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**VEREIN DER  
KOHLENIMPORTEURE**

ANNUAL REPORT

**2009**

Facts and Trends 2008/2009

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## Import Coal Market at a Glance

		2006	2007	2008 <sup>1)</sup>
<b>World</b>				
Hard coal output	Mill. t	5,351	5,600	5,850
Hard coal world trade	Mill. t	858	907	930
thereof hard coal seaborne	Mill. t	777	821	839
hard coal green border trade	Mill. t	81	86	91
coke production	Mill. t	510	580	560
coke world trade	Mill. t	32	31	28
<b>European Union (27)</b>				
Hard coal output	Mill. t	168	158	149
Hard coal imports/Domestic trade	Mill. t	236	231	213
Hard coal coke imports	Mill. t	12	11	11
<b>Germany</b>				
Hard coal consumption	Mill. t	73.5	75.8	71.7
Hard coal output	Mill. t usable output	20.8	21.3	17.1
Total imports	Mill. t	46.5	47.5	48.0
thereof hard coal imports	Mill. t	42.2	43.4	44.0
coke imports	Mill. t	4.3	4.1	4.0
Use of import coal <sup>2)</sup>	Mill. t	49.1	50.3	50.5
thereof power plants	Mill. t	33.4	34.4	35.7
iron and steel industry	Mill. t	14.7	14.7	13.5
heating market	Mill. t	1.0	1.2	1.3
<b>Prices</b>				
Steam coal marker price CIF NWE	US\$/t SKE	74	101	175
cross-border price steam coal	€/t TCE	62	68	112
CO <sub>2</sub> certificate price (mean value)	€/t CO <sub>2</sub>	18	1	23
Exchange rate	€/US\$	0.80	0.73	0.68

1) Some figures provisional

2) Total import and use of import coal differ owing to inventory movements

## An Introductory Word

*In 2008, companies using coal in Germany once again imported about 48 million t of steam coal, coking coal and coke, maintaining the high import level of the previous year. Imports covered more than 70% of the hard coal demand of the German economy.*

*Although total demand for hard coal declined by almost 5 million t from 2007 to 2008, imports remained stable because German production fell by about 4 million t.*

*The border-crossing price for steam coal rose by 64% from €68 TCE to €112 TCE in 2008. But as an average for the year, the price advantage over the competing fossil energy sources oil and gas improved in 2007.*

*The advantage of import coal:*

- *Well-structured geo-political supply*
- *Constant expansion of supply sources*
- *Prices which continue to be low*
- *Low transport and delivery risk*
- *Large potential for the prevention of CO<sub>2</sub>*
  - *by upgrading coal-fired power plants by 2020*
  - *by using CCS technology from 2020 onwards*

*The modernisation campaign in the German hard coal-fired generation of electric power will reduce CO<sub>2</sub> emissions by more than 80% by the year 2050.*

*Hard coal remained the fastest-growing fossil primary energy source in the world in 2008. Output rose in 2008 by 250 million t to 5.85 billion tonnes. Seaborne world trade in hard coal rose by 18 million t or 2.1% to 839 million t, but growth dynamics began to slacken, above all in the 4th quarter of 2008.*

*In the long term – until 2030 – the IEA sees an increase in the share of hard coal in primary energy supply for the world from today's 25% to 29%, while the share of coal used in electric power generation will increase from a current 40% to 45%. The world will not be able to do without coal for the next 50 years.*

*A decisive step in preserving the world climate will be securing the commitment of the large coal consumers China, USA, India, South Africa and Russia to a climate protection treaty at the climate conference in Copenhagen in December 2009.*

*Coal imports were only moderately affected by the global economic crisis in 2008. However, the collapse in crude steel production and the throttling of production in many industrial sectors could cause a decline in imports of 20%-25% in 2009.*

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## GENERAL GLOBAL

### ECONOMIC CONDITIONS

#### Economic Growth still positive in 2008

Although the world economy remained on a path of growth in 2008, the overall positive development was attributable solely to the first half of the year. The 4th quarter of 2008 saw a significant decline in world economic activities and world trade. The global financial crisis is being felt more and more strongly by the real economy, and the duration and extent of the economic downturn is hard to predict at this time. The spread of globalisation and interlinking of all national economies dragged all of the economic regions into a downward spiral. Starting from the USA, the sharp drops in demand spread to the EU and the threshold countries, leading to restrictions in production across the board around the globe at a speed never seen before. As a consequence, the prices for raw materials and freight rates plunged in the last quarter of 2008.

The course of global economic events is expected to be extraordinarily difficult in

2009. Industrialised and threshold countries are striving to counteract the collapse in demand by initiating massive economic aid programmes. The decisive factor will presumably be, whether purchasing power climbs again in the USA and the Asian threshold countries which will bolster above all the EU, China and Japan in their exports.

#### Growth Rates in % of the World Economy

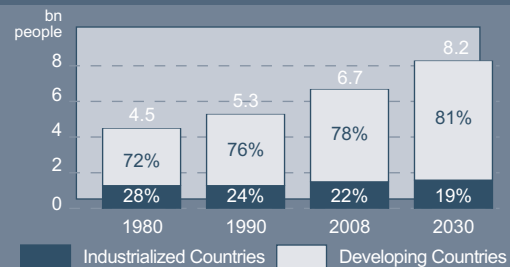
	2005	2006	2007	2008
World Production	3.4	3.9	3.7	2.8
World Trade	7.4	8.9	6.6	5.0

A decline in world production of -2% to -3% is predicted for 2009; world trade is expected to suffer a substantially sharper decline. Estimates range from 6% to 13%.

#### World population will Grow to 8.2 Billion in 2030

The greatest driving force for the expanding world economy and the global consumption of energy continues to be the increasing size of the world's population. It is growing in the developing countries more than anywhere else. On average, the world population is increasing by 1%-1.2% or 70-80 million people annually.

#### Development of World Population



<sup>1)</sup>OECD-Countries

Extrapolation of the figures indicates that world population will increase by almost 4 billion to 8.2 billion people in the period from 1975 to 2030, i.e., during a period of 55 years. But energy consumption is increasing even faster – 1.6% annually according to the latest reference scenario from the IEA (World Energy Outlook 2008) – because the specific per capita consumption is rising in addition to the population figures themselves.

In addition to the increased use of energy consuming devices, the steady shift from rural to urban populations around the world is also causing a rise in energy consumption.

<b>Proportion of World Population in Cities in Billions</b>			
	<b>1950</b>	<b>2005</b>	<b>2030</b>
	Mrd.	Mrd.	Mrd.
World Population	2.52	6.40	8.20
Urban Population	0.73	3.15	4.91
Proportion of World Population	29%	49%	60%

Source: IEA Environment Report

The threshold and developing countries have an enormous backup demand in energy consumption as they strive to raise their living standards to the level of the industrialised countries.

But even in 2030, the 20% of the world population living in the industrialised countries will consume more than 40% of the world energy supplies or 5.8 TCE per capita; about 60% of the world energy supply will go to the inhabitants of threshold and developing countries making up 80% of world population, but this will amount to only 2.2 TCE per capita. This is just under 40% of the energy consumption per capita in the industrialised countries. So there will be a significant backlog of demand for improvement in the living standards of most of the world's population even after 2030.

