

Coal extraction data

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Climate Mitigation Services
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Glencore, Switzerland

www.glencorexstrata.com Baar

yellow column indicates original reported units

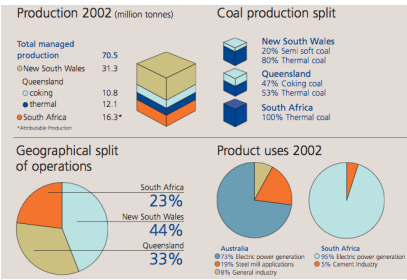
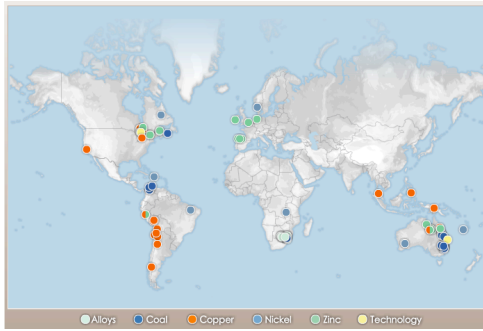
Xstrata merged with Glencore International, 2013

Production / Extraction data

Year

Thermal Coal		Coking Coal		Total Coal	
Gross production	Gross production	Gross production	Gross production	Gross production	Gross production
Million tonnes/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr
	Glencore, Sudelektra, & Xstrata 1926- renamed Xstrata 1999 renamed GlencoreXstrata in 2013 renamed Glencore (tk)				Glencore, & Xstrata 1926-

- 15 1950
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- 80 2015
- 81 2016
- 82 2017
- 83 2018
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- 86



Xstrata Coal Brochure 2003

Sudelektra established in 1926.
 Glencore acquires 38.5 percent of Sudelektra in 1990.
 Xstrata converts to PLC; acquires Duiker & Enex (\$2.5 billion) in 2002.
 Xstrata acquires MIM Holdings (\$3 billion) in 2003.

Xstrata merged with Glencore in ~2011/2012, GlencoreXstrata, then Glencore plc.

Production data

Coal assets ¹	2018	2017
Australian coking coal	mt 7.5	6.1
Australian semi-soft coal	mt 3.9	4.0
Australian thermal coal (export)	mt 59.4	49.1
Australian thermal coal (domestic)	mt 9.4	7.5
South African thermal coal (export)	mt 17.3	18.7
South African thermal coal (domestic)	mt 10.0	10.0
Prodeco	mt 11.7	14.6
Correjeón ²	mt 10.2	10.6
Total Coal department	mt 129.4	120.6

1. Controlled industrial assets and joint ventures only. Production is on a 100% basis except for joint ventures, where the Group's attributable share of production is included.
 2. The Group's pro-rata share of Correjeón production (33.3%).

Glencore (2019) Preliminary Results 2018, News Release, 20 February.

GlencoreXstrata oil production 2012, 2013 gross 22 million bbl, net interest 5.0 million bbl.

Enex Australia:	Duiker (RSA)
23.9	19.6
22.9	17.7
23.1	18.2
	41.2
	59.7
	47.2
Xstrata	48.1
Xstrata	52.2
Xstrata	71.0
Xstrata	69.6
Xstrata	73.3
Xstrata	72.1
Xstrata	65.6
Xstrata	72.4
GlencoreXstrata	121.0
GlencoreXstrata	126.3
Glencore	140.3
Glencore	125.6
	119.6
	114.5
	121.9

coking coal	million tonnes
10.8	
12.8	
11.9	
9.6	
5.6	
13.2	
12.2	
12.6	
14.3	
12.9	
11.2	
11.8	
6.0	Glencore
5.9	Glencore
5.3	Glencore
6.1	Glencore
7.5	Glencore

48.0	43.5
44.8	40.6
45.5	41.3
45.4	41.2
77.7	70.5
66.1	60.0
66.1	60.0
68.1	61.8
84.4	76.6
91.3	82.8
94.2	85.5
93.4	84.7
88.1	79.9
	85.3
	132.2
	138.1
	146.3
	131.5
	124.9
	120.6
	129.4

Oil production
million bbl

4.77
4.99
7.35
10.57
7.51
5.05
4.63

Total	70	1,500	-	170	913	1,837
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2002-2008	Bituminous	1,500	Metallurgical	170	1,670	million tons
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Coal Types:	Lignite:	0.00%	Bituminous	89.84%	Metallurgical	10.16%	100.00%
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CAI has not added oil prodn

Glencore production data 2017-2018.

Commitment to slow coal production?
 Dana Drugmand, Climate Liability News
 Glencore (2019) Preliminary Results 2018, p. 5.

