			
Production ('000 tonnes) (8)			
Blackwater, Australia	7,296	7,626	6,994
Goonyella Riverside, Australia	7,355	8,996	8,510
Peak Downs, Australia	6,055	5,031	5,111
Saraji, Australia	4,734	4,206	4,506
Gregory Joint Venture, Australia	-	1,329	3,294
Daunia, Australia	2,560	2,624	2,383
Caval Ridge, Australia	3,458	3,601	3,064
Total BHP Billiton Mitsubishi Alliance	31,458	33,413	33,862
South Walker Creek, Australia (10)	5,123	5,436	5,293
Poitrel, Australia (10)	3,189	3,462	3,466
Total BHP Billiton Mitsui Coal	8,312	8,898	8,759
Total Queensland Coal	39,770	42,311	42,621
IndoMet, Haju, Indonesia (11)	129	529	-
Total metallurgical coal	39,899	42,840	42,621
Energy coal			
Production ('000 tonnes)			
Navajo, United States (13)	451	3,999	4,858
San Juan, United States	-	3,053	5,165
Total New Mexico Coal	451	7,052	10,023
New South Wales Energy Coal, Australia	18,176	17,101	19,698
Cerrejón, Colombia (4)	10,959	10,094	11,291
Total energy coal	29,586	34,247	41,012

BHP AnnRpt 2017, page 245.
See below for reserves, heating value, etc.

Coal Types:

(1980-2018 only)

Thermal	65.27%	Metallurgical	34.73%	Total	100.00%
	1,826		972		2,798

2.3.2 Minerals continued

	BHP Billiton Group interest %	BHP Billiton Group share of production Year ended 30 June 2013	2012	2011
Iron Ore Business				
WAIO [2]				
Production ('000 tonnes)				
Newman, Australia [4]	85	**52,997**	51,326	45,245
Mt Goldsworthy Joint Venture – Yarrie, Australia	85	**1,106**	768	1,198
Mt Goldsworthy Joint Venture – Area C, Australia	85	**44,717**	42,425	39,794
Yandi Joint Venture, Australia	85	**60,054**	53,536	36,460
Total WAIO		**158,874**	148,055	122,697
Samarco, Brazil	50	**10,982**	11,423	11,709
Total iron ore		**169,856**	159,478	134,406
Coal Business				
Metallurgical coal				
Production ('000 tonnes) [5]				
Blackwater, Australia	50	**5,432**	4,435	4,589
Goonyella Riverside, Australia [6]	50	**6,221**	5,003	5,359
Peak Downs, Australia	50	**4,545**	3,534	3,402
Saraji, Australia	50	**3,449**	3,053	2,779
Norwich Park, Australia [7]	50	**–**	1,175	1,055
Gregory joint venture, Australia [8]	50	**2,523**	1,411	2,717
Daunia, Australia [9]	50	**475**	–	–
Total BMA		**22,645**	18,611	19,901
South Walker Creek, Australia	80	**4,351**	4,081	3,134
Poitrel, Australia	80	**2,712**	2,612	2,759
Total BHP Billiton Mitsui Coal [10]		**7,063**	6,693	5,893
Total Queensland Coal		**29,708**	25,304	25,794
Illawarra Coal, Australia	100	**7,942**	7,926	6,884
Total metallurgical coal		**37,650**	33,230	32,678
Energy coal				
Production ('000 tonnes)				
Navajo, United States	100	**6,544**	7,004	7,472
San Juan, United States	100	**6,694**	2,408	4,140
Total New Mexico Coal	100	**13,238**	9,412	11,612
Middelburg/Wolvekrans, South Africa	90	**14,669**	14,848	14,328
Khutala, South Africa	90	**9,554**	10,863	12,928
Klipspruit, South Africa	90	**7,404**	7,568	7,072
Total Energy Coal South Africa [11]	100	**31,627**	33,279	34,328
Mt Arthur Coal, Australia	100	**18,010**	16,757	13,671
Cerrejón, Colombia	33.3	**10,017**	11,663	9,889
Total energy coal		**72,892**	71,111	69,500

BHP Billiton AnnRpt 2013.

Coal

Ref	Country	Asset	Description	Ownership
18	South Africa	Energy Coal South Africa	Open-cut and underground energy coal mines and processing operations	50–100%
19	Australia	New South Wales Energy Coal	Open-cut energy coal mine and coal preparation plant in New South Wales	100%
20	US	New Mexico Coal	Two energy coal mines in New Mexico	100%
21	Colombia	Cerrejón [b]	Open-cut energy coal mine with integrated rail and port operations	33.3%
22	Australia	BHP Billiton Mitsubishi Alliance	Open-cut and underground metallurgical coal mines in the Queensland Bowen Basin and Hay Point Coal terminal	50%
23	Australia	BHP Billiton Mitsui Coal	Two open-cut metallurgical coal mines in the Bowen Basin, Central Queensland	80%
24	Australia	Illawarra Coal	Underground metallurgical coal mines in southern New South Wales, with access to rail and port facilities	100%

BHP AnnRpt 2013.