These figures make it clear why threshold and developing countries are currently unable to join the European industrialised countries in realising the latter's ideas for saving energy and reducing greenhouse gas emissions. Satisfying the basic needs of their citizens for food, water, mobility and access to electric power for the improvement of living standards even to a modest level remains their top priority.

### Energy consumption continues to rise

The world energy consumption continued to rise in 2008. However, the growth rate slowed to 1.5% from 2.5% in 2007. The Pacific region remains the area with the most rapid growth. Besides the increase in its own energy production, the area is making increasing use of the supplies on the world market.

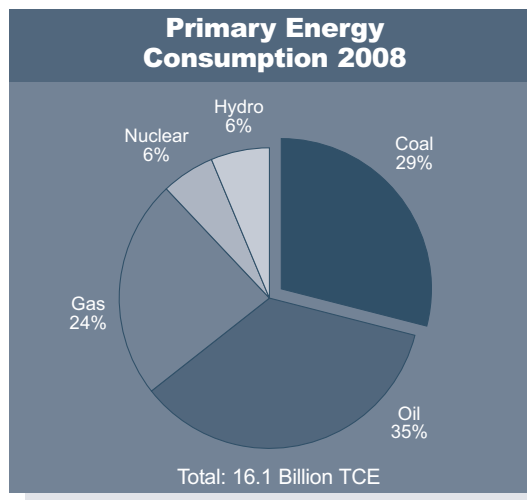
The lower consumption in the 4th quarter of 2008 is reflected in the slower growth rate of energy consumption in 2008. Oil consumption fell slightly.

<b>Primary Energy Consumption in Billion TCE – Most Important Energy Sources –</b>					
	<b>2000</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Change 2007/08</b>
Coal	3.120	4.345	4.537	4.730	+0.193
Natural gas	3.180	3.654	3.767	3.835	+0.068
Petroleum	5.110	5.587	5.645	5.589	-0.056
Nuclear energy	0.840	0.907	0.888	0.896	+0.008
Hydroelectric power	0.882	0.906	1.013	1.030	+0.017
<b>Total</b>	<b>13.132</b>	<b>15.490</b>	<b>15.850</b>	<b>16.080</b>	<b>+0.230</b>

Source: BP, own estimate for 2008

Coal (hard coal and lignite) reached a world market share of 29.4% in 2008 and has been the fastest-growing primary energy source for several years. Coal consumption rose by 4.3% in 2008.

The IEA, which also takes biomass and renewable energy sources into account in its statistics, predicts an average increase in the consumption of primary energy of 1.6% annually for the long term in its reference scenario. Yet fossil energy sources – despite the accelerated expansion of renewable energy sources – will have to cover 84% of the growth until 2030. According to data from the IEA, the demand for coal will rise by 61% in the period from 2006 to 2030 and will maintain its share of 28%-29% of the world's primary energy demand. Coal consumption will accordingly rise by 2.6 billion TCE from 4.4 billion TCE in 2006 to 7.0 billion TCE in 2030.



Source: BP Statistical Review of World Energy

The fact that the greatest share of the long-term increase in coal consumption will be for the electric power sector makes it all the more necessary to develop modern hard coal technologies with less impact on the climate. It will not be possible to reduce the CO<sub>2</sub> emissions of the countries whose electric power generation is based primarily

### World Energy Consumption Reference Scenario IEA

	1980	2000	2006	2015	2030	2006-2030 <sup>1)</sup>
	Billion TCE	Billion TCE	Billion TCE	Billion TCE	Billion TCE	%
Coal	2.556	3.282	4.366	5.753	7.018	2.0%
Oil	4.443	5.218	5.761	6.471	7.306	1.0%
Gas	1.766	2.986	3.442	4.151	5.248	1.8%
Nuclear energy	0.266	0.965	1.041	1.168	1.288	0.9%
Hydroelectric power	0.212	0.322	0.373	0.459	0.592	1.9%
Biomass and waste	1.070	1.494	1.696	1.966	2.377	1.4%
Other renewable energy sources	0.017	0.079	0.094	0.226	0.500	7.2%
<b>Total</b>	<b>10.842</b>	<b>15.035</b>	<b>17.144</b>	<b>21.542</b>	<b>26.582</b>	<b>1.8%</b>

<sup>1)</sup>Average annual growth rate

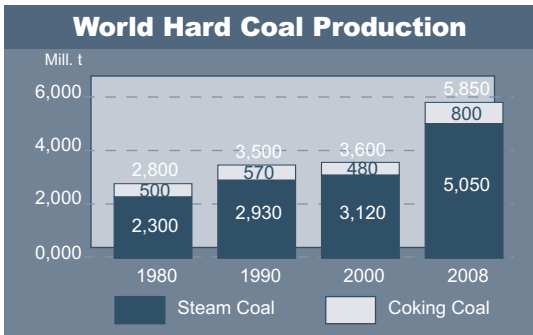
Source: IEA, Energy Outlook 2008

on coal without the utilisation of CCS technology. These countries include China, the USA, India, Russia and, more and more, other Asian countries.

Despite high growth rates, energy sources largely free of CO<sub>2</sub> emissions, including nuclear power, will achieve a share of only 19% by 2030, while fossil energy sources will still cover a share of 81% of the world's energy needs. This demonstrates that all energy sources will be required if we are to come even close to satisfying demand.

### Hard Coal Output rises to 5.85 Billion tonnes

In 2008, the world hard coal output increased once again and rose by about 250 million t to about 5.85 billion tonnes. Total output breaks down into 5.05 billion t of steam coal and 0.8 billion t of coking coal.



Source: IEA, 2008 preliminary

Since 2000, i.e., in the last 8 years, world hard coal output has grown by 2.3 billion t. The major force behind this development is to be found in China, where output during this period was increased by 1.5 billion t.

But other countries have also increased production significantly. The major part of the worldwide growth originates from Asia, as the developments of recent years show:

### Hard Coal Output of Important Countries in the Pacific Region in Million t

Producing countries	2006	2007	2008
China	2,326	2,549	2,720
India	390	430	465
Australia	302	322	334
Indonesia	205	231	255
Vietnam	38	45	40
<b>Total</b>	<b>3,261</b>	<b>3,577</b>	<b>3,814</b>

Source: IEA, 2008 provisional

Besides the countries shown above, substantial quantities of coal are being mined in the Asian region in North Korea, Mongolia and New Zealand.

The incredible backlog demand for energy in the Asian economies for improvement of living conditions can be covered, above all in China and India, only by greatly expanding the consumption and production of coal. But alternative energy sources – from renewable energy to nuclear energy – will also be required to keep pace with the dynamic development of demand. For example, coal consumption in China will increase from 2.5 billion t today to 3 billion t/year in only a few years (2010/2011).

Outside of the Asian boom zone, developments in hard coal output varied.

Output in North America increased slightly as domestic demand for steam coal stagnated, but exports rose. US mining companies in the Appalachian coal-fields were finding it increasingly difficult to obtain permits for "Top Mountain" mining.



Canada increased its hard coal output, which is primarily oriented for export, in view of the solid demand for coking coal and PCI coal.

In South America, Colombia steadily expanded its output and overtook South Africa in export. Smaller deposits of coking coal attracted growing attention in Colombia.

Production in Venezuela, on the other hand, stagnated. The government has limited output – in the Zulia Province, at least – to 10 million t per year. Strikes and bad weather contributed to this decline.