Production data
Coal assets¹

		2018	2017
Australian coking coal	mt	7.5	6.1
Australian semi-soft coal	mt	3.9	4.0
Australian thermal coal (export)	mt	59.4	49.1
Australian thermal coal (domestic)	mt	9.4	7.5
South African thermal coal (export)	mt	17.3	18.7
South African thermal coal (domestic)	mt	10.0	10.0
Prodeco	mt	11.7	14.6
Cerrejón ²	mt	10.2	10.6
Total Coal department	mt	129.4	120.6

1 Controlled industrial assets and joint ventures only. Production is on a 100% basis except for joint ventures, where the Group's attributable share of production is included.
 2 The Group's pro-rata share of Cerrejón production (33.3%).

Glencore (2019) Preliminary Results 2018, News Release, 20 February.

Oil assets

		2018	2017
Glencore entitlement interest basis			
Equatorial Guinea	kbbbl	1,827	2,529
Chad	kbbbl	2,799	2,524
Total Oil department	kbbbl	4,626	5,053
Gross basis			
Equatorial Guinea	kbbbl	8,818	11,914
Chad	kbbbl	3,827	3,450
Total Oil department	kbbbl	12,645	15,364

Glencore (2019) Preliminary Results 2018, News Release, 20 February.

Oil

Glencore's share of production was 10.6 million barrels, 44% higher than 2014, following the increase in ownership of the Chad assets and first oil from Mangara (Chad) in December 2014. In light of lower oil prices, the drilling campaign has been significantly reduced in order to preserve the resource for a more favourable pricing environment.

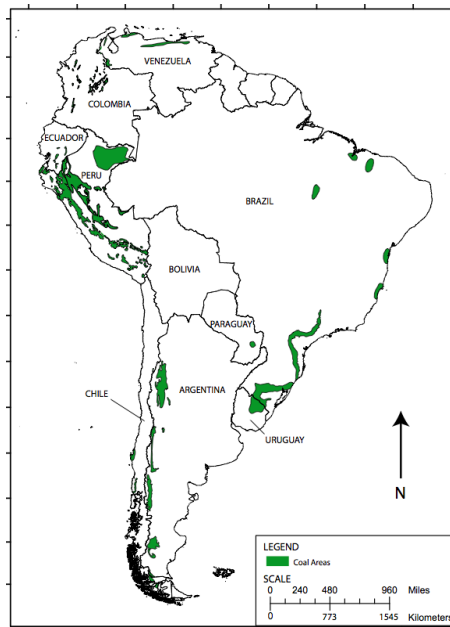
Glencore Oil Production & Emissions, 2012-fwd

	Oil emissions	
	Oil prodn million bbl	MtCO ₂
2012	4.8	1.8
2013	5.0	1.9
2014	7.4	2.7
2015	10.6	3.9
2016		

CO2 Coefficient **0.371428** Million tonnes CO₂ / million barrels
 value pasted in Mar16



USGS (2006) World Coal Quality Inventory: South America: Colombia, Chapter 5, by Tewalt et al.



USGS (2006) The World Coal Quality Inventory: South America, by Alex W. Karlsen, Susan J. Tewalt, Linda J. Bragg, Robert B. Finkelman, Open File Rpt 1241, <http://pubs.usgs.gov/of/2006/1241/>

Cell: H9**Comment:** Rick Heede:

Glencore Xstrata was formed following the merger of Glencore International plc and Xstrata plc, which was completed in May 2013. The merger brought together two highly complementary businesses with a long-standing relationship. Glencore and Xstrata already worked together for more than ten years through a number of marketing agreements including a ferroalloys marketing agent agreement (since 1997), coal advisory agreement (since 2002) and exclusive nickel and cobalt marketing agreement (since 2007).

The histories of Glencore and Xstrata have been inextricably linked since March 2002 when Xstrata acquired Australian and South African coal assets of Glencore, the largest shareholder in Xstrata at the time. At the same time Xstrata listed on the London Stock Exchange.

Glencore's business commenced in 1974 as Marc Rich + Co AG and initially focused on the physical marketing of ferrous and non-ferrous metals and minerals and crude oil, and shortly thereafter expanded into oil products. In 1981, Glencore acquired an established Dutch grain trading company, which created the basis for its Agricultural Products business segment, and later Glencore added coal to its Energy Products business segment.

Starting in 1987, Glencore developed from a purely commodity marketing company into a diversified natural resources group through key acquisitions in mining, smelting, refining and processing in the three principal business segments. In 1994, the founder of Glencore sold his stake by way of a management buyout. The shares of Glencore International plc listed on the London and Hong Kong Stock Exchanges in May 2011.

