

# Coal extraction data

**Richard Heede**  
*Climate Mitigation Services*  
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## Anglo American Coal Corporation

[www.angloamerican.co.uk](http://www.angloamerican.co.uk) London

yellow column indicates original reported units

### Production / Extraction data

Year	Thermal Coal		Metallurgical		Total Coal	
	Gross production Million tons/yr	Gross production Million tonnes/yr	Gross production Million tons/yr	Gross production Million tonnes/yr	Gross production Million tons/yr	Gross production Million tonnes/yr

Amcoal 1880-1945

Note: Coal sales 1974-1997 is for South African mines only.  
 1999-2004 include production in Australia, Colombia, and South Africa.

76.8% thermal  
 7.7% metallurgical

1905		
1906		
1907		
1908		
1909		
1910	AnnRpt 1910	0.36
1911	interpolated	0.39
1912	interpolated	0.42
1913	interpolated	0.45
1914	interpolated	0.47
1915	interpolated	0.50
1916	interpolated	0.53
1917	interpolated	0.56
1918	interpolated	0.59
1919	interpolated	0.62
1920	AnnRpt 1920	0.65
1921	interpolated	0.94
1922	interpolated	1.23
1923	interpolated	1.52
1924	interpolated	1.81
1925	interpolated	2.10
1926	interpolated	2.39
1927	interpolated	2.68
1928	AnnRpts	2.97
1929	AnnRpts	2.98
1930	AnnRpt 1930	3.00
1931	interpolated	3.27
1932	interpolated	3.54
1933	interpolated	3.80
1934	interpolated	4.07
1935	interpolated	4.34
1936	interpolated	4.61
1937	interpolated	4.88
1938	interpolated	5.15
1939	interpolated	5.41
1940	AnnRpt 1940	5.68
1941	interpolated	6.30
1942	interpolated	6.91
1943	interpolated	7.53
1944	interpolated	8.14
1945	interpolated	8.76
1946	interpolated	9.37
1947	interpolated	9.99
1948	interpolated	10.60
1949	AnnRpts	11.22



AngloAmer buys Amcoal in 1945

Total CO<sub>2</sub> equivalent emissions by source in 2011



- Total CO<sub>2</sub> from electricity purchased 51%
- Total CO<sub>2</sub> from fossil fuels 23%
- Total CO<sub>2</sub> equivalent from methane 14%
- CO<sub>2</sub> from processes 12%

Anglo American SDR 2011, page 53.



**IRON ORE AND MANGANESE**  
 We are the world's fourth largest iron ore producer, with a top-quality, quality resources base in South Africa and Brazil. Key component of steel, the most widely used of metals. Global steel consumption is forecast to grow in excess of 10% over the next three years.

**METALLURGICAL COAL**  
 Our metallurgical coal business in Australia from Ingham production of coal and the historic base supply of metallurgical coal. We are the partner in the clean coal energy initiative. Key component of steel, the most widely used of metals. Demand is driven by economic, industrial and steel growth.

**THERMAL COAL**  
 In South Africa, our thermal coal business and open-pit mine mines in Colombia. We have a low third of manufacturing (with 80% of the world's steel-making capacity). The US in Columbia, Colombia's largest thermal coal exporter. About 40% of all electricity generated globally is generated by thermal coal. About 1.5 billion tonnes of thermal coal are produced globally each year.

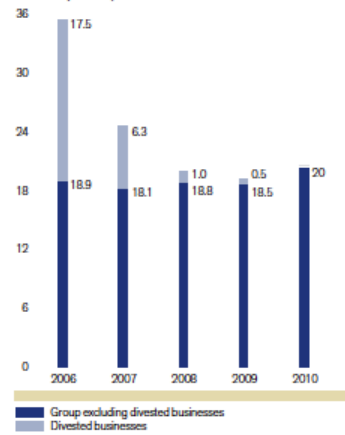
**OTHER MINING AND INDUSTRIAL**  
 Our operations in steel from iron businesses is well advanced. Strong SDR. Anglo American completed the development of a number of iron ore businesses with enhanced processing of \$3.3 billion.