### The 10 Largest Coal Producers in the World

Company	2006 Mill. t	2007 Mill. t	2008 Mill. t
Coal India	343	322	403
Peabody <sup>1)</sup>	232	238	224
Shenhua	137	158	186
Rio Tinto	154	156	161
Arch <sup>1)</sup>	127	132	138
BHPB	86	86	116
Anglo	98	95	100
China Coal	91	91	100
SUEK	90	90	96
Xstrata	77	83	86

<sup>1)</sup> Own production and purchases

Source: The McCloskey Group 2008, own projections

Russia continued to increase output. Production stagnated in South Africa. However, there is hope that the many BEE (Black Economic Empowerment) groups will make use of the mining rights which have been awarded to them and begin coal production. New coal

projects are being examined in Mozambique, Botswana and Zimbabwe as well as, most recently, on Madagascar. Projects in Botswana and Mozambique are already at a more advanced stage.

Output in the European region (EU-27) declined further from 158 million t in 2007 to 149 million t in 2008. The greatest decline of 4 million t each was seen in Poland and in Germany. However, the sharp rise in prices for oil and natural gas as well as for coal in 2008 improved the competitiveness of many European coal deposits. Nonetheless, a weakening of the competitive position must be expected in 2009 as a consequence of the substantial decline in world market prices.

The IEA predicts an expansion of world hard coal output to 7.0 billion TCE or 8.7 billion t (t=t) by 2030. Most of this growth will occur in Asia, but there will also be some in North, Central and South America and the CIS countries.

European hard coal consumption is falling and will decline to a share of less than 5% of the world coal consumption by 2030. Emissions of CO<sub>2</sub> will decrease correspondingly.

### Coal reserves adequate for 120-125 years

One has to distinguish between the two terms “resources” and “reserves” when speaking about natural resources, including coal. Resources refer to the total substance in the mineral or coal found in a deposit. The reserves are the part thereof which can be verified unquestionably and which can be mined efficiently using today's technology. As coal prices rise, it is possible for parts of the resources in deposits to be attributed to reserves because it may become economically feasible to profitably mine

these parts of the deposits. When prices fall, on the other hand, the mining of some deposits may become a losing position economically.

The current estimates of the hard coal reserves based on what is now known about the economically minable reserves worldwide (see table) show a figure of 711 billion t, corresponding to about 602 billion TCE. This latest estimate comes from the Federal Institute for Geosciences and Natural Resources (BGR).

The BGR estimates hard coal resources in 2008 to be 14,800 billion t. The ratio of resources to reserves comes to 21 to 1 and has substantially improved since the last estimate (2007) by the BGR (12:1) because the volume of resources has more than doubled.

### Reserves and Output of Hard Coal According to Region

Region	Reserves as per 2007		Output 2008 <sup>1)</sup>	
	Billion t	%	Million t	%
Europe	19	2.7	149	2
CIS	125	17.6	498	9
Africa	30	4.2	250	4
North Amerika	237	33.3	1,106	19
South Amerika	10	1.4	90	2
PR China	167	23.5	2,720	46
Rest of Asia/Other	82	11.5	697	12
Australia/New Zealand	41	5.8	340	6
<b>Total</b>	<b>711</b>	<b>100</b>	<b>5,850</b>	<b>100</b>

<sup>1)</sup>Provisional figures

Source: Federal Institute for Geosciences and Natural Resources, Hanover, 2008

Source Output: VDKI/BP Statistical Review of World Energy (Reserves Status 2007, published at the end of 2008)

Coal reserves currently have a statistical reach of about 120-125 years based on an output of 5.8 billion t (base 2008). Hard coal represents a share of 45% of the total reserves of 1,349 billion TCE in fossil energy sources and nuclear fuel; in terms of the resources of 17,199 billion TCE, the share reaches 72%.

Compared with hard coal, oil reserves are adequate only for 40-45 years, gas reserves for 60-65 years, assuming the current rate of production.

### Hard coal World Market grows to 930 Million tonnes

#### General Market Tendencies

The hard coal world market grew by 23 million t or 2.5% to 930 million t in 2008, supported by a strong upswing in the world economy and steel industry. World trade in coal developed as shown below:

### World Trade in Coal

	2006	2007	2008	Growth 2007/2008
	Mill. t	Mill. t	Mill. t	Mill. t
Seaborne trade	777	821	839	+18
Domestic trade	81	86	91	+5
<b>Total</b>	<b>858</b>	<b>907</b>	<b>930</b>	<b>+23</b>

The hard coal world market in 2008 for both steam coal and coking coal was characterised by turmoil and difficulties. Despite this, it was once again possible to achieve a substantial increase in trade volumes, even though there was significant weakening in the last quarter of 2008 parallel to the fall in demand.

The following development was observed in the segments steam coal and coking coal for seaborne trade:

<b>Seaborne World Trade in Coal</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Growth</b>
	Mill. t	Mill. t	Mill. t	2007/2008
				Mill. t
Steam coal	594	619	632	+13
Coking coal	183	202	207	+5
<b>Total</b>	<b>777</b>	<b>821</b>	<b>839</b>	<b>+18</b>

Green-border trade also increased slightly by 5 million t. It is characterised primarily by the geographic proximity of the coal-producing countries and the shorter transport routes to the customers. Exports of China's neighbouring states and exports from Russia to the CIS countries in particular still have potential for growth.

Green-border trade in 2008 developed as shown below:

<b>Domestic Trade World Market</b>			
	<b>2006</b>	<b>2007</b>	<b>2008<sup>1)</sup></b>
	Mill. t	Mill. t	Mill. t
USA – Canada	18.0	16.6	20.6
USA – Mexico	0.5	0.4	0.5
Kanada – USA	1.7	1.7	1.7
Mongolia – China	2.3	3.2	3.8
North Korea – China	2.5	3.7	2.5
Vietnam – China <sup>1)</sup>	2.0	2.0	2.0
Poland – EU-countries	7.0	7.7	6.5
CR – EU-countries	6.5	7.0	6.8
Russia – CIS countries (Ukraine)	6.5	9.6	9.3
Russia – By land outside of the CIS	6.0	5.4	7.9
Kazakhstan – Russia	24.0	24.0	24.0
Within EU, excluding Poland/CR	4.0	4.4	5.0
<b>Total</b>	<b>81.0</b>	<b>85.7</b>	<b>90.6</b>