The roots of Xstrata date back to 1926 when Swiss infrastructure company Südelektra AG was established. Beginning in 1990, the company (which was renamed Xstrata AG) built a portfolio of businesses operating in the natural resources sector. On 25 March 2002, Xstrata plc was created through an initial public offering on the London and Swiss stock exchanges and at the same time it acquired Glencore's coal assets. The successful acquisition and integration of MIM in 2003 and of Falconbridge in 2006 were key elements in the transformation of Xstrata.

Source: About Us, www.glencorexstrata.com/about-us/history/

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: E15**Comment:** Rick Heede:

Sudelektra established in 1926. Glencore acquired 38.5 percent of Sudelektra in 1990. Xstrata converted to PLC; acquired Duiker & Enex (\$2.5 billion) in 2002. Xstrata acquired MIM Holdings (\$3 billion) in 2003.

Source: Coates, Peter (2004) An Inside Perspective: The Journey to becoming the World's Leading Producer of Export Thermal Coal, CoaltransSouth Africa 2004, 30 slides, Coates, Xstrata CEO.

Cell: G61**Comment:** Rick Heede:

GlencoreXstrata AnnRpt 2013, page 68: coal production, and "Oil Assets" ("gross basis" of 22.536 million bbl in Equatorial Guinea and Chad, and "entitlement interest basis" of 4.985 million bbl -- both 2013; 2012: 22.57 and 4.77 million bbl.

Oil production is not added to our emissions calculations for Xstrata, too minor: 5 million bbl = 1.86 MtCO₂.

Cell: D64**Comment:** Rick Heede:

"Sales volume (Mt)" for both Enex Australia and Duiker (presumably South Africa) from ENEX Resources Ltd (~2001) Annual Report, p. 15, or a similar attachment to the Australian Securities and Investments Commission by Mallsons Stephen Jaques, Solicitors, upon the prospective sale of Enex assets or merger with Glencore, which later became Xstrata. Contact: Stephen Minns, Partner, 61-2-9296-2288, stephen.minns@msj.com.au, Sydney.

"Mine production" (p. 51) differs somewhat from "sales" above: namely 42.6 million tonnes in 2000.

Cell: E64**Comment:** Peter Roderick (2March2006):

Glencore International AG was the (ultimate) shareholder in both Enex Resources Ltd and Duiker Mining Limited, that the businesses of ENL & DML were transferred to Xstrata AG, which then merged with Xstrata plc and Glencore International AG became a 40% shareholder in Xstrata plc.

Coal sales data from the same set of Australian Securities and Investments Commission documents referenced under Enex Australia in column D. URLs posted courtesy of Phillip Freeman, whose request to ASIC resulted in the short-term (30 day) posting of relevant documents (Name: XSTRATA COAL INVESTMENTS AUSTRALIA PTY LIMITED ACN : 082 271 912. Document ID No. of Pages Date Lodged TIFF Size PDF Size Form Code 012483440 200 Aug 7 2001 0 82444721 764B <http://imagemail ASIC.gov.au/requests/thu/5928771.0/012483440.pdf>)

Cell: E68**Comment:** Rick Heede:

Coal production data from Xstrata (2001 and 2003) AnnRpts. 2003 production lists coking coal and thermal coal from Australia and South Africa.

Cell: E71**Comment:** Rick Heede (Feb10):

Xstrata Annual Rpt 2005, Operatings Review: Coal, page 48, shows 2005 production of Australian thermal coal (33.6 Mt), South Africa thermal (18.6 Mt), Queensland cking (4.8 Mt), and NSW semi-soft coking (4.8 Mt). Also data for 2004.

Cell: K73**Comment:** Rick Heede:

Xstrata Annual Rpt 2006, pp. 63-67, no summary table, narrative for 2006 only: Xstrata share of Correjón 9.5 Mt, "saleable production in South Africa increased by 10% to 20.5 Mt in 2006," Australian coking coal 5.6 Mt, Australian thermal coal "Consolidated saleable production in 2006 rose to 41 million tonnes, an increase of 7% compared to the previous year."

Cell: E74**Comment:** Rick Heede (Feb10):

Xstrata Annual Rpt 2008, Operatings Review: Coal, shows 2008 production of Australian thermal coal (40.2 Mt), South Africa thermal (22.7 Mt), Americas thermal (10.4 Mt), Queensland coking (6.9 Mt), and NSW semi-soft coking (5.3 Mt). Also data for 2007.

