

# Anthracite Market Survey

## *A Research Proposal by Resource-Net*

### **Introduction**

Described simply, anthracite is a high-rank coal, with low volatile matter, typically less than 10% and fixed carbon more than 80% (*see Appendix 1*). While much goes for combustion in specially equipped power stations, market opportunities also exist as coke replacement in some process industries (mainly needing lumps), ore-agglomeration (fines) and other higher value applications. The high prices for blast furnace coke in the current era mean that potentially lucrative markets exist for anthracite of the right quality.

**“Resource-Net” is well qualified to undertake a report on the world anthracite market as it is the only research organization following the coke, coking coal and anthracite markets on a permanent basis.** A monthly report on the coke and anthracite markets has been issued since 2007; it has gained acceptance as the key reference source for information on these markets. Numerous presentations have been made to industry conferences.

Russia and Ukraine have emerged in recent years as key anthracite suppliers to Europe and other more distant markets. Asia is taking rising quantities from Russia as well as South Africa due to the high cost of Chinese coke as well as uncertainty over Vietnam's future policy on exports. Supply from China has also become constrained due to high domestic demand and government policy against commodity exports. A number of mine projects exist in South Africa may reverse the long-term decline in its production and exports.

### **Outline Coverage**

The Survey will include the following:

#### **Anthracite Supply**

- Main producers worldwide with approximate “run of mine” capacity;
- Historical production by country (2001-10);
- Grades by major mine and/or country;
- Logistics issues (port, rail etc) as they impact anthracite availability;
- Future developments in world mine capacity, new mine projects;
- Future anthracite availability – China, Russia, South Africa, Ukraine, Vietnam plus available export statistics.

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## Outline Coverage (cont'd)

### Demand for Anthracite

- Historical anthracite consumption (all grades combined) by country (2001-10);
- Forecast anthracite requirements by country to 2020.

### Consuming Sector Outlook

#### Unsize (fines) Markets:

- Power stations
- Ore sintering & pelletizing
- Pulverized coal injection (PCI) in the blast furnace
- Ilmenite smelting
- Electrodes (paste for EAFs, cathodes for aluminium smelting)

#### Sized (lumps) Markets:

- Electric-arc furnace smelting (manganese alloys, ferrochrome, calcium carbide)
- Lime kilns (soda ash, sugar-beet refining, dolomite, lime)
- Re-carburizers
- Domestic heating

#### *To include the following:*

- Specifications required for each application;
- Discussion of alternatives to anthracite in above applications;
- Approximate historical demand by world region and application.

### Price Analysis & Forecasts

- Price forecasts to 2015: lumps and fines, US\$/tonne c&f Europe;
- Balance of likely anthracite import demand versus potential export capacity (five years ahead);
- Analysis of long-term anthracite price development versus coke and coking coal.

We envisage the report being around 100-120 pages in length.

## Methodology

The approach to sourcing information for the “**Anthracite Market Survey**” will primarily be by communications and interviews with participants in the market, i.e. consumers, traders and producers in all parts of the world.

#### Sources of information will include:

- Statistical data on production and demand from industry associations and producers;
- Conference papers and company information;
- Trade data when available;
- Interviews with key industry participants.

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## Costs, Conditions & Timing

**The cost for the report will be 1500 euros (or US dollar equivalent).** We hope to attract at least 10-20 subscribers, so we would like some definite acceptances to start the research early in 2011. We therefore invite both firm expressions of interest as well as comments on how the scope of the report can be best oriented to meet the needs of the market.

**The “Anthracite Market Survey” will be completed by the end of May 2011 or possibly sooner.** The report would be sent out in “Portable Document Format” (pdf). Companies subscribing would be required to restrict access to the research to their own personnel, as according to Resource-Net’s standard conditions of supply.

Invoices for the full amount will be issued from March (US dollar rates will be fixed using the exchange rate at the time of invoicing). Companies wishing to subscribe should confirm by contacting Resource-Net via email without delay. Full payment will be required in all cases before dispatch of the report.