Anglo American AnnRpt 2010, page 5.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
62	1950		AnnRpts	10.99						11.0						
63	1951		AnnRpts	10.79						10.8						
64	1952		interpolated	11.49						11.5						
65	1953		AnnRpts	12.19						12.2						
66	1954		AnnRpts	11.95						12.0						
67	1955		interpolated	12.33						12.3						
68	1956		AnnRpts	12.70						12.7						
69	1957		AnnRpts	12.78						12.8						
70	1958		AnnRpts	13.84						13.8						
71	1959		AnnRpts	13.70						13.7						
72	1960		AnnRpts	14.39						14.4						
73	1961		AnnRpts	14.58						14.6						
74	1962		AnnRpts	14.65						14.7						
75	1963		AnnRpts	14.57						14.6						
76	1964		AnnRpts	15.16						15.2						
77	1965		AnnRpts	18.76						18.8						
78	1966		interpolated	17.91						17.9						
79	1967		AnnRpts	17.07						17.1						
80	1968		interpolated	14.57						14.6						
81	1969		AnnRpts	12.07						12.1						
82	1970		AnnRpts	13.12						13.1						
83	1971		interpolated	14.36						14.4						
84	1972		interpolated	15.60						15.6						
85	1973		interpolated	16.84						16.8						
86	1974		Anglo AnnRpts	18.08						18.6						
87	1975		Dec75:	19.49						20.4						
88	1976		Dec76:	22.32						23.2						
89	1977		Dec77:	24.37						26.8						
90	1978		Dec78:	30.34						33.1						
91	1979		Dec79:	31.05						42.6						
92	1980		Dec80:	31.94						47.8						
93	1981		Dec81:	31.90						50.8						
94	1982		Mar83:	31.10						52.0						
95	1983		Mar84:	32.00						54.2						
96	1984		Mar85:	32.50						59.6						
97	1985		Mar86:	32.40						59.5						
98	1986		Mar87:	36.30						68.9						
99	1987		Mar88:	39.00						69.5						
100	1988		Mar89:	40.29						75.5						
101	1989		Mar90:	38.06						76.1						
102	1990		Mar91:	38.76						74.4						
103	1991		Mar92:	37.72						71.3						
104	1992		Mar93:	37.24						68.5						
105	1993		Mar94:	41.27						70.3						
106	1994		Mar95:	40.96						68.8						
107	1995		Mar96:	42.06						63.9						
108	1996		Apr96-Mar97:	44.21						66.8						
109	1997		Apr97-Mar98:	48.67						72.4						
110	1998			59.80						78.5						
111	1999		Acq 1/3 of Cerrejon	61.80						83.3						
112	2000			64.80						73.1						
113	2001			65.47						77.5						
114	2002			67.61						80.2						
115	2003			75.57						86.5						
116	2004			79.29						89.6						
117	2005			79.50						91.0						
118	2006			81.00						92.0						
119	2007			81.00						93.0						
120	2008			83.00						99.0						
121	2009			83.48						97.5						
122	2010			82.98						99.0						
123																
124	<b>Total</b>			<b>2,275</b>						<b>228</b>						
125										<b>460</b>						
126	<b>Coal Types:</b>		Thermal	76.78%		Metallurgical	23.22%	(1974-2010)		Metallurgical factor applied to 1974-2010 only						

**GREENHOUSE GAS (GHG) EMISSIONS**

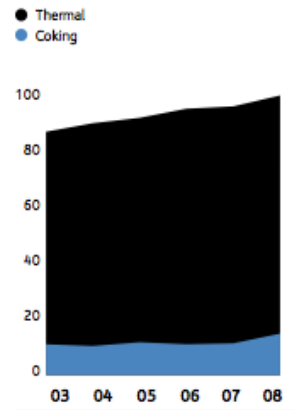
Tonnes (million)



Anglo American AnnRpt 2010, page 28.