<sup>1)</sup>Estimated, share by land in total export

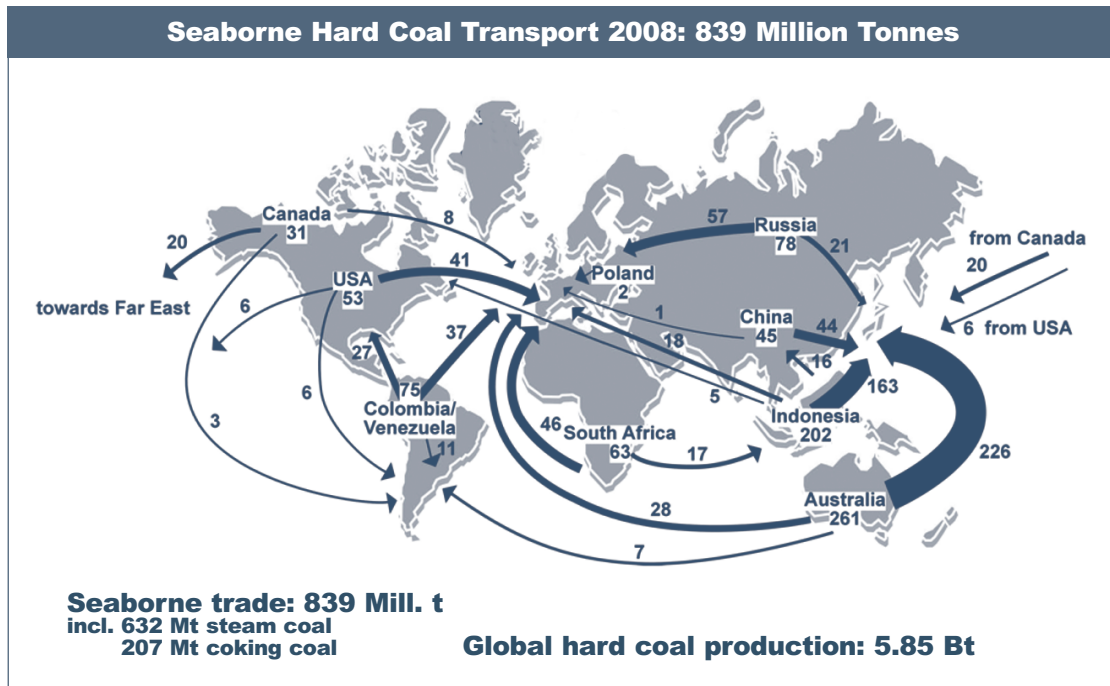
The share of the world trade in the production has risen slightly since 2000.

<b>World Output/ Seaborne World Trade</b>			
<b>Hard coal</b>	<b>2000</b>	<b>2008</b>	<b>Growth</b>
	Mill. t	Mill. t	%
World output	3,800	5,850	+53
World trade	530	839	+58
Share of world trade in production	13.9%	14.3%	

The seaborne trade volume breaks down into a coking coal market and a steam coal market. The steam coal market in turn comprises Pacific and Atlantic partial markets, which are characterised by differing supplier structures. The exchange volume between the partial markets in 2008 came to only 7% or about 45 million t of the steam coal market. About 13% of the global steam coal production goes to the consumers via seaborne trade. The coking coal market, in contrast, is a uniform

world market due to the low number of supplier countries on the one hand and, on the other hand, the worldwide distribution of demand. About 26% of worldwide production, a significantly greater share than for steam coal, goes to seaborne trade.

Differences in development were observed on the partial markets of coal world trade. The following comments refer only to the seaborne hard coal trade.



Source: VDKI, Hamburg 2009

The largest import countries are found above all in the Southeast Asia region. China has joined Japan, South Korea and Taiwan as one of the largest importers.

The two largest coal importers in Europe are Germany and Great Britain.

## Steam coal market continues to grow

### Volume Development

#### Atlantic Region

The Atlantic region includes the eastern seaboard of North, Central and South America, Europe, including the countries bordering the Mediterranean, and the northern and western coasts of Africa.

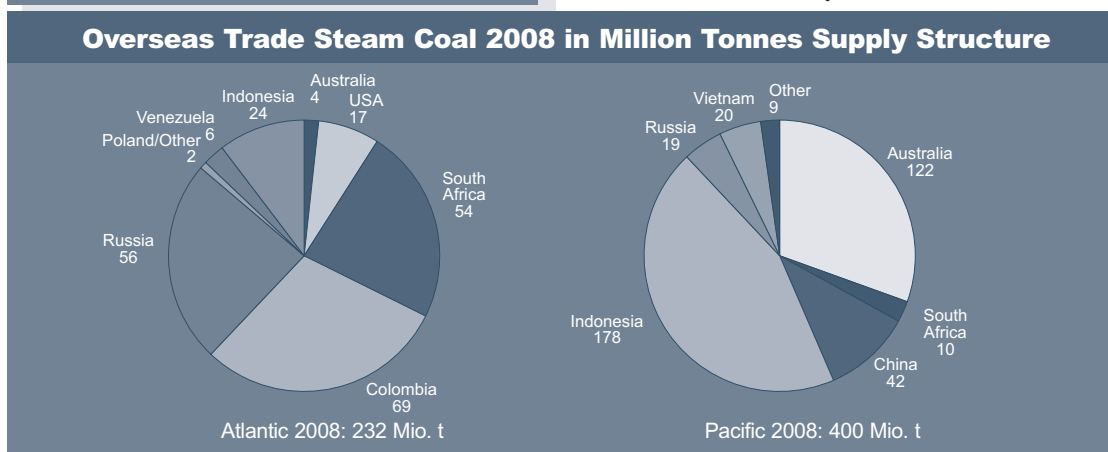
The demand for steam coal in the Atlantic region rose to 232 million t in 2008. Rather higher demand from a number of countries was determined above all in South and Central America.

Colombia, Russia and the USA exported more, while Poland reduced its exports further. South Africa also exported at a lower level, but sold substantially greater volumes of the total to Asia, above all to India.

Indonesian coal was supplied to the Atlantic market in the same scope as the previous year. Norway (Spitzbergen) kept its exports stable at about the same level as last year, but Venezuela declined by 2 million t.

<b>The 10 Largest Hard Coal Import Countries <sup>1)</sup></b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
Japan	177	186	187
South Korea	78	88	96
Taiwan	62	66	65
Great Britain	50	43	48
Germany	42	43	48
India	45	52	54
China	38	51	41
USA	33	33	34
Spain	27	24	33
Italy	26	24	26
<b>Total</b>	<b>578</b>	<b>610</b>	<b>632</b>
Share of world trade	74%	74%	68%
<b>EU-27</b>	<b>236</b>	<b>231</b>	<b>213</b>
Share of world trade	28%	24%	23%

<sup>1)</sup> Some figures provisional



Sources: Various sources, own calculations

### Pacific Region

The Pacific region continued to grow dynamically, and the coal demand for the generation of electric power rose further to 400 million t. Almost all of the Asian economies increased their procurements. The market can be expected to continue to grow strongly over the next few years, mainly as a consequence of demand from China and India.

Indonesia increased exports by 12 million t. Deliveries to the Atlantic region remained at a stable level. But South Africa also exported greater volumes to the Pacific once again, following a period of many years in which exports were lower. Australia and Russia increased their exports, Canada supplied additional quantities. China continued to be a major steam coal exporter in 2008 (42 million t), but reduced its exports by almost 8 million t in comparison with 2007. Vietnam reduced exports by 12 million t as a consequence of disruptions in production and logistics.