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	BHP Billiton Group interest %	BHP Billiton Group share of production [3] Year ended 30 June 2016	2015	2014
Molybdenum				
Payable metal in concentrate (tonnes)				
Antamina, Peru [4]	33.75	**1,113**	472	1,201
Total molybdenum		**1,113**	472	1,201
Iron ore				
Western Australia Iron Ore				
Production ('000 tonnes) [5]				
Newman, Australia	85	**65,941**	63,697	56,915
Yarrie, Australia [6]	85	**–**	–	836
Area C Joint Venture, Australia	85	**46,790**	49,994	46,960
Yandi Joint Venture, Australia	85	**67,375**	68,551	68,518
Jimblebar, Australia [6]	85	**18,800**	16,759	8,863
Wheelarra, Australia [7][8]	85	**22,549**	18,994	10,553
Total Western Australia Iron Ore		**221,554**	217,995	192,645
Samarco, Brazil [4]	50	**5,404**	14,513	10,919
Total iron ore		**226,958**	232,508	203,564
Coal				
Metallurgical coal				
Production ('000 tonnes) [11]				
Blackwater, Australia	50	**7,626**	6,994	6,730
Goonyella Riverside, Australia	50	**8,096**	8,510	7,330
Peak Downs, Australia	50	**5,031**	5,111	4,909
Saraji, Australia	50	**4,206**	4,506	4,558
Gregory Joint Venture, Australia	50	**1,329**	3,294	2,965
Daunia, Australia	50	**2,624**	2,383	2,201
Caval Ridge, Australia [12]	50	**3,001**	3,064	563
Total BHP Billiton Mitsubishi Alliance		**33,413**	33,862	29,256
South Walker Creek, Australia [13]	80	**5,436**	5,293	5,246
Poitrel, Australia [13]	80	**3,462**	3,466	3,063
Total BHP Billiton Mitsui Coal		**8,898**	8,759	8,309
Total Queensland Coal		**42,311**	42,621	37,565
IndoMet, Haju, Indonesia	100	**529**	–	–
Total metallurgical coal		**42,840**	42,621	37,565
Energy coal				
Production ('000 tonnes)				
Navajo, United States [14]	100	**3,999**	4,858	5,127
San Juan, United States	100	**3,053**	5,165	5,685
Total New Mexico Coal		**7,052**	10,023	10,812
New South Wales Energy Coal, Australia	100	**17,101**	19,698	19,064
Cerrejón, Colombia [4]	33.3	**10,094**	11,291	12,332
Total energy coal		**34,247**	41,012	43,108

BHP 20-F 2016, page 263

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BHP 2016.

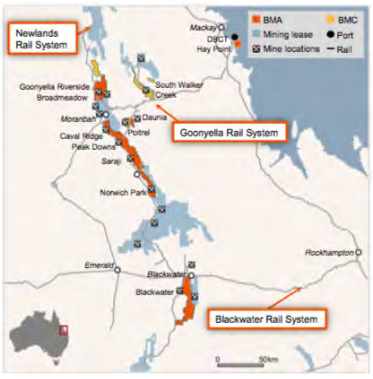
Table 5: Specifications of leading export thermal coals, Jonker, page 9.

Parameter	Unit	Basis	Hunter Valley	Bilga	Ensham	Newlands	Optimum	Prima	El Cerrejon
	Company»		Rio Tinto	Glencore	Idemitsu	M.I.M.	Ingwe	Kaltim Prima	Intercor
	Supply source		NSW	NSW	QLD	QLD	RSA	Indonesia	Colombia
T.M.	%	a.r.	9.0	9.0	10.0	8.3	8.0	9.5	11.8
I.M.	%	a.d.	2.5	2.5	4.0	2.3	3.8	5.0	8.5
Ash	%	a.d.	13.5	12.0	11.0	14.5	10.3	4.0	10.3
V.M.	%	a.d.	33.5	34.0	26.5	26.3	30.5	39.0	33.5
F.C.	%	a.d.	50.5	52.5	58.5	56.9	55.4	52.0	47.7
S	%	a.d.	0.55	0.60	0.60	0.45	0.55	0.57	0.81
N	%	dry	1.85	1.80	1.80	1.74	1.70	1.50	1.69
Cl_2	%	dry	0.03	0.02	0.06	0.02	0.005	<0.01	0.002
HGI			>50	48	57	53	44	48	51
Fuel Ratio	F.C./V.M		1.5	1.5	2.2	2.2	1.8	1.3	1.4
Specific Energy	kcal/kg	a.d.	6800	7000	6900	6800	6860	7100	6515
	kcal/kg	g.a.r.	6350	6530	6470	6382	6560	6800	6280
AFT def.	°C		1450	1300	1350	1550	1400	1200	1220

Jonker, Chris (2001) "Greenhouse Gas, Australian Coal Supply and Rising Import Demand A Contradiction or an Opportunity?" 24-25Sep01, Director, Barlow Jonker Pty Ltd At: EU-Australia Conference, Aachen, Germany, 13 pp.

State of New South Wales / Minerals and Petroleum:
www.dpi.nsw.gov.au/minerals/resources/coal/coal-industry
The major coal deposits in NSW range in rank from bituminous coking and thermal coals to sub-bituminous thermal coals. The quality of thermal coals ranges from medium- to high-ash, low-sulphur coal used for domestic power generation and cement manufacture; - to low- to medium ash, high-energy, export quality coal. Prime, low-volatile, hard coking coal and low-ash, semi-soft coking coal, used for iron and steel production, supply both the export and domestic markets.

Queensland



Hunter Valley, NSW

Correjon, Colombia

BHP Billiton (2016) Coal: The path to improve returns 21 June 2016, Mike Henry President Operations, Minerals Australia, 24 pp.

Coal reserves and resources, calorific values, mining method, ash content, S, etc.