**Anglo Coal production**

Tonnes (million)



Coal bed methane  
Bcf  
na

**Environment 2010**

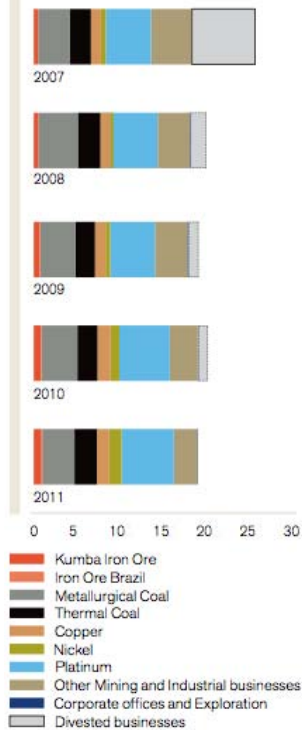
	Scope 1		Scope 2	Scope 1 + 2		Energy from renewable fuels consumed (million GJ)	Energy from electricity purchased (million GJ)	Total energy (million GJ)	Water used for primary activities (million m <sup>3</sup> )
	CO <sub>2</sub> from fossil fuels and processes (Mt CO <sub>2</sub> e)	CO <sub>2</sub> from methane (Mt CO <sub>2</sub> e)	CO <sub>2</sub> from electricity purchased (Mt CO <sub>2</sub> e)	Total emissions (Mt CO <sub>2</sub> e)	Energy from fossil fuels (million GJ)				
Kumba Iron Ore	0.32	0	0.52	0.84	4.54	0	1.83	6.37	8.78
Iron Ore Brazil	0.07	0	0.01	0.07	0.95	0	0.48	1.43	4.25
Metallurgical Coal	0.59	2.94	0.60	4.14	7.95	0	2.42	10.37	11.15
Thermal Coal	0.93	0.51	0.86	2.30	2.75	0	3.02	5.77	7.54
Copper	0.90	0	0.59	1.50	6.18	0	5.96	12.15	26.97
Nickel	0.78	0	0.22	1.00	6.86	0.83	2.97	10.66	5.28
Platinum	0.46	0	5.31	5.77	5.60	0	18.56	24.16	28.87
OMI	1.87	0.03	1.26	3.15	16.03	0.76	5.94	22.73	12.78
Corporate offices and Exploration	0.01	0	0.03	0.04	0.21	0	0.10	0.31	0.11
Divested businesses	0.18	0	1.00	1.18	2.63	0	4.37	7.00	8.79
Anglo American	6.12	3.47	10.40	19.99	53.70	1.58	45.65	100.93	114.51

Anglo American SustDevRpt 2011, page 65.

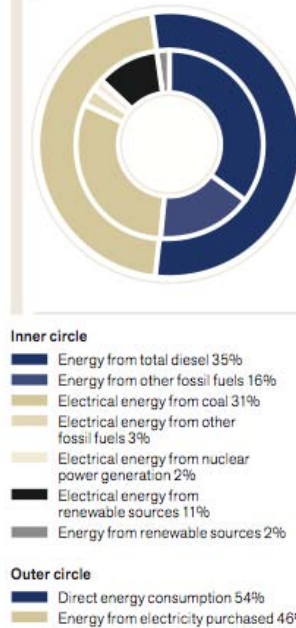
Anglo American est. of scope 3 emissions, 2011  
This study, 2010:

176.8 MtCO<sub>2</sub>  
223.2 MtCO<sub>2</sub>

**Total CO<sub>2</sub> emissions 2007-2011**  
million tonnes



**Total energy consumption by source, for core businesses 2011**  
%



**Climate change**

The Group's operations are exposed to changes in climate and the need to comply with changes in the regulatory environment aimed at reducing the effects of climate change.

**Impact:** Potential impacts from climate change are difficult to assess and will depend on the circumstances at individual sites, but could include increased rainfall, flooding, water shortages and higher average temperatures. These may increase costs, reduce production levels or impact the results of operations.