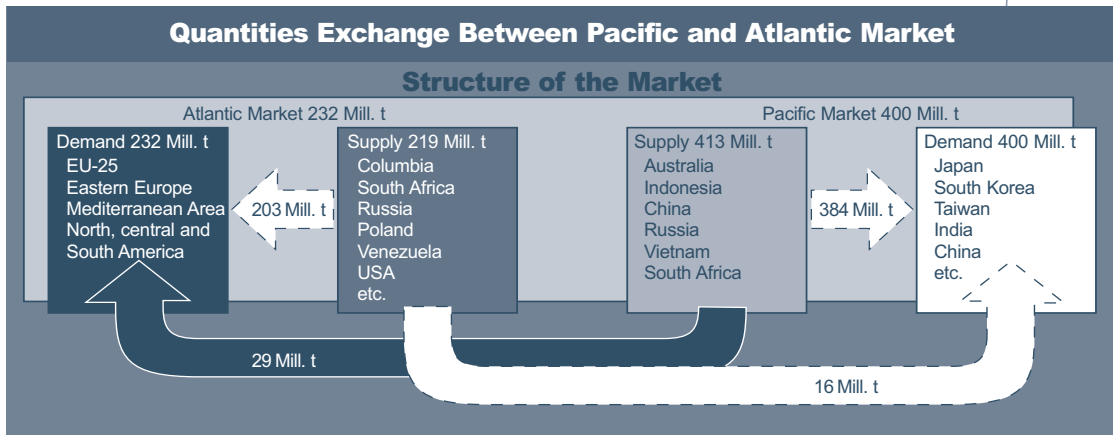
### Exchange Volume Between Pacific and Atlantic Markets

Indonesia and Australia supplied 29 million t to the Atlantic market in 2008, a share of about 10% of the supplies to this region. Of the Atlantic suppliers, South Africa and Colombia delivered 16 million t, corresponding to 3% of demand, to the Pacific market. Total exchange volume came to 45 million t (previous year 29 million t).

### *Steam Coal Prices Display Greater Volatility*

#### Prices

As a consequence of the high utilisation of capacities of export-oriented mines all around the world and of the export

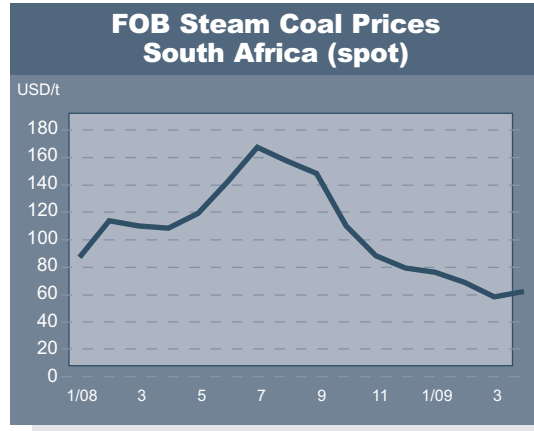


infrastructure, the market reacted with unprecedented price movements, at times almost frantically, to every incident which could curtail production.

Following a phase of relatively low FOB prices in past years (until 2004) and a US dollar which steadily declined in value, expansion investments in mines and infrastructure were postponed indefinitely, above all in Australia and South Africa. Although the steam coal supply in 2008 continued to increase, the demand rose strongly, especially in the Asian region, and kept the utilisation of capacities at an extremely high level in the first half of 2008. This situation was reflected in the FOB price development of recent months.

The FOB prices – Richards Bay – developed as shown top right:

Prices rose from US\$87/t (6,000 kcal/kg) in January 2008 to US\$167/t in July 2008. A sharp fall began in August 2008. FOB prices reached a range of US\$60-65/t in March 2009, running parallel, albeit with a certain time lag, to the plunge in oil prices.



Source: McCloskey

European consumers benefited from the strong euro, which reached an exchange rate of US\$1.60/€1.00 in April 2008 and moderated in part the price increases; in the meantime (March 2009), the rate is about US\$1.30-1.35/€1.00.

The price movements for steam coal and their historic high-water mark of US\$165/t FOB Richards Bay in July 2008 (topping out for the day at about US\$180/t FOB) unprecedented volatility. The price peak must be regarded as an extreme value at the end of an overheating phase on the raw material and energy markets.

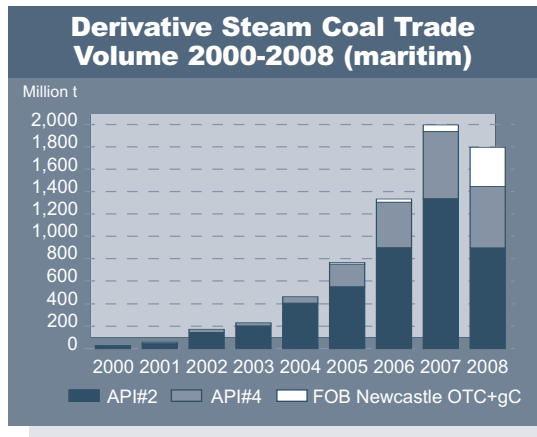
#### Steam Coal Quotations

Prices for steam coal are being set more and more on coal exchanges, especially in Europe, whereby capital investors are playing an increasingly important role. The number of participants in the exchanges is rising. The

latest published exchange figures are frequently used as benchmarks for contract conclusions. There is still a lack of transparency concerning the collection of market data and the methods used to determine the price indices. As the available supplies became increasingly scarce, the fundamental data of the market lost in significance and the speculative elements gained the upper hand. The sharp decline in coal prices in the second half of 2008 can also be explained by the withdrawal of speculators. The parallels to the development of oil prices are obvious.

The volume of paper trade has exploded exponentially since 2000 and in 2007 amounted from 2.5 to 3.0 times the amount of the total physical steam coal trade. Most of the paper trade is found in the Atlantic region. But in 2008, the trading volume fell by 18%. It is possible that banks withdrew from the business.

The chart below shows the development.



Source: Perret Associates

One striking feature is that the Pacific volume continued to rise despite the crisis. Besides the steam coal quotations, exchanges for trading emission certificates have become established in the European region.

### Coking coal demand collapses in the 4th quarter of 2008

Worldwide crude steel production in 2008 reached 1,330 million t, a drop of 1.2% in comparison with 2007, but the 2nd year in succession with crude steel production in excess of 1,300 million t. However, the overall positive picture for 2008 is deceptive because a plunge in worldwide steel production began in the 4th quarter of 2008



Source: World Steel Assoc.



The pig iron production decisive for the consumption of coking coal, PCI coal and coke declined by 19 million t from 946 million t in 2007 to 927 million t in 2008.

The share of crude steel production coming from the pig iron melted in the blast furnace process remained high because the growth in crude steel production, above all in China, was largely based on this process due to the lack of adequate supplies of scrap.

### Crude Steel and Pig Iron Production in China

	2006	2007	2008	Growth 2007/2008
	Mill. t	Mill. t	Mill. t	Mill. t
Crude steel	423	489	502	+13
Pig iron	404	469	471	+2
Share of pig iron in crude steel	95.5%	95.9%	93.8%	

The world's largest steel producers developed as shown below in 2008:

### The 10 Largest Steel Producers in the World

Country	2006	2007	2008
	Mill. t	Mill. t	Mill. t
China	421.5	489.2	502.0
Japan	116.2	120.2	118.7
USA	98.5	98.2	91.5
Russia	70.8	72.2	68.5
India	42.8	53.0	55.1
South Korea	48.4	51.4	53.5
Germany	47.3	48.6	45.8
Ukraine	40.8	42.8	37.1
Brazil	30.9	33.8	33.7
Italy	31.6	32.0	30.5
<b>Total World</b>	<b>1,244.0</b>	<b>1,344.0</b>	<b>1,330.0</b>

Source: World Steel

China and India were the only countries which were able to increase steel production. Brazil stagnated.