Energy Coal

Coal Resources

As at 30 June 2017

Commodity Deposit [1] [2]	Mining Method	Coal Type	Measured Resources Mt	%Ash	%VM	%S	KCal/kg CV	Indicated Resources Mt	%Ash	%VM	%S	KCal/kg CV
Energy Coal Operations Australia												
Mt Arthur Coal [3]	OC	Th	897	20.9	30.4	0.68	6,060	1,299	19.5	30.2	0.66	6,120
Colombia												
Cerrejón [4]	OC	Th	2,711	3.8	34.9	0.52	6,560	1,196	3.7	34.8	0.51	6,580
Energy Coal Project Australia												
Togara South	UG	Th	719	12.1	29.6	0.31	6,700	177	13.5	28.9	0.31	6,500

Coal Reserves

As at 30 June 2017

Commodity Deposit [5] [6] [7]	Mining Method	Coal Type	Proved Reserves Mt	Probable Reserves Mt	Total Reserves Mt	Proved Marketable Reserves Mt	%Ash	%VM	%S	KCal/kg CV	Probable Marketable Reserves Mt	%Ash	%VM	%S	KCal/kg CV
Energy Coal Operations Australia															
Mt Arthur Coal [8] [9]	OC	Th	474	415	889	377	17.7	31.3	0.57	6,230	323	17.3	30.8	0.53	6,240
Colombia															
Cerrejón [10] [11]	OC	Th	473	71	544	459	9.3	32.7	0.58	6,070	69	9.0	32.7	0.55	6,090

(1) Cut-off criteria:

Deposit	Coal Resources	Coal Reserves
Mt Arthur Coal	≥ 0.3m seam thickness and 35% raw ash content	≥ 0.3m seam thickness, ≤ 26.5% ash, ≥ 40% coal washery yield
Cerrejón	≥ 0.65m seam thickness	≥ 0.65m seam thickness
Togara South	≥ 1.5m seam thickness	–

(2) Qualities are reported on an air-dried in situ basis. Tonnages are reported as in situ for Mt Arthur Coal and Togara South, and on a total moisture basis for Cerrejón.
(3) Mt Arthur Coal – Coal Resources have decreased due to a revised resource estimate including changes in resource categories due to Drill Hole Spacing Analysis.
(4) Cerrejón – The Coal Resources are restricted to areas which have been identified for inclusion by BHP based on a risk assessment.
(5) Approximate drill hole spacings used to classify the reserves were:

Deposit	Proved Reserves	Probable Reserves
Mt Arthur Coal	200m to 800m	400m to 1,550m
Cerrejón	> 6 drill holes per 100ha	2 to 6 drill holes per 100ha

(6) Overall product recoveries for the operations were:

Deposit	Product Recovery
Mt Arthur Coal	77%
Cerrejón	98%

(7) Total Coal Reserves were at the moisture content when mined (8.7% Mt Arthur Coal; 13% Cerrejón). Total Marketable Reserves were at a product specific moisture content (9.9% Mt Arthur Coal; 13.1% Cerrejón) and at an air-dried quality basis, for sale after the beneficiation of the Total Reserves.
(8) Mt Arthur Coal – Coal is delivered to handling plant.
(9) Mt Arthur Coal – The Total Marketable Coal Reserves decreased due to an updated reserves model with a revised reserve footprint. The increase in Reserve Life was due to a decrease in nominated production rate from 32Mtpa to 28Mtpa.
(10) Cerrejón – Marketable Coal Reserves decreased due to geotechnical adjustment of pit slopes and lower product sales price. Reserve Life changed due to a decrease in nominated production rate from 38.3Mtpa to 32Mtpa and to reflect current permitting.
(11) Cerrejón – While there was no suspension of any Cerrejón permit as of 30 June 2017 in response to ongoing local community legal challenges, BHP continues to monitor the situation for potential impact on mining.

BHP AnnRpt 2017, page 245.

Coal Resources

As at 30 June 2017

Commodity Deposit [1] [2]	Inferred Resources Mt	%Ash	%VM	%S	KCal/kg CV	Total Resources Mt	%Ash	%VM	%S	KCal/kg CV	BHP Interest %
Energy Coal Operations Australia											
Mt Arthur Coal [3]	1,019	19.9	28.0	0.65	6,010	3,215	20.0	29.6	0.66	6,070	100
Colombia											
Cerrejón [4]	631	4.1	34.3	0.54	6,460	4,538	3.8	34.8	0.52	6,552	33.33
Energy Coal Project Australia											
Togara South	1,051	16.8	28.4	0.31	6,210	1,947	14.7	28.9	0.31	6,420	100

As at 30 June 2016

Commodity Deposit [1] [2]	Total Resources Mt	%Ash	%VM	%S	KCal/kg CV
Energy Coal Operations Australia					
Mt Arthur Coal [3]	3,652	21.6	29.1	0.61	6,070
Colombia					
Cerrejón [4]	4,532	3.9	34.8	0.52	6,570
Energy Coal Project Australia					
Togara South	1,947	14.7	28.9	0.31	6,420

Coal Reserves

As at 30 June 2017

Commodity Deposit [5] [6] [7]	Total Marketable Reserves Mt	%Ash	%VM	%S	KCal/kg CV	Reserve Life (years)	BHP Interest %
Energy Coal Operations Australia							
Mt Arthur Coal [8] [9]	700	17.5	31.0	0.55	6,240	32	100
Colombia							
Cerrejón [10] [11]	528	9.2	32.7	0.57	6,072	16	33.33