Policy developments at an international, national and sub-national level, including those related to the 1997 Kyoto Protocol and subsequent international agreements and emissions trading schemes, could adversely affect the profitability of the Group. Regulatory measures may affect energy prices, demand or the margins achieved for carbon intensive products such as coal.

**Root cause:** The Group is a significant user of energy and one of the key commodities it produces is coal.

**Mitigation:** In addition to the initiatives to monitor and limit the impact of operations on the environment, the Group continuously seeks to reduce energy input levels into its operations. The asset optimisation programme seeks to make operations more energy efficient.

Anglo American AnnRpt 2010, page 49. section on managing risks

**ORE RESERVES AND MINERAL RESOURCES**

**COAL**

estimates as at 31 December 2011

**THERMAL COAL**

The Coal Reserve and Coal Resource estimates were compiled in accordance with The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves, (The SAMREC Code, 2007) and the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2004) as applicable. The figures reported represent 100% of the Coal Reserves and Coal Resources, the percentage attributable to Anglo American plc is stated separately. Rounding of figures may cause computational discrepancies. Anglo American Thermal Coal comprises the dominantly export and domestic thermal coal operations, located in Colombia and South Africa.

COAL RESERVES <sup>(1)</sup>	Attributable % <sup>(2)</sup>	Mine Life	Classification	ROM Tonnes <sup>(3)</sup>				Yield <sup>(4)</sup>				Saleable Tonnes <sup>(5)</sup>				Saleable Quality <sup>(6)</sup>			
				2011		2010		2011		2010		2011		2010		2011		2010	
				Mt	Mt	ROM%	ROM%	Mt	Mt	kgc/kt	kgc/kt	kgc/kt	kgc/kt	kgc/kt	kgc/kt	kgc/kt	kgc/kt		
<b>Thermal Coal - Colombia Operations</b>																			
Correjon (OC)	33.3	20																	
Thermal - Export			Proved	71.8	659.0	96.8	95.2	695.5	634.8	6.300	6.230								
			Probable	86.0	64.1	96.8	95.3	83.2	61.7	6.240	6.230								
			<b>Total</b>	<b>804.8</b>	<b>723.1</b>	<b>96.8</b>	<b>95.2</b>	<b>778.7</b>	<b>696.5</b>	<b>6.290</b>	<b>6.230</b>								
<b>Colombia Thermal - Export 33.3</b>																			
			Proved	71.8	659.0	96.8	95.2	695.5	634.8	6.300	6.230								
			Probable	86.0	64.1	96.8	95.3	83.2	61.7	6.240	6.230								
			<b>Total</b>	<b>804.8</b>	<b>723.1</b>	<b>96.8</b>	<b>95.2</b>	<b>778.7</b>	<b>696.5</b>	<b>6.290</b>	<b>6.230</b>								
<b>Thermal Coal - South Africa Operations</b>																			
<b>COAL RESERVES<sup>(1)</sup> Attributable %<sup>(2)</sup></b>																			
<b>Goedehoop (UG&amp;OC) 100 11</b>																			
Thermal - Export			Proved	37.4	46.6	53.0	53.9	20.2	25.7	6.230	6.220								
			Probable	48.6	45.6	51.7	55.0	25.6	25.6	6.210	6.220								