The coking coal market suffered a drastic change because of the sudden collapse of the steel economy in the 4th quarter of 2008. In contrast to the beginning of 2008, when it was assumed that shortages leading to excessive price rises would occur, order cancellations of supplies in the 4th quarter of 2008 caused the market to turn around into a surplus situation.

The supplier structure on the seaborne world market was characterised by a further reduction in Russian exports. Australia stagnated or even declined slightly, while the USA and China increased their exports. Contrary to what was originally feared, there were generally speaking no shortages whatsoever in 2008.

### Market Share Coking Coal World Market

	2006		2007		2008	
	Mill. t	%-Share	Mill. t	%-Share	Mill. t	%-Share
Australia	124	68	138	68	135	65
China	4	2	3	2	4	2
USA	21	11	26	13	35	17
Canada	23	13	25	12	25	12
Russia	6	4	5	2.5	3	1.5
Miscellaneous	5	2	5	2.5	5	2.5
<b>Total</b>	<b>183</b>	<b>100</b>	<b>202</b>	<b>100</b>	<b>207</b>	<b>100</b>

It can be seen that the supplier structure did not undergo any major changes and that Australia's market share is about 65%. Despite major problems in production and logistics, Australia managed to keep its exports at almost the same level as the previous year.

Coke production around the world continued to grow. China is by far the largest producer and exporter of coke. In comparison with production, the world market for coke is relatively small. Only about 5%-6% or 30-35 million t of the total production is traded maritime and across the green border.

### Coke World Market

	2006 Mill. t	2007 Mill. t	2008* Mill. t
Total world market	32	31	28
% of world coke production	6%	5%	5%
Thereof by land	6	6	6
Thereof by sea	26	25	22
Thereof China	14.5	15.3	12.1

\* provisional

#### *Prices Rise Dramatically in 2008, Sharp Decline in 2009*

Due to a lack of quality parameters suitable for an exchange, prices for coking coal are not determined on coal exchanges. This is still done traditionally by means of direct agreement between producers and consumers. The contract price for hard coking coal agreed between Australian suppliers and the Japanese steel industry for the current Japanese fiscal year (April/March) serves as a benchmark.

Owing to production losses in Queensland at the beginning of 2009 and a boom situation in the steel industry, coking coal producers succeeded in negotiating record prices. Despite the substantial drop in worldwide steel production, these prices will continue to have an effect during the 1st half of 2009.

### Change in Contract Prices

	US\$/t FOB Australia			
	2005	2006	2007	2008
Hard coking coal	125	116	98	300
Semi-soft-coking-coal	80	53	65	250
PCI	101	63	68	240

Source: Macquarie Research Commodities

As of the end of March 2009, the uncertainties caused by the steel crisis had prevented the negotiations for contract year 2009/2010 from realising any benchmark conclusions.

The initial indications here, however, are that there will be a substantial price correction downwards:

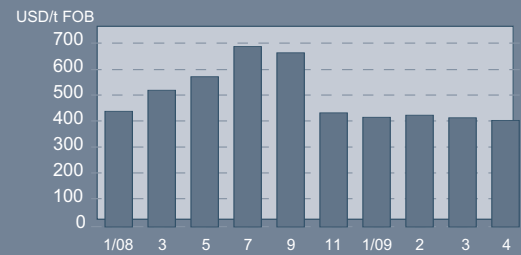
### Indications of a Price Correction

#### Forecast for 2009/2010 US\$/t FOB Australia

Hard-coking-coal	125-130
Semi-soft-coking-coal	85-95
PCI	80-90

The substantially lower demand from the steel industry is putting volume pressure on the coking coal producers. But if the prices remain at the level briefly described above, they will still represent a very high price level in the long-term comparison.

### China's Export Prices for Coke (12%-12.5% Ash) Until 05/2009

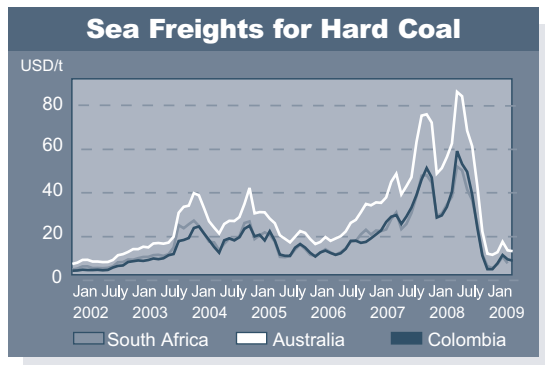


Source: China Coal Report

Coke prices still remain very high. But there are practically no sales. A mere 100,000 t ex China were shipped in January/February 2009.

## Freight rates – crash from historic record highs to rock bottom

Freight rates started the year 2008 at a high level. By the middle of 2008, prices had climbed to historic record highs, only then to find themselves in free fall. The chart below shows the development. These phenomena have never been observed before.



The freight rates for Richards Bay – ARA – Capesize ships clearly depicts just how dramatic the changes have been.

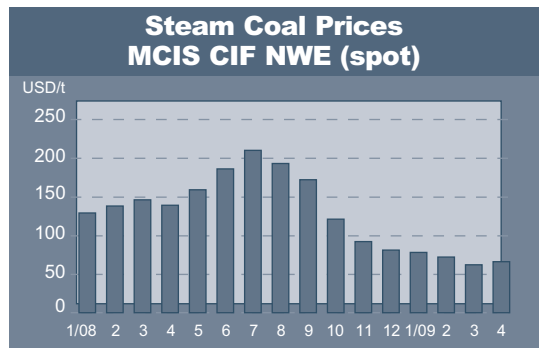
### Freight Rate Richards Bay – ARA – Capesize Ships – 2008

Month	US\$/t
January	30
June	52
December	5

In other words, the decline from the peak value was 90%.

The crash was triggered by the fall in transport demand for iron ore to China. Since the capacities of the bulk carrier fleet continued to rise, the market reversed itself. It is also conjectured that banks withdrew from speculative transactions with freights, contributing to the speed of the crash.

The simultaneous decline in FOB prices and freight rates led to import coal prices CIF-ARA becoming more moderate again.



Source: McCloskey

### US Dollar Exchange Rate

The US dollar exchange rate, a major component of the international energy and raw material business, developed as shown below:

From the beginning of the year until July 2008, it remained at a low level. As of August 2008, the US dollar and the exchange rate began to strengthen. A number of export countries weakened correspondingly with respect to the US dollar. For example, the Canadian dollar (pre-

viously almost on a par with the US dollar), the Australian dollar and the South African rand each lost more than 20% in value with respect to the US dollar. This compensated in part for the narrowing of profit margins in the respective national currency so that additional earnings in domestic currency were achieved. In contrast, imports to the euro zone became more expensive as a result. However, the effect was absorbed in part by the crash in FOB prices and freight rates, although the same factor also mitigated the decline in prices.

In view of the expansive US currency policy and its high potential for inflation, the probable tendency is more likely in the direction of a weaker US dollar once again.

## Energy policy – still needed

### Natural Resources Policies

Owing to the strongly increasing demand – despite the global crisis – for energy and natural resources around the world, more and more countries are beginning to see the marketing of their primary energy deposits as a strategic task. This becomes clearly visible in the oil and natural gas industry, where a number of countries have nationalised oil and natural gas production so that optimal use can be made of limited reserves.