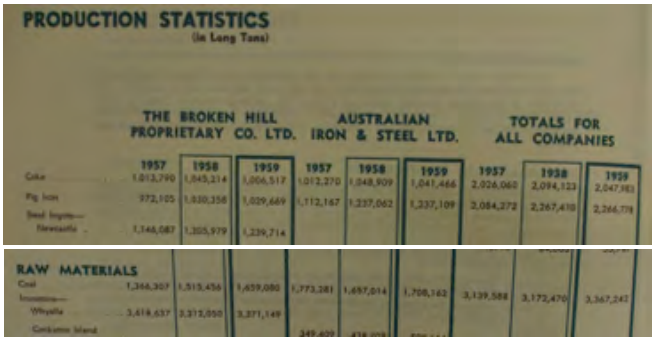
As at 30 June 2016

Commodity Deposit [5] [6] [7]	Total Marketable Reserves Mt	%Ash	%VM	%S	KCal/kg CV	Reserve Life (years)
Energy Coal Operations Australia						
Mt Arthur Coal [8] [9]	758	16.9	30.3	0.54	6,450	30
Colombia						
Cerrejón [10] [11]	599	8.7	32.8	0.58	6,090	16

BHP Annual Report 1980, page 39.

	Energy coal Mt	Coking coal Mt	Total Mt
1955			
1956			
1957	2.03	3.14	5.17
1958	2.09	3.17	5.26
1959	2.05	3.37	5.42
1960	2.19	3.53	5.72
1961	2.44	3.60	6.04
1962	2.81	4.17	6.99
1963	2.81	4.35	7.16
1964	2.97	4.72	7.69
1965	3.27	5.33	8.60
1966	3.31	5.95	9.26
1967	3.54	5.92	9.46
1968			
1969			
1970			
1971	6.94	-	6.94
1972	6.00	-	6.00
1973	7.15	-	7.15
1974	6.89	0.05	6.94
1975	7.17	0.07	7.24
1976	6.31	0.19	6.50
1977	6.56	1.80	8.36
1978	6.33	2.72	9.04
1979	7.03	2.71	9.74
1980	5.81	2.75	8.56
1981	7.38	4.19	11.57
1982	8.01	5.18	13.20
1983	7.40	4.98	12.38
1984	7.51	6.38	13.88
1985	23.70	16.70	erroneous?
1986			
1987	16.90	10.89	27.79
1988	16.59	10.87	27.47
1989	17.18	13.58	30.77
1990	18.37	14.65	33.02
1991	18.81	13.64	32.45
1992	21.43	12.33	33.76
1993			
1994			
1995			
1996	25.52	22.90	48.42
1997	26.91	24.42	51.33
1998	29.38	26.50	55.88
1999			

Note: Broken Hill Properties reports both "coke" and coal (under raw materials)
It is unclear whther the former refers to metallurgical coal production and the latter to thermal coal (esp since the BHP 1980 AnnRpt shows zero thermal coal production
Likely that the raw coal production is all used to process coke, hence not additive.

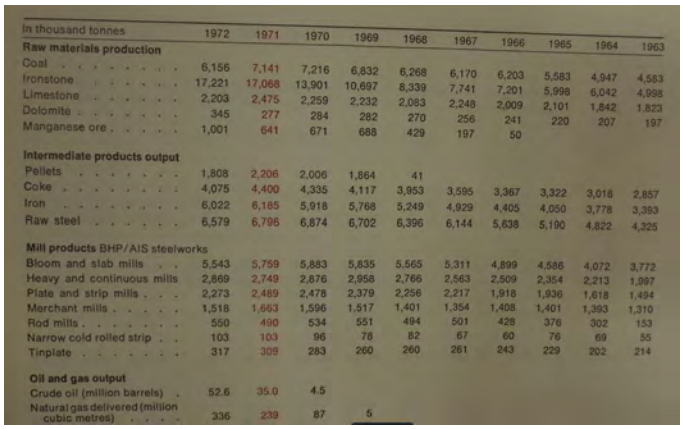

PRODUCTION STATISTICS
(In Long Tons)

	THE BROKEN HILL PROPRIETARY CO. LTD.			AUSTRALIAN IRON & STEEL LTD.			TOTALS FOR ALL COMPANIES		
	1957	1958	1959	1957	1958	1959	1957	1958	1959
Coke	1,013,790	1,045,214	1,006,517	1,012,270	1,048,909	1,041,466	2,026,060	2,094,123	2,047,983
Pig Iron	972,105	1,030,358	1,029,669	1,112,167	1,237,062	1,237,109	2,084,272	2,267,410	2,266,778
Steel Ingots— Newcastle	1,144,087	1,305,979	1,239,714						

RAW MATERIALS

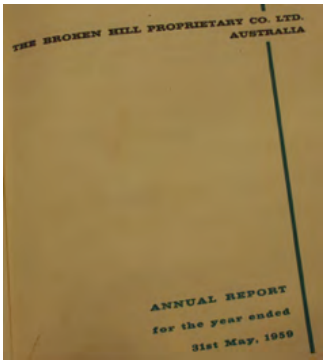
Coal	1,366,307	1,515,456	1,459,080	1,773,281	1,697,014	1,708,142	3,139,588	3,172,470	3,167,222
Ironstone— Whyalla	3,414,637	3,312,050	3,371,149						
Cockatoo Island				349,409	378,000				

Broken Hill Proprietary *Annual Report 1959*, coke & raw coal, 1957-1959, in Long Tons