			<b>Total</b>	<b>86.0</b>	<b>92.4</b>	<b>52.3</b>	<b>54.4</b>	<b>45.9</b>	<b>51.3</b>	<b>6.220</b>	<b>6.220</b>								
<b>Greenside (UG) 100 11</b>																			
Thermal - Export			Proved	25.6	37.3	58.1	58.8	15.5	22.7	6.200	6.190								
			Probable	21.9	2.3	53.9	62.8	12.3	1.5	6.190	6.190								
			<b>Total</b>	<b>47.8</b>	<b>39.6</b>	<b>56.2</b>	<b>58.8</b>	<b>27.8</b>	<b>24.2</b>	<b>6.200</b>	<b>6.190</b>								
<b>Isibonelo (OC) 100 14</b>																			
Synfuel			Proved	69.9	74.9	100	100	69.9	74.9	4.590	4.640								
			Probable	-	-	-	-	-	-	-	-								
			<b>Total</b>	<b>69.9</b>	<b>74.9</b>	<b>100</b>	<b>100</b>	<b>69.9</b>	<b>74.9</b>	<b>4.590</b>	<b>4.640</b>								
<b>Kleinokopje (OC) 100 13</b>																			
Thermal - Export			Proved	64.5	77.5	35.9	37.1	23.7	29.0	6.170	6.220								
			Probable	12.0	12.3	45.9	45.8	5.6	5.7	6.180	6.240								
			<b>Total</b>	<b>76.4</b>	<b>89.8</b>	<b>37.5</b>	<b>38.3</b>	<b>29.3</b>	<b>34.7</b>	<b>6.170</b>	<b>6.220</b>								
Thermal - Domestic			Proved	-	-	33.8	31.7	21.8	24.9	4.550	4.460								
			Probable	-	-	-	-	-	-	-	-								
			<b>Total</b>	<b>-</b>	<b>-</b>	<b>33.8</b>	<b>31.7</b>	<b>21.8</b>	<b>24.9</b>	<b>4.550</b>	<b>4.460</b>								
<b>Kriel (UG&amp;OC) 73.0 14</b>																			
Thermal - Domestic			Proved	46.0	61.2	100	100	46.0	61.2	4.790	4.800								
			Probable	67.5	69.6	100	100	67.5	69.6	4.430	4.450								
			<b>Total</b>	<b>113.5</b>	<b>130.8</b>	<b>100</b>	<b>100</b>	<b>113.5</b>	<b>130.8</b>	<b>4.980</b>	<b>4.610</b>								
<b>Landau (OC) 100 9</b>																			
Thermal - Export			Proved	36.4	44.7	48.5	53.7	17.8	23.0	6.240	6.250								
			Probable	24.4	24.7	48.5	49.7	11.9	12.2	6.030	6.050								
			<b>Total</b>	<b>60.7</b>	<b>69.4</b>	<b>48.5</b>	<b>50.0</b>	<b>29.8</b>	<b>35.2</b>	<b>6.240</b>	<b>6.250</b>								
Thermal - Domestic			Proved	-	-	8.8	8.5	3.2	3.8	4.950	4.100								
			Probable	-	-	7.3	8.5	1.8	2.1	3.970	4.400								
			<b>Total</b>	<b>-</b>	<b>-</b>	<b>8.2</b>	<b>8.5</b>	<b>5.0</b>	<b>6.0</b>	<b>4.340</b>	<b>4.210</b>								
<b>Mafube (OC) 50.0 19</b>																			
Thermal - Export			Proved	24.8	30.1	46.5	49.0	11.6	14.8	6.220	6.270								
			Probable	66.6	-	33.1	-	22.2	-	6.210	-								
			<b>Total</b>	<b>91.3</b>	<b>30.1</b>	<b>36.7</b>	<b>49.0</b>	<b>33.8</b>	<b>14.8</b>	<b>6.210</b>	<b>6.270</b>								
Thermal - Domestic			Proved	-	-	27.1	23.1	6.8	6.9	5.460	5.490								
			Probable	-	-	37.3	-	25.0	-	5.010	-								
			<b>Total</b>	<b>-</b>	<b>-</b>	<b>34.5</b>	<b>23.1</b>	<b>31.8</b>	<b>6.9</b>	<b>5.110</b>	<b>5.490</b>								
<b>New Denmark (UG) 100 23</b>																			
Thermal - Domestic			Proved	30.2	40.4	100	100	30.2	40.4	4.880	4.930								
			Probable	80.9	92.9	100	100	80.9	92.9	5.120	5.070								
			<b>Total</b>	<b>111.1</b>	<b>133.3</b>	<b>100</b>	<b>100</b>	<b>111.1</b>	<b>133.3</b>	<b>5.090</b>	<b>5.030</b>								

Anglo American Annual Rpt 2011, p. 186.