In this context, it is significant that the leading natural gas countries want to join forces in a kind of gas OPEC. This project is currently being pushed by Russia and Iran as the leaders. Rising natural gas prices can be expected as a consequence.

The coal sector comprises largely privately owned structures, but there are also observable tendencies towards

government influence, e.g., in Venezuela. In view of the still huge worldwide coal reserves, massive intervention is not to be expected for the moment. In the long term, however, the self-interest of individual countries could turn its attention more and more to coal production as well, e.g., in Vietnam.

In private economies, however, the increased efforts to consolidate the companies and position them for sustained profitability supplant any national interest. Overall, the supply security, especially in the Pacific region, is becoming of increasingly greater significance for the economic development of the threshold and developing countries in the area, and Japan as well as China and India are pursuing energy procurement and natural resources policies and securing reserves around the globe for their nations. They will certainly continue to pursue these policies in 2009 as well. A number of Chinese companies are seeking to acquire mines abroad.

The policy discussions about energy and natural resources in Europe, on the other hand, continue to be dominated by environmental policies and neglect more and more the aspects of supply security and economic efficiency.

An initial step for the EU can be seen in the "Strategic Energy Review" (SER II), which at least is attempting to conduct a thorough review of EU strategy regarding energy supply.

## Environmental Policies – China now largest CO<sub>2</sub> emitter

The year 2008 did not produce any significant progress in global climate policy. All of the efforts at this time are aimed at concluding a successor to the Kyoto Protocol, which expires in 2012, in Copenhagen at the end of 2009.

The new US administration intends to play a greater role in international climate policies. The key issue will be to secure the commitment of the developing and threshold countries as well to a target structure since the issues involved are of a global nature. The rise in coal consumption until 2030 and even later is primarily a consequence of the great demand for electric power, above all in the Asian countries. The climate targets of limiting the rise in global warming to 2% cannot be achieved without technological improvements in coal-fired generation of electric power through high levels of efficiency and the use of CCS technology. China, India and other countries see no reason to throttle their energy consumption, above all their electric power consumption, at the expense of their economic growth.

China, for example, increased its coal-fired power plant output by almost 80,000 MW in 2008, consuming almost

150 million t of coal additionally. It overtook the USA as the largest producer of CO<sub>2</sub> emissions in 2007/2008.

### *Uniform Worldwide CO<sub>2</sub> Trade Required*

The additional emissions of 600-700 million t CO<sub>2</sub> in one year (calculated for all energy sources) corresponds to the CO<sub>2</sub> reduction target of the EU-27 by 2020 for the regions subject to the ETS. This example demonstrates the differences in priorities in Asia and Europe and how marginal the European potential for CO<sub>2</sub> reduction in a global context is.

The IEA predicts an increase in CO<sub>2</sub> emissions from about 28 billion t in 2006 to about 41 billion t in 2030. 74% of this increase would be caused by a handful of countries.

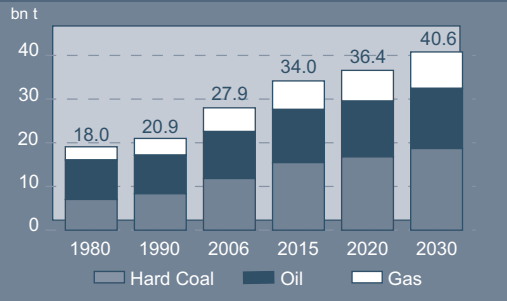
<b>Rise in CO<sub>2</sub> Emissions</b>		
	<b>2006</b>	<b>2030</b>
	Billion t CO <sub>2</sub>	Billion t CO <sub>2</sub>
China	5.7	11.7
India	1.3	3.3
Russia	1.6	2.0
USA	5.7	5.8
<b>Total</b>	<b>14.3</b>	<b>22.8</b>
Rest of world	13.6	17.8
<b>Total</b>	<b>27.9</b>	<b>40.6</b>

Source: IEA World Energy Outlook 2008

Unless these countries which currently see economic growth as their priority can be integrated into these efforts, it will not be possible to achieve any effects which have a positive result for the global climate.

The structure of the increase in CO<sub>2</sub> emissions is shown in the following chart:

## CO<sub>2</sub> Emissions According to Energy Source Caused by Global Energy



Source: IEA

A reduction of the EU 25 quantity by 30%, for example, equalling 1.2 billion t by 2030 would have the effect of reducing the global situation by 3%, compensating for the CO<sub>2</sub> world growth rates of about 2 years and thus postponing further climatic warming by only 2 years – an unpleasant fact.

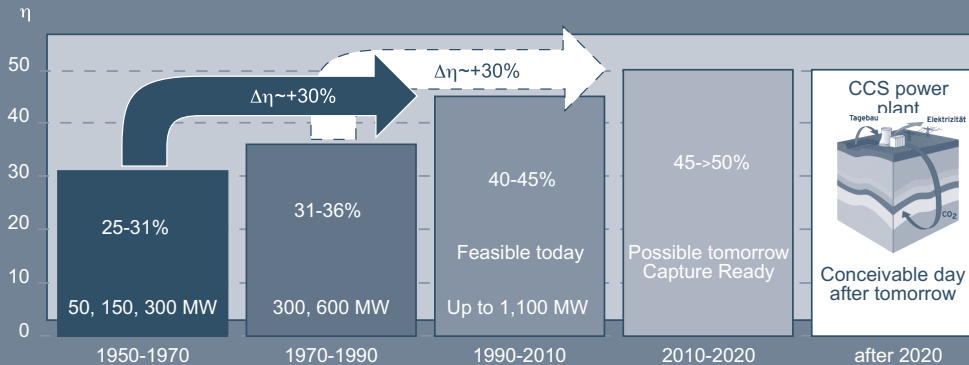
The global economic crisis will also impact the Copenhagen

conference in December 2009. Financial opportunities for climate measures will certainly be substantially narrowed for the next few years. But the success of the Copenhagen conference could be strongly dependent on what financial and technological aid the OECD countries can promise to the threshold and developing countries. It would be especially important to secure further relief for CDM (Clean Development Mechanism) and JI (Joint Implementation) projects so that measures can be initiated worldwide where the costs are lowest.

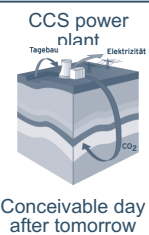
### Technology Leads to Clean Coal

The energy generating industry has launched a worldwide pro-active campaign for technology to make the conversion of coal into electric power more environmentally friendly. This will be carried out in a number of steps.

### 3 Steps to Clean Coal



The right approach: continuous power plant modernisation/renewal



The safest method, and the one which is the most economical and will have the quickest effect, is the optimisation of the current hard coal-fired power plant technology to efficiencies as high as 45%-50%.

Greater efficiency in the burning of fuels (such as found in the power plant Moorburg in Hamburg) can be achieved in combination with the extraction of district heating.

In the USA, Australia and other countries as well as in the EU, government funds are being invested in the further development of power plant technology so that rapid progress can be made. But private industry is also investing large sums in the development of new technologies. The lion's share of government aid is going to the financing of pilot projects for CCS technologies rather than into measures for increasing efficiency.

The development of technologies to reduce CO<sub>2</sub> and the separation of CO<sub>2</sub> emissions when hard coal is used to generate electric power are the most important contributions which can be made by industrialised countries for the environmentally friendly generation of electric power on a hard coal basis in threshold and developing countries, who in the long term cannot afford to do without hard coal.