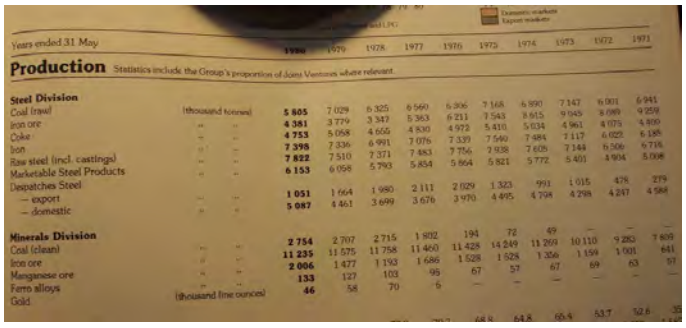


In thousand tonnes	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963
Raw materials production										
Coal	6,156	7,141	7,216	6,832	6,268	6,170	6,203	5,583	4,947	4,583
Ironstone	17,221	17,068	13,901	10,697	8,339	7,741	7,201	5,998	6,042	4,998
Limestone	2,203	2,475	2,259	2,232	2,083	2,248	2,009	2,101	1,842	1,823
Dolomite	345	277	284	282	270	256	241	220	207	197
Manganese ore	1,001	641	671	688	429	197	50			
Intermediate products output										
Pellets	1,808	2,206	2,006	1,864	41					
Coke	4,075	4,400	4,335	4,117	3,953	3,595	3,367	3,322	3,018	2,857
Iron	6,022	6,185	5,918	5,768	5,249	4,929	4,405	4,050	3,778	3,393
Raw steel	6,579	6,796	6,874	6,702	6,396	6,144	5,638	5,190	4,822	4,325
Mill products BHP/AIS steelworks										
Bloom and slab mills	5,543	5,759	5,883	5,835	5,565	5,311	4,899	4,586	4,072	3,772
Heavy and continuous mills	2,869	2,749	2,876	2,958	2,766	2,563	2,509	2,354	2,213	1,997
Plate and strip mills	2,273	2,489	2,478	2,379	2,256	2,217	1,918	1,936	1,618	1,494
Merchant mills	1,518	1,663	1,596	1,517	1,401	1,354	1,408	1,401	1,393	1,310
Rod mills	550	490	534	551	494	501	428	376	302	153
Narrow cold rolled strip	103	103	96	78	82	67	60	76	69	55
Tinplate	317	309	283	260	260	261	243	229	202	214
Oil and gas output										
Crude oil (million barrels)	52.6	35.0	4.5							
Natural gas delivered (million cubic metres)	336	239	87	5						

BHP Annual Report 1972.



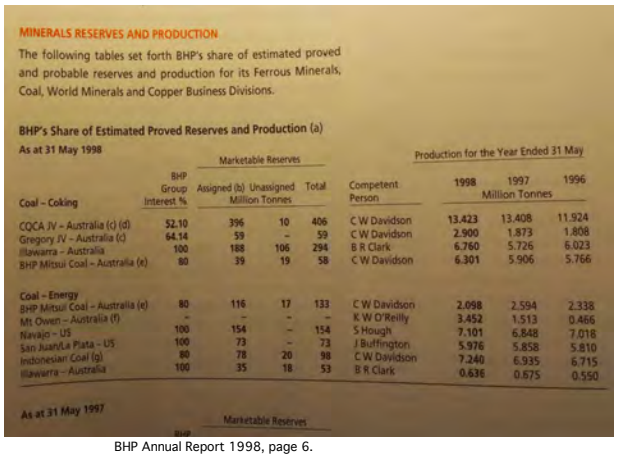
Broken Hill Properties AnnRpt 1959; Mitchell Library, Sydney


Years ended 31 May

Production Statistics include the Group's proportion of Joint Ventures where relevant.

		1980	1979	1978	1977	1976	1975	1974	1973	1972	1971
Steel Division											
Coal (raw)	(thousand tonnes)	5 805	7 029	6 325	6 560	6 306	7 168	6 890	7 147	6 901	6 941
Iron ore	" "	4 381	3 779	3 347	5 363	6 211	7 543	8 615	9 945	8 089	9 259
Coke	" "	4 753	5 058	4 655	4 830	4 972	5 410	5 034	4 961	4 075	4 899
Iron	" "	7 398	7 336	6 991	7 076	7 339	7 540	7 484	7 117	6 625	6 185
Raw steel (incl. castings)	" "	7 822	7 510	7 371	7 483	7 756	7 938	7 605	7 144	6 506	6 716
Marketable Steel Products	" "	6 153	6 058	5 793	5 854	5 864	5 821	5 772	5 401	4 904	5 098
Despatches Steel											
— export	" "	1 051	1 664	1 980	2 111	2 029	1 323	991	1 015	476	379
— domestic	" "	5 087	4 461	3 699	3 676	3 970	4 495	4 798	4 298	4 247	4 584
Minerals Division											
Coal (clean)	" "	2 754	2 707	2 715	1 892	194	72	49	—	—	—
Iron ore	" "	11 235	11 575	11 758	11 460	11 428	14 249	11 269	10 110	9 283	7 609
Manganese ore	" "	2 006	1 477	1 193	1 686	1 528	1 528	1 356	1 159	1 001	641
Ferro alloys	" "	133	127	103	96	67	57	67	89	63	57
Gold	(thousand fine ounces)	46	58	70	6	—	—	—	—	—	—

BHP Annual Report 1980, page 39.


MINERALS RESERVES AND PRODUCTION

The following tables set forth BHP's share of estimated proved and probable reserves and production for its Ferrous Minerals, Coal, World Minerals and Copper Business Divisions.