Coal (tonnes)			
<b>Metallurgical Coal segment</b>			
<b>Australia</b>			
Export metallurgical		13,253,400	14,701,800
Thermal		13,426,500	14,460,500
		<b>26,679,900</b>	<b>29,162,300</b>
<b>Canada</b>			
Export metallurgical		936,300	868,000
<b>Total Metallurgical Coal segment coal production<sup>(8)</sup></b>		<b>27,616,200</b>	<b>30,030,300</b>
<b>Thermal Coal segment</b>			
<b>South Africa</b>			
Metallurgical		323,400	436,500
Thermal (non-Eskom)		21,388,100	21,612,000
Eskom		35,296,000	36,403,400
		57,007,500	58,451,900
<b>Colombia</b>			
Export thermal		10,751,700	10,060,100
<b>Total Thermal Coal segment coal production</b>		<b>67,759,200</b>	<b>68,512,000</b>
<b>Other Mining and Industrial segment</b>			
<b>South America</b>			
Thermal		-	441,400
<b>Total Other Mining and Industrial segment coal production<sup>(9)</sup></b>		<b>-</b>	<b>441,400</b>
<b>Total coal production</b>		<b>95,375,400</b>	<b>98,983,700</b>
<b>Coal (tonnes)</b>			
<b>Metallurgical Coal segment</b>			
<b>Australia</b>			
Callide		8,038,700	8,515,600
Drayton		3,991,900	4,206,000
Capcoal		5,047,900	5,460,300
Jellinbah		1,829,600	1,792,500
Moraboh North		2,450,100	3,937,800
Dawson		3,904,600	3,584,400
Foxleigh		1,417,100	1,665,700
		26,679,900	29,162,300
<b>Canada</b>			
Peace River Coal		936,300	868,000
<b>Total Metallurgical Coal segment coal production<sup>(8)</sup></b>		<b>27,616,200</b>	<b>30,030,300</b>
<b>Thermal Coal segment</b>			
<b>South Africa</b>			
Greenside		2,853,100	3,425,000
Goedehoop		5,200,800	6,026,200
Isibonelo		4,338,200	4,569,100
Kriel		8,151,700	9,526,100
Kleinokopje		4,400,600	4,423,600
Landau		4,171,200	4,085,800
New Denmark		4,812,600	5,051,600
Mafube		2,313,100	2,447,700
Zibulo <sup>(10)</sup>		3,366,500	1,661,500
		57,007,500	58,451,900
<b>Col (tonnes) (continued)</b>			
<b>Thermal Coal segment (continued)</b>			
<b>Colombia</b>			
Carbones del Cerrejon		10,751,700	10,060,100
<b>Total Thermal Coal segment coal production</b>		<b>67,759,200</b>	<b>68,512,000</b>
<b>Other Mining and Industrial segment</b>			
<b>South America</b>			
Carbones del Guasare		-	441,400
<b>Total Other Mining and Industrial segment coal production<sup>(9)</sup></b>		<b>-</b>	<b>441,400</b>
<b>Total coal production</b>		<b>95,375,400</b>	<b>98,983,700</b>
<b>Total coal production by commodity (tonnes)</b>			
<b>Metallurgical</b>			
South Africa		323,400	436,500
Australia - Export		13,253,400	14,701,800
Canada - Export		936,300	868,000
<b>Total metallurgical coal production</b>		<b>14,513,100</b>	<b>16,006,300</b>
<b>Thermal</b>			
South Africa - Thermal (non-Eskom)		21,388,100	21,612,000
South Africa - Eskom		35,296,000	36,403,400
Australia		13,426,500	14,460,500
South America		10,751,700	10,501,500
<b>Total thermal coal production</b>		<b>80,862,300</b>	<b>82,977,400</b>
<b>Total coal production</b>		<b>95,375,400</b>	<b>98,983,700</b>

Anglo American Annual Rpt 2011, 201-202.

**Cell: D11**

**Comment:** Rick Heede:

Coal production by coal mining companies and state-owned enterprises, including subsidiaries of oil and gas companies.