Cell: E76**Comment:** Rick Heede:

AR 2010 pdf pg 63

Cell: H76**Comment:** Rick Heede:

Ar 2010 pdf pg 63, sum total coking coal and total semi-soft coking

Cell: E78**Comment:** Rick Heede:

Xstrata AnnRpt 2011, page 59. Total thermal production: Australia 44.5 Mt, South Africa 17.1 Mt, Americas 10.8; total thermal: 72.4 Mt. Plus coking coal: Australia coking 7.6 Mt, semi-soft coking 5.3 Mt.

Cell: E79**Comment:** Rick Heede:

GlencoreXstrata AnnRpt 2013, page 68. Total 2012 production: 138.1 Mt. Total 2012: 132.2 Mt. Reports prod in Australia (coking and thermal), South Africa, Prodeco and Cerrejón in Colombia.

Cell: E81**Comment:** Rick Heede:

Glencore (2016) Preliminary results for 2015, page 27, Production data for Australian, South African, Prodeco, and Cerrejón (mostly thermal). Total production in 2014 of 146.3 Mt (including coking), and 131.5 Mt in 2015.

Cell: H81**Comment:** Rick Heede:

Glencore (2016) Preliminary results for 2015, page 27, Production data for Australian, South African, Prodeco, and Cerrejón (mostly thermal), except "Australian coking coal" at 6.0 Mt in 2014, and 5.9 Mt in 2015.

Cell: E83**Comment:** Rick Heede:

Glencore Annual Report 2017, 226 pp. Coal (Thermal and metallurgical) and Oil production on page 81. Coal and oil sales on p. 76, chart below.

[CoalAngloNorthAmerican.xls](#)

Cell: E84

Comment: Rick Heede:

Glencore (2019) Preliminary Results 2018, News Release, 20 February. Production data (p. 29), million tonnes, for Australian coking coa (7.5 Mt)], and thermal coal production in Australia, South Africa, and Colombia (33.3% interest).

While revenues were up (\$126 million in 2018, vs \$118 M in 2017), sales volumes were down. Thermal coal sales in 2018 94.4 Mt, metallurgical coal 3.6 Mt, and coking coal 0.6 Mt. Crude oil sales totaled 944 Mb, plus oil products 760 Mb. Compare oil production (in New Guinea and Chad) of 4.6 Mb.

Cell: O84

Comment: Rick Heede:

Glencore (2019) Preliminary Results 2018, News Release, 20 February.

Crude oil sales totaled 944 Mb, plus oil products 760 Mb. Compare oil production (in New Guinea and Chad) of 4.6 Mb.

Cell: G91

Comment: Rick Heede:

Xstrata does not provide coal rank or heating value for its production of Australian, South African, and Colombian "thermal coal." Considering the typical high-quality coals mined in Colombia, South Africa, and NSW for export, CMS applies the heating value and carbon factor for "bituminous coal."

Cell: O98

Comment: Rick Heede:

Drugmand, Dana (2019) Coal Company Responds to Investors, Vows to Cut Production to Battle Climate Change, Climate Liability News, 21 Feb.

Cell: O100

Comment: Rick Heede:

Glencore (2019) Preliminary Results 2018, News Release, 20 February. No sign of coal decline; in fact (p. 5):

We have also made progress on our post-2020 climate change strategy. Following consultation with the investor signatories of the Climate Action 100+ initiative, we have agreed steps to further our commitment to the transition to a low carbon economy.

As one of the world's largest diversified resource companies, we have a key role to play in enabling transition to a low carbon economy. We do this through our well positioned portfolio that includes copper, cobalt, nickel, vanadium and zinc – commodities that underpin energy and mobility transformation.

In 2018, we complemented our portfolio with acquisitions (and some non-core disposals) designed to create long-term value for shareholders, a number of which were first announced in 2017. These include:

- 49% of Rio Tinto's Hunter Valley Operations (thermal coal) with Yancoal retaining 51%, gaining access to sizeable high quality energy coal resources, operatorship and marketing rights
- 82% of Rio Tinto's interest in the Hail Creek mainly coking coal mine
- Non-core disposals during the year included our Tahmoor coal mine.

Cell: J140

Comment: Rick Heede:

See worksheet "Oil Emissions Factor Calc" for details.

Cell: D189

Comment: Rick Heede:

Tewalt, Susan J., Robert B. Finkelman, Ivette E. Torres, & Fiorella Simoni, U.S. Geological Survey Open File Report 2006-1241. Table 3 shows heating values ranging from 10,610 to 14,690 btu per lb (25 to 34 MJ per kg), and percent C from 60.07 to 81.04 %C.