BHP's Share of Estimated Proved Reserves and Production (a)

As at 31 May 1998

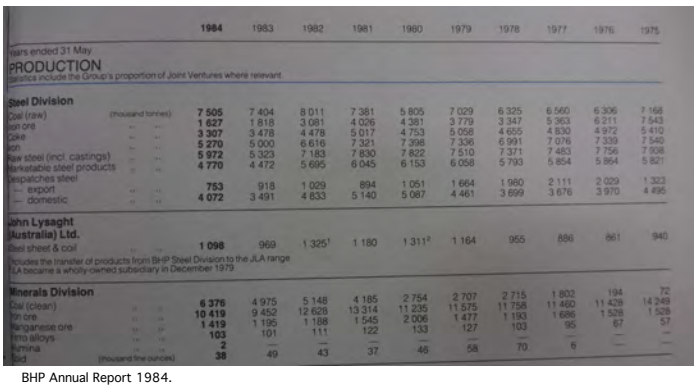
	BHP Group Interest %	Marketable Reserves Assigned (b) Million Tonnes	Unassigned Million Tonnes	Total	Competent Person	Production for the Year Ended 31 May 1998 Million Tonnes	1997 Million Tonnes	1996 Million Tonnes
Coal – Coking								
CQCA JV – Australia (c) (d)	52.10	396	10	406	C W Davidson	13.423	13.408	11.924
Gregory JV – Australia (c)	64.14	59	–	59	C W Davidson	2.900	1.873	1.808
Illawarra – Australia	100	188	106	294	B R Clark	6.760	5.726	6.023
BHP Mitsui Coal – Australia (e)	80	39	19	58	C W Davidson	6.301	5.906	5.766
Coal – Energy								
BHP Mitsui Coal – Australia (e)	80	116	17	133	C W Davidson	2.098	2.594	2.338
Mt Owen – Australia (f)	–	–	–	–	K W O'Reilly	3.452	1.513	0.466
Navajo – US	100	154	–	154	S Hough	7.101	6.848	7.018
San Juan/La Plata – US	100	73	–	73	J Buffington	5.976	5.858	5.810
Indonesian Coal (g)	80	78	20	98	C W Davidson	7.240	6.935	6.715
Illawarra – Australia	100	35	18	53	B R Clark	0.636	0.575	0.550

As at 31 May 1997

Marketable Reserves

BHP Annual Report 1998, page 6.

Images of BHP Annual Reports courtesy of Colette Rhoding, from Mitchell Library Sydney.


Years ended 31 May

PRODUCTION

Statistics include the Group's proportion of Joint Ventures where relevant.

		1984	1983	1982	1981	1980	1979	1978	1977	1976	1975
Steel Division											
Coal (raw)	(thousand tonnes)	7 505	7 404	8 011	7 381	5 805	7 029	6 325	6 560	6 306	7 168
Iron ore	" "	1 627	1 818	3 081	4 026	4 381	3 779	3 347	5 363	6 211	7 543
Coke	" "	3 307	3 478	4 478	5 017	4 753	5 058	4 655	4 830	4 972	5 410
Iron	" "	5 270	5 000	6 616	7 321	7 398	7 336	6 991	7 076	7 339	7 540
Raw steel (incl. castings)	" "	5 972	5 323	7 183	7 830	7 822	7 510	7 371	7 483	7 756	7 938
Marketable steel products	" "	4 770	4 472	5 695	6 045	6 153	6 058	5 793	5 854	5 864	5 821
Despatches steel											
— export	" "	753	918	1 029	894	1 051	1 664	1 980	2 111	2 029	1 323
— domestic	" "	4 072	3 491	4 833	5 140	5 087	4 461	3 699	3 676	3 970	4 495
John Lysaght (Australia) Ltd.											
Steel sheet & coil		1 098	969	1 325[1]	1 180	1 311[2]	1 164	955	886	861	940
[1] Includes the transfer of products from BHP Steel Division to the JLA range											
[2] JLA became a wholly-owned subsidiary in December 1979											
Minerals Division											
Coal (clean)	" "	6 376	4 975	5 148	4 185	2 754	2 707	2 715	1 802	194	72
Iron ore	" "	10 419	9 452	12 628	13 314	11 235	11 575	11 758	11 460	11 429	14 249
Manganese ore	" "	1 419	1 195	1 188	1 545	2 006	1 477	1 193	1 686	1 528	1 528
Ferro alloys	" "	103	101	111	122	133	127	103	95	67	57
Alumina	" "	2	—	—	—	—	—	—	—	—	—
Gold	(thousand fine ounces)	38	49	43	37	46	58	70	6	—	—

BHP Annual Report 1984.