Coal types produced are not ordinarily reported by coal operators (except for metallurgical coal). We distinguish, where possible and reasonably well known, between hard (bituminous and subbituminous) and soft (lignite or peat) coals, especially for the larger companies operating in regions such as Australia and India where soft coals are predominant. Soft coals have lower carbon content per tonne than do hard coals.

**Cell: G15**

**Comment:** Rick Heede:

Amcoal (then Vereeniging Estates) opened its first mine in 1882, when 360 tons were mined. Amcoal (1998), p. 3.

**Cell: Y17**

**Comment:** Rick Heede:

Anglo American Sust Dev. Rpt 2011, page 54: "In 2011, the Group's Scope 1 and Scope 2 GHG emissions amounted to 18.8 million tonnes (Mt) of carbon dioxide equivalents (CO<sub>2</sub>e) (2010: 20.0 Mt). This 6% reduction on our 2010 emissions was due largely to the sale of a number of businesses throughout 2011, as well as a revision of process- emission calculation methodologies at Metallurgical Coal. Our electricity consumption continues to be the principal source of our GHG emissions (51%), followed by our direct use of fossil fuels (23%), methane emissions from coal mining (14%) and process emissions (12%). We have also assessed our indirect Scope 3 emissions, focusing primarily on emissions arising from customers' use of the thermal and metallurgical coal that we produce, as well as on our downstream and upstream transport. These emissions continue to be dominated by the combustion of our coal by consumers; in 2011 this figure amounted to 176.8 Mt of CO<sub>2</sub>e." Anglo's production totaled 95.3754 million tonnes (14.513 Mt metallurgical and 80.863 Mt thermal coal) in 2011, compared to 98.9837 Mt in 2010. The 2011 production divided by all scope 3 emissions of 176.8 MtCO<sub>2</sub> gives average product emissions less than 1.8537 tCO<sub>2</sub>/tonne (less than due to Scope 3 including sources in addition to product combustion). CMS note: this study estimates Anglo's product emissions of 223.2 MtCO<sub>2</sub> (2.2545 tCO<sub>2</sub>/tonne coal). This difference in results indicates that Anglo's production is of average coal rank at sub-bituminous or below. Anglo does not report coal quality of produced coal, but does report quality for measured reserves (AnnRpt, 2011, page 189), at which measured reserves of 2.114 billion tonnes average 5,360 kcal/kg (and 1.240 Gt of indicated reserves average 4,860 kcal/kg).

**Cell: E21**

**Comment:** Rick Heede:

Vereenigen Estates Limited became Anglo American Coal Corporation sometime after 1970. Coal production data courtesy of Ingrid Wlotzka of Pretoria, South Africa.

Most data are for coal production by colliery. Annual reports for 1955-1967 appear to only provide coal sales, but in much larger quantities than the company's actual production (sales in 1955 = 33.06 million tons (note: we assume tonnes), in 1960 = 41.96 million tons, and 1967 = 53.27 million tons). CMS therefore interpolates between known coal production data points instead of using the larger coal sales data.

**Cell: G58**

**Comment:** Rick Heede:

"Amcoal is the product of a century of endeavour at the forefront of the South African coal industry. It traces its heritage back to Sammy Marks and the Vereeniging Estates Limited, which was brought under the control of Anglo American Corporation of South Africa Limited in 1945. Anglo merged its various coal interests into Amcoal in 1975, and was instrumental in the growth of coal exports via the Richards Bay Coal Terminal, which opened in 1975."

Amcoal (1998) 100 Years of coal mining: a brief history of AMCOAL, p. 2.

**Cell: G69**

**Comment:** Rick Heede:

Vereeniging Estates Limited (1959 to 1964) Chairman's review, pp. 4-5. The quantities of coking coal listed below are included in the thermal coal data (column D), and are thus not added into the total (column K).

**Cell: E76**

**Comment:** Rick Heede:

Vereeniging Estates produced a total of 16.70 million tons of coal of all types. This also includes "Natal and associated collieries", "outside and local trade" and "used in coke manufacture" (0.512, 0.317, and 0.717 million tons, respectively), which CMS subtracts from the reported amount for 1964 in order to be consistent with data for previous years, which are quantities sold; VE does not report produced coal for previous years. The total here, 15.16 million tons, includes coking coal of 1.77 million tons.

