

The Global Coal Industry Historical, Present, and Future Generation Statistics to 2025

Market Intelligence

For the first time China became a net importer of coal last year. Demand from Southern and South Eastern provinces was met by cheaper imports from Indonesia and Australia rather than more expensive coal from the provinces of Shanxi and Inner in the north, due to logistic costs. Furthermore the rail network in China can only transport half of the country's demand, and despite investments in the sector is unlikely to meet demand in the near-term. Domestic supply is also likely to diminish owing to the country's strategy of consolidating the nation's mines to eventually close unsafe and inefficient mines. Consequently China is ensuring security of supply through a mixture of bi-lateral trade agreement and acquisitions of overseas mining assets. One of the most ambitious is China's Coal Geology Engineering Corporation and Wanbei Coal Electricity Group's plan to develop a potential 10 billion tonne coal resource in Queensland, Australia. Bi-lateral trade agreements have been signed with Mongolia, North Korea and Vietnam. Only time will tell whether China will rely more on seaborne or overland imports to meet demand; although, for the latter, improvement's in rail infrastructure will be needed.

A similar situation exists in India, where companies are buying up coal assets overseas, particularly in Australia, and are importing more coal. As domestic coal production is unlikely to meet growing demand even if logistics and operations within the country are substantially improved. Elsewhere, coal demand is expected to grow, but not at the same pace as China and India, due to rising natural gas prices. Traditional coal-fired power plants will continue to be phased out and replaced with modern plants with low emissions and some form of carbon capture and storage. The biggest investors in CCS are and policies covering CCS are starting to emerge. However, to date, the sector is not eligible for carbon credits and very few demonstration projects are in operation. Thus, an alternative to CCS in the short-term could be co-firing power plants with both coal and biomass, as the biomass proportion of the plant may be eligible for subsidies and count towards renewable energy targets.

At the production level, more mines will use methane from both operating and abandoned mines. As the project would both provide revenues from electricity production, methane sales and from any greenhouse gas emission reduction incentives, and improve mine safety. By preventing methane build-up, which is thought to be the cause of Pike River mine accident in New Zealand and numerous mining accidents worldwide. NRG EXPERT expects the use of methane to increase more in the short-term than underground coal gasification, which still has several technical and policy barriers to its deployment. However, if deployed UCG would allow some countries to tap unexploited coal resources. The UK is one of the country's leading the development of the sector with a total of fourteen conditional near offshore UCG licenses awarded to date.

Highlights

In the near and long-term India, China and perhaps Brazil are expected to drive growth for coking coal for the domestic steel sector following projections of strong growth in steel production and consumption in these countries. Demand for coal will be driven more by China than India, in the former coal will be increasingly used to produce a liquid fuel and chemicals such as olefins, a long-chain polymer synthetic fiber, to reduce the country's reliance on imports.

Australia, Indonesia and South Africa are expected to remain as major exporters, with growth in exports from Russia, Mongolia and other countries in the region to meet demand from China and, to a lesser extent, India.

For the US mining sector, operations in the Power River Basin region may increase. But will be balanced out by a reduction in output from the East Appalachian region that mainly uses invasive mountain-top mining operations. Any resurgence in the US coal mining sector will only occur with improved clarity regarding the permitting process, and incentives ensure domestic coal is cheaper than imports.

The switch from underground to surface mining is expected to continue along with the consolidation of mining assets. More mergers and acquisitions involving big players are likely.

Price - £1,050

Code – NRGCR2

***Please note – prices are also available in US Dollars and Euros. Please consult www.nrgexpert.com.**

For further information on these products or future editions please contact us at:

Tel: + 44 (0) 20 8432 3059 Fax: +44 (0) 20 8150 6267 OR info@nrgexpert.com

Contents

1. Executive Summary	5
2. Global Overview	6
Coal Demand by Country	6
International Coal Trade	7
Coal-fired Power Generation.....	8
Global Energy Reserves	9
3. Coal Rank.....	10
Primary Coal.....	11
Secondary Coal.....	11
Coke Coal.....	12
Metallurgical Coal.....	12
Hard Coal	12
Coal Rank.....	12
Anthracite	12
Bituminous Coal	12
Sub-bituminous Coal	12
Lignite.....	12
Steam coal	12
Brown coal.....	12
Heat Content of Coal or Calorific Value	13
4. International Coal Trade.....	15
Structure of the International Coal Trade	15
Geographical Distribution of International Coal Production and Trade	15
Development of the Single Global Coal Market	16
The USA.....	17
Canada.....	18
Emergence of Australia as the Leading Exporter	18
South Africa.....	18
New Entrants.....	19
Regional Markets and Trade Patterns	19
Future Trading Patterns	19
International Coal Prices	21
McCloskey Coal Information Services (MCIS) NWE Steam Coal Marker Price	21
5. New Technologies – Extraction and Environment.....	22
Clean Coal Technologies (CCT).....	22
Switch to a cleaner fuel or reduce load to burn less of a ‘dirty’ fuel.....	22
Efficiency improvement	22
Clean coal technology (CCT)	24
Carbon Abatement Technologies.....	25

Improvement in Combustion Efficiencies	25
Co-firing with CO ₂ Neutral Biomass Fuels.....	26
Carbon Capture and Storage or Carbon Sequestration (CCS)	26
Cost-benefit of carbon capture and storage (CCS)	29
Support and prospects for carbon capture and storage (CCS)	29
New Coal Extraction Technology	31
Underground Coal Gasification (UCG)	31
Coal Mine Methane.....	32
6. Notes and Sources.....	33
Technical Notes.....	33
7. Appendix	34
The Greenhouse Effect and Global Climate Change	34
Greenhouse Gas Sources and Sinks	34
Water Vapour	35
Carbon Dioxide	35
Methane	35
Nitrous Oxide.....	35
Halocarbons and Other Gases (CFCs).....	36
HFCs	36
PFCs	36
'Kyoto gases' (HFC, PFC, and SF ₆)	37
Other Important Radiative Gases.....	37
Relative Forcing Effects of Various Gases	37
The Kyoto Protocol.....	38
Differentiated Targets.....	38
Commitment Period	38
Six Gases	38
Demonstrable Progress	38
Land Use and Forestry.....	38
Flexibility Mechanisms	39
Emissions Trading.....	39
Joint Implementation	39
Joint Fulfillment	39
Clean Development Mechanism	39
Entry into Force.....	39
8. Sources	40



ORDER FORM

Please complete the following information:

Title: Mr./Mrs./Miss./Ms./Dr./Other: First Name

Last Name: Suffix

Job Title Department

Company

Address

Postal Code City State/Prov

Country: E-mail

Tel: Fax:

Product Name	Product Code	Price
20% VAT (if applicable)		
Total		

VAT Number (EU Businesses only)

Where applicable, UK VAT at 20% should be added for all purchases made from the United Kingdom or European Union. VAT Registered business customers within the European Union (Excluding UK) may enter a valid VAT number above and exclude VAT.

Delivery Options

Hard Copy ^{1, 2}
 Electronic Download ¹
 Both ^{1, 2}

¹Additional Charges:

Secure Electronic Download (1-3 users only): No Extra Cost
Electronic Enterprise internal license (>3 users): Cost + 100%
For all other multiple user licenses and for external use please contact sales@NRGExpert.com.

²Hard Copy: UK - £120, Europe - £180/€200 Rest of World - £240/\$330 (all prices include delivery and are subject to change)

Payment Options

Cheque enclosed (made payable to NRG Smarts Limited)
 Credit Card
 Bill me
 Visa MasterCard

Card Number Expiry date

CVC/Signature code (last 3 numbers on back of card)

Date: Signature

Our Usual Terms & Conditions shall apply to this order. Please see www.NRGExpert.com. NRGExpert is a trading name of NRG Smarts Limited, incorporated in England & Wales under company number 7468718.

E&OE

**Please return the signed and completed order form to NRG Expert
 by Fax +44 (0)20 8328 7117 or scan and E-mail to sales@NRGExpert.com**