Cell: H9
Comment: Richard Heede:
https://www.bhp.com/our-approach/our-history/Since 1851, we've been developing and contributing to industry, communities and economies around the world.
Formed from a merger between BHP and Billiton, we value our heritage and the strong foundations on which our company is built. From two small mining companies founded in the mid-1800s, we are now a world leader in the diversified resources industry.
Broken Hill Proprietary's rich history began in a silver, lead and zinc mine in Broken Hill, Australia. Incorporated in 1885, BHP engaged in the discovery, development, production and marketing of iron ore, copper, oil and gas, diamonds, silver, lead, zinc and a range of other natural resources. BHP was also a market leader in value-added flat steel products.
Billiton's roots trace back to 1851 and a tin mine on a little known island in Indonesia, Billiton (Belitung) island. Billiton became a global leader in the metals and mining sector and a major producer of aluminium and alumina, chrome and manganese ores and alloys, steaming coal, nickel and titanium minerals. Billiton also developed a substantial and growing copper portfolio.
https://en.wikipedia.org/wiki/BHP
On 22 February 2011, BHP Billiton announced that it had paid $4.75 billion in cash to Chesapeake Energy for its Fayetteville shale assets, which include 487,000 acres (1,970 km2) of mineral rights leases and 420 miles (680 km) of pipeline located in north central Arkansas. The wells on the mineral leases are currently producing about 415 million cubic feet of natural gas per day. BHP Billiton planned to spend $800 million to $1 billion a year over 10 years to develop the field and triple production.
On 14 July 2011, BHP Billiton announced that it would acquire Petrohawk Energy of the United States for approximately $12.1 billion in cash, considerably expanding its shale natural gas resources in an offer of $US38.75 per share.
In February 2017, BHP Billiton announced a $2.2 billion investment in the new BP platform in the Gulf of Mexico.
In May 2017, with much of the former Billiton assets having been disposed of, BHP Billiton began to rebrand itself as BHP, at first in Australia and then globally.
In August 2017, BHP announced that it would sell off its US shale oil and gas business.[80][81] In July 2018, the company agreed to sell its shale assets to BP for $10.5 billion. On 29 September 2018, BHP completed the sale of its Fayetteville Onshore US gas assets to a wholly owned subsidiary of Merit Energy Company.

Cell: D14
Comment: Rick Heede:
Australian companies reported in long tons until ~1970s (gradually converted to metric system starting in 1971, completed by 1982).
1 metric tonne = 2,204.6 lbs = 1.00209 long tons. l long ton is 2,200 lbs.

Cell: D18
Comment: Rick Heede:
CMS assumes that production reported in tons prior to 1972 are Imperial tons (2240 lb; 1016 kg), unless defined in the Annual Report.
The Metric Conversion Act was passed in 1970. National compliance was required by 1976, but many industries made the conversion years earlier.
www.measurement.gov.au
Unless specified in company reports, CMS assumes English tons prior to 1972 and metric tonnes 1972 and thereafter.

Cell: D21
Comment: Rick Heede:
Coal production 1955-56 from Broken Hill Proprietary Company Ltd (1957) Annual Report, p. 8. Production data does not specify coal types.

Cell: D24
Comment: Rick Heede:
Coal production 1958-1960 from Broken Hill Proprietary Ltd Australia (1961) Annual Report, p. 6. Production data does not specify coal type.

Cell: D27
Comment: Rick Heede:
Coal production 1961-62 from Broken Hill Proprietary Company Ltd (1963) Annual Report, p. 7. Production data does not specify coal types.

Cell: D28
Comment: Rick Heede:
Coal production 1962-66 from Broken Hill Proprietary Company Ltd (1967) Annual Report, p. 22-23. Production data does not specify coal types.

Cell: D33
Comment: Rick Heede:
Coal production 1967-68 from Broken Hill Proprietary Company Ltd (1969) Annual Report, p. 24. Production data does not specify coal types.

Cell: D35
Comment: Rick Heede:
Coal production in "long tons" for 1969-1970 from Broken Hill Proprietary Company Ltd (1971) Annual Report, p. 27. Production data does not specify coal types.

Cell: G36
Comment: Rick Heede:
CAI revised production data for 1971-1980 with newly found BHP Annual Report 1980, page 39. See table reproduced below.

Cell: I36
Comment: Rick Heede:
Colette Rhoding sent images of BHP (and Broken Hill Proprietary) for 1970-1979

Cell: D37
Comment: Rick Heede:
Coal production in long tons for 1971-73 from Broken Hill Proprietary Company Ltd and subsidiaries (1974) Annual Report, p. tk.

Cell: E40
Comment: Rick Heede:
Coal production for 1974-81 from Broken Hill Proprietary Company Ltd and subsidiaries (1982) Annual Report, p. tk. Data now reported in metric tonnes.

Cell: H47
Comment: Rick Heede:
Coking coal is not reported in the 1981 annual report but is instead estimated from the bar graph presented in the BHP 1983 annual report (no numeric data shown).

Cell: E48
Comment: Rick Heede:
Coal production for 1982 and 1983 from BHP (1984) Annual Report, p. tk, estimated from bar graph of coal production (no numerical data).
Note: The BHP legend appears reversed (since it shows coking coal as ~10 x energy coal, which is inconsistent with reported numerical data for 1986 forward). Also not disclosed is whether the stacked bars show additive or separate production statistics; we assume additive.

Cell: E50
Comment: Rick Heede:
Coal production 1984-85 is from BHP (1989) Annual Report, p. 25. We combine "clean coal for Australia" and "raw coal for North America and other countries." Coking coal reported separately.

Cell: E52
Comment: Rick Heede:
BHP Billiton Annual reports. We have assumed that all of BHP's production of "clean coal" is thermal coal (bituminous and subbituminous), and steel "raw" coal is hard coal (probably bituminous). Some of Australia's coal regions produce lignite coals -- particularly in Victoria -- but we have no breakdowns of regional production within Australia.
Regional (global) production: Australia = 53 percent; Rest of world (RSA, North America) = 37 percent.

Cell: E62
Comment: Rick Heede:
BHP Annual Report 1998, page 6, shows energy coal and metallurgical for 1996-1998.

Cell: I62
Comment: Rick Heede:
Colette Rhoding sent images of BHP (and Broken Hill Proprietary) for 1970-1979. Mitchell Library, Sydney, State Library of New South Wales, Sydney, January 2019.