**Cell: D86**

**Comment:** Rick Heede:

Anglo American Corporation of South Africa Ltd annual reports from 1975 through 1998. These reports detail thermal, industrial, and coking or metallurgical coal sales per year. CMS aggregated industrial and metallurgical coal sales for each year. Energy content is not given by colliery or coal rank.

**Cell: G86**

**Comment:** Rick Heede:

Anglo American Corporation of South Africa Ltd annual reports from 1975 through 1998. These reports detail thermal, industrial, and coking or metallurgical coal sales per year. CMS aggregated industrial and metallurgical coal sales for each year. Energy content is not given for by colliery or coal rank.

**Cell: J89**

**Comment:** Rick Heede:

Shell Coal production data for 1979-1999; Anglo acquired Shell Coal in July 2000, and Anglo is attributed Shell's production. See "Shell Coal" worksheet for details.

**Cell: E94**

**Comment:** Rick Heede:

Anglo changed the accounting year from Jan-Dec to Apr-Mar, and this year's coal sales accounted for 15 months of activity, which CMS converted to 12-month equivalent.

**Cell: E110**

**Comment:** Rick Heede:

AngloAmerican plc Annual Report 1999, p.73, also shows 1998 production. Does not report on metallurgical coal production (unlike its 2002 AnnRpt).

Acquired one-third interest in Cerrajon (Colombia) from Rio Tinto at year-end 1999.

**Cell: H110**

**Comment:** Rick Heede:

AngloAmerican's annual reports are not clear about including (or not) metallurgical coal production for 1998-2000, unlike prior and later years. Hence CMS estimates 1999 and 2000 as equal to the ten-year prior average; 2000, however, since Anglo acquired Australian mining interests (which accounted for nearly 70 percent or 8.7 million tonnes of metallurgical production in 2001, is the average of 1999 and 2001.

**Cell:** D111

**Comment:** Rick Heede:

Acquired one-third interest in Cerrajon (Colombia) from Rio Tinto at year-end 1999.

**Cell:** E111

**Comment:** Rick Heede:

Anglo American (2001) Annual Report 2000, p. 62. (shows 1999 and 2000 only).

**Cell:** H113

**Comment:** Rick Heede:

AngloAmerican's 2001 annual report shows metallurgical coal production (8.7 Mt in Australian mines, plus 3.9 Mt in RSA). CMS (partial) annrpts for 1998-2000 does not disaggregate metallurgical (but not included, we surmise, in "trade" coal production). CMS estimates between 1997 and 2001 -- see note above.

**Cell:** E116

**Comment:** Rick Heede:

Production data for 1999-2004 from Anglo American plc (2001, 2003, and 2005) Annual Reports, Production Statistics. The reports for 2002 and 2004 show thermal coal production in Australia, South Africa, and Colombia (owns 33 percent of Correjon), as well as metallurgical coal production in Australia and South Africa. Metallurgical coal production not shown in the 2000 report.

**Cell:** K117

**Comment:** Rick Heede (Feb10):

Anglo American provides no detailed coal production data for either thermal coal or coking coal in its Annual Rpt 2008. CMS uses the column chart (reproduced above) to guesstimate production for 2005-2008.

**Cell:** M120

**Comment:** Rick Heede (Feb10):

The Anglo 2008 Annual Rpt, page 160, shows 49.88 Bcf of proved CBM reserves plus 137.16 Bcf probable reserves. No production data is shown.

**Cell:** E121

**Comment:** Rick Heede:

Anglo American plc Annual Report 2010, page 197; thermal and metallurgical coal production in Australia, South Africa, Canada, and South America.

**Cell:** K126

**Comment:** Rick Heede:

Since Anglo apparently started mining metallurgical coal in 1974, CMS applies the average metallurgical to thermal coal factor to 1974-2010 only; prior years are applied the thermal coal factor.