## Background

**Andrew Jones has more than twenty years’ experience of analysing the global commodities sector as well as an extensive technical knowledge of the steelmaking and non-ferrous metals industries.** From 1996 until 1998, he worked as an analyst at Standard Bank in Johannesburg, South Africa. Prior to that, he carried out ferroalloys and steels research at Metal Bulletin, London.

He has an Honours Degree in Metallurgy from the University of Sheffield in the UK gained in 1983, and an MSc in Multinational Commerce from Boston University Brussels. He has been based in Brussels (Belgium) since 1999.

Any questions or expressions of interest in this proposal should be addressed to:

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Brussels, Belgium  
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## Appendix 1

### Definition of Anthracite

**Anthracite: Highest rank of coal, with low volatile matter, typically less than 10% (dry basis); fixed carbon is normally >80%; and high hardness / good “grindability” (HGI <40).**

However, there is some variation in the definition with some countries seemingly also reporting so-called “semi-anthracite” - having volatiles 10-12% (or even up to 15%) and fixed carbon <80% - as “full anthracite”. These grades are typically sold into low-volatile PCI and power-generation markets.

*CF:*

**Medium-rank coals: bituminous (steam, PCI/soft coking, hard coking, low-volatile PCI).**

**Low-rank coals: lignite, sub-bituminous.**

Areas of use for anthracite can be categorized as follows:

- **Power generation:** high calorific value (CV) required, low sulphur;
- **Domestic (smokeless) fuel:** high CV, low sulphur, ease of ignition (determined by volatile content);
- **Reductant in various processes:** carbon content, sulphur and phosphorus contents all important. Size is normally dependent on the process and precise plant configuration.

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## Appendix 2

### Historical World Anthracite Mine Production

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
<b>Europe</b>											
Germany	1	1,900	1,900	1,900	1,870	1,910	1,913	1,912	1,907	1,910	1,890
United Kingdom	2	1,785	1,572	1,481	1,410	1,340	1,482	1,426	1,112	1,137	1,028
<b>CIS</b>											
Russia	3	10,251	10,104	10,141	8,492	8,369	9,295	10,554	8,670	9,220	7,333
Ukraine	4	14,500	14,000	13,500	13,100	14,600	16,200	16,300	11,700	12,000	10,100
<b>North America</b>											
United States	5	3,924	1,765	1,244	1,176	1,552	1,542	1,375	1,427	1,558	1,775
<b>Africa</b>											
South Africa	6	1,620	1,460	1,300	1,210	1,286	1,645	1,584	2,323	2,564	1,732
Swaziland	7	80	35	141	251	307	101	194	186	126	59
<b>Asia</b>											
China	8	35,000	38,000	43,000	48,000	50,000	50,000	50,000	50,000	50,000	50,000
North Korea	9	7,500	7,000	6,500	6,000	5,500	5,000	4,500	4,000	3,500	3,000
South Korea	10	4,150	3,817	3,318	3,298	3,191	2,832	2,824	2,886	2,773	2,519
Vietnam	11	11,530	13,090	14,870	18,920	24,000	30,200	43,500	48,700	45,100	49,500
<b>Total</b>		<b>92,240</b>	<b>92,744</b>	<b>97,395</b>	<b>103,727</b>	<b>112,055</b>	<b>120,210</b>	<b>134,170</b>	<b>132,911</b>	<b>129,889</b>	<b>128,935</b>

*Estimates in italics*

*(Minor production in Colombia, Laos, Peru and Spain; quantities unknown)*

**Sources:**

- 1 RAG Anthrazit Ibbenburen
- 2 UK Coal Authority
- 3 CDU-TEK (Central Dispatching Dept, Fuel Energy Complex)
- 4 DerzhZovnishInform (DZI)
- 5 US Mine Safety & Health Administration (MSHA)
- 6 SA Dept of Mineral Resources, industry sources
- 7 Estimated from Xstrata A/R
- 8,9 Estimated from industry contacts
- 10 Korea Energy Economics Institute
- 11 Vinacomin, estimates for smaller producers; includes significant unwashed product