Cell: E66
Comment: Rick Heede:
The BHP annual report for 2001, p. 34, shows 92.9 million tonnes of energy coal production in 2001 and 93.9 Mt in 2000. We use reported production in subsequent quarterly reports for 2001, however, since reportd production was revised down to 89.2 Mt; see note below.

Cell: H66
Comment: Rick Heede:
The BHP annual report for 2001 shows 92.9 million tonnes of energy coal production.
Metallurgical coal production (AnnRpt, p. 30) at 37.136 million tonnes in 2001 and 30.633 Mt in 2000.

Cell: E67
Comment: Rick Heede:
BHP (2001-2004) Quarterly reports. BHP provides poor data on production in its annual reports (e.g., 2004 rpt has three years of oil and gas data, but one datum for coal (metallurgical only) for 2004: no production table is presented in the AnnRpt appendix.
The BHP annual report for 2001 shows 92.9 million tonnes of energy coal production.
Metallurgical coal production (AnnRpt, p. 30) at 37.136 million tonnes in 2001 and 30.633 Mt in 2000.

Cell: K70
Comment: Rick Heede:
Energy Coal, AnnRpt2004, p. 20: operating mines in 2004: Queensland Coal, Illewarra Coal (Aus), Ingwe (RSA), Hunter Valley, PT Arutman (Indonesia), New Mexico Coal, Cerrejon (Colombia).
Percent production (energy coal), 4thQ 2004:
RSA: 64.3 percent; heating value: 4470 - 7400 kcal/kg
USA: 17.4 percent; heating value: 4800 - 5300 kcal/kg
Australia: 10.2 percent; heating value: 6270 kcal/kg
Colombia: 8.0 percent; heating value: 6200 kcal/kg.
Metallurgical coal: production at BMP, BHP Matsui, and Illawarra (all Australia?)
Calorific values from 6930 to 7650 kcal/kg.
Source: BHP (2005) AnnRpt 2004, pp. 180-187.

Cell: E72
Comment: Rick Heede (Dec09):
BHP-Billiton Annual report 2008, p. 97. Metallurgical coal comprises ~30 percent of total.

Cell: K74
Comment: Rick Heede:
BHP-Billiton Annual report 2008, p. 51 and 97. Metallurgical coal comprises ~30 percent of total. In 2008, metallurgical coal of 35.191 million tonnes, and energy coal of 80.868 million tonnes (70 percent of total).

Cell: E75
Comment: Rick Heede:
BHP AnnRpt 2010, page 53. "FY2008 includes 11.3 million tonnes of production from our South African Optimum operation (3.96 million tonnes export and 7.3 million tonnes domestic). Earnings on these tonnes were excluded as the entitlement to those earnings was vested with the purchaser effective from 1 July 2007."

Cell: H75
Comment: Rick Heede:
BHP AnnRpt 2010, page 53.

Cell: E77
Comment: Rick Heede:
BHP AnnRpt 2013, table2.3.2 Minerals, Total energy coal 2011-2013.

Cell: H77
Comment: Rick Heede:
BHP AnnRpt 2013, table2.3.2 Minerals, Total metallurgical coal 2011-2013.

Cell: E80
Comment: Rick Heede:
BHP Billiton Ann Rpt (""), page 97: thermal coal in USA (10 Mt) and New South Wales (31 Mt).
2015 report shows thermall coal in 2013 at 29.708 Mt; the discontinuity is not discussed, but presumably due to divestment of mining assets.

Cell: H80
Comment: Rick Heede:
BHP Billiton Ann Rpt (""), page 97: Metallurgical coal (all Queensland Australia: BHP Mitsubishi Alliance & BHP Mitsui Coal).

Cell: E82
Comment: Rick Heede:
BHP Billiton 20-F for 2016, page 263.
Includes as Eanergy Coal: Correjon 10.094 Mt, USA New Mexico 7.052 Mt, and New South Wales 17.101 Mt.
See also reserves, pages 276-fwd.

Cell: E83
Comment: Rick Heede:
BHP AnnRpt 2017, page 245. Energy coal, and Metallurgical coal, in tonnes.
Metallurgical coal: chiefly mines in Queensland (joint venture with Mitsui Coal), and minor production in Indonesia (129kt).
Energy coal in NM US (0.45 Mt)), New South Wales (18.2 Mt), and Correjon Colombia (11 Mt).

Cell: D301
Comment: Rick Heede:
Broken Hill Proprietary AnnRpt 1959 (we show data for 1957 only). BHP AnRpt 1967 shows data 1958-1967 for coke and coal production.
Note: Broken Hill Properties reports both "coke" and coal (under raw materials)
It is unclear whther the former refers to metallurgical coal production and the latter to thermal coal (esp since the BHP 1980 AnnRpt shows zero thermal coal production
Likely that the raw coal production is all used to process coke, hence not additive.

Cell: D315
Comment: Rick Heede:
BHP Annual Report 1980. Coking coal (also aka "raw") and "coal (clean)" aka Energy coal, in Mt, 1971-1974 (we use a later AnnRpt 1975-1984.

Cell: D319
Comment: Rick Heede:
BHP Annual Report 1984. Coking coal (also aka "raw") and "coal (clean)." We use data for 1975-1984. Reported in thousand tonnes, we convert to Mt.

Cell: D331
Comment: Rick Heede:
BHP Annual Report 1991 and 1992. Reports "Coal (clean)" and "Coal (raw)" for 1987-1992.

Cell: D340
Comment: Rick Heede:
BHP Annual Report 1998, page 6. Coking coal and Energy coal, in Mt, 1996-1998.