## EUROPEAN UNION

### Economic growth cools down abruptly

The dynamics of the economy within the EU cooled down sharply in 2008. But over the entire year, the growth rate came to 1.4% and remained positive.

#### Economic Growth EU 27 in Percent

Member states	2006	2007	2008
Countries Euro Zone (EU-15)	2.9	2.6	1.2
EU-18 (incl. Denmark, Sweden, Great Britain)	2.9	2.6	1.2
New members (EU-9)	5.3	6.0	5.0
EU-27	3.1	2.9	1.4

Unemployment for the EU as a whole fell to 7%. The inflation rate for the EU as a whole came to 3.8%, well above the target of 2%. Inflation was fuelled above all by higher prices for energy and raw materials.

Seen overall, the positive development of recent years did not continue, and the 4th quarter of 2008, itself very poor, was followed by an even worse first quarter in 2009.

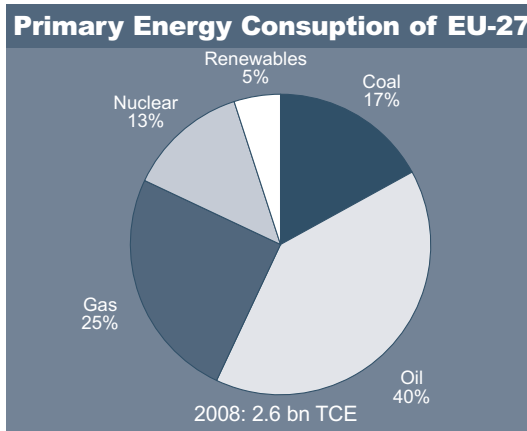
The worldwide slowdown caused problems above all for the export-oriented EU countries. The UK and Spain are suffering especially from the weakness of the real estate market and the turmoil on the financial markets.

2009 will surely be an extremely difficult year for the EU, which will be confronted with a significant decline in the gross national product. Some countries, above all the new member states, will find themselves in substantial financial trouble.

## Energy consumption overall still stable

The weaker economic development in 2008 as one factor in combination with cooler weather and high energy prices caused energy consumption in the EU-27 to remain at the same level. The structure of the primary energy consumption essentially remained unchanged. Energy consumption in all of the EU countries will presumably decline in 2009.

Energy consumption for 2008 is estimated as shown below according to the provisional information available:



Sources: Various sources, own calculations

Economic growth – especially in manufacturing – of necessity means an increase in the consumption of energy. In the more highly advanced EU-15 states, the growth in gross national product can be achieved by a low factor of rising energy consumption, while in the EU-12 states growth in the gross national product is more heavily dependent on additional energy consumption.

Success in reducing CO<sub>2</sub> varies widely within the EU-15. While the industrial heavyweights in the EU, Germany

and Great Britain, largely achieve their goals, most of the other countries fall short, by a large margin, and the lethargy of the EU Commission in pushing delinquent countries to achieve their goals is as unclear now as before.

### EU-27 Climate Balance: 1990-2007

	Million t CO <sub>2</sub> -Equivalent		Change	
	1990	2007	Mill. t	%
EU-15 (excluding Germany and Great Britain)	1,734	2,010	+276	+16
Germany and Great Britain	1,623	1,395	-228	-14
<b>EU-17</b>	<b>3,357</b>	<b>3,405</b>	<b>+48</b>	<b>+1</b>
EU-10	1,039	792	-247	-24
<b>EU-27</b>	<b>4,396</b>	<b>4,197</b>	<b>-199</b>	<b>-5</b>

Source: Ziesing, et-Heft 9 (2008)

The table demonstrates that without the contributions of Great Britain, Germany and the EU-10 countries, EU-15 emissions would rise by 16% and would mean that the EU would fall far short of its targets.

However, the successes in reducing emissions in Germany are largely a consequence of the economic transitional situation in eastern Germany. Great Britain profited from the decline in hard coal mining of 80 million t during the period 1990-2007, and the EU-10 countries recorded a drop in emissions of 24% due to the collapse of many industrial structures in Eastern Europe; in other words, a major portion of the reduction successes are “one-off



effects” which cannot be repeated. On the contrary, the EU-10 states, following their consolidation, will presumably begin a stronger growth phase with the concomitant rise in energy requirements.

In view of this background, one must question whether the EU reduction targets for 2012 and 2020 are at all realistic. The reduction of greenhouse gases must aim more rigorously at traffic and heating markets as well and not be restricted to the energy industry. Moreover, high energy prices lead to savings in the transport and building heating sectors.

### Hard coals market (EU-27) still declining

There were further reductions in the output of European hard coal production in 2008.

Output was reduced in:

Bulgaria -0.3 million t  
 Germany -4.9 million t  
 Poland -4.0 million t  
 Spain -0.7 million t  
 Czech Republic -0.3 million t  
 by a total of 10.2 million t. Romania and the UK increased their output slightly by 0.6 million t so that the bottom line shows a decline of 9.6 million t.

Further declines in output are to be expected in Germany, Poland and Spain in the next few years.

However, an old mine (Hatfield Colliery) which still has reserves is currently being recommissioned in Great Britain so that a rise of 1-2 million t must be expected in 2009. In France, a deposit in the southern region of the country is being examined to determine whether mining operations would be profitable.

Overall, there was a slight decline in hard coal consumption in the EU-27

### Hard Coal and Lignite Volume in the EU

	2006	2007	2008
	Mill. t (t=t)	Mill. t (t=t)	Mill. t (t=t)
EU-27-Output	168	158	149
EU-27 Coal imports/ Domestic trade	236	231	213
EU-27-Coke imports/ Domestic trade	12	11	11
Hard Coal volumes	416	400	373
EU-27 Lignite	432	424	422
<b>Total – Coal consumption</b>	<b>848</b>	<b>824</b>	<b>795</b>

For much of 2008, the strong steel economy had a stabilising effect on coal consumption. High prices for natural gas favoured the use of hard coal for the generation of electric power. In addition to hard coal consumption, about 422 million t of lignite (approx. 130 million TCE) were produced and consumed in the EU-27.

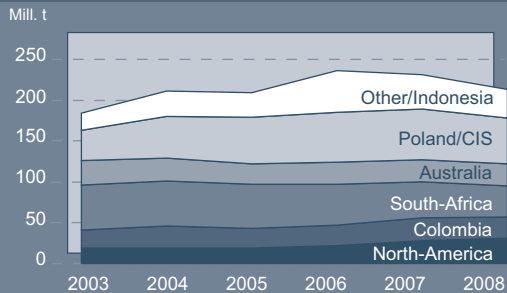
The hard coal consumption of 373 million t in the EU breaks down among the following sectors (estimate):

### Distribution of Hard Coal Consumption in the EU

	2006		2007		2008	
	Mill. t	%	Mill. t	%	Mill. t	%
Power plants	281	67	266	67	241	64
Steel mills/Coking plants	84	20	86	21	88	24
Heating market	51	13	48	12	44	12
<b>Total</b>	<b>416</b>	<b>100</b>	<b>400</b>	<b>100</b>	<b>373</b>	<b>100</b>

There was virtually no change in the structure of the hard coal imports in 2008. Declining exports to the EU from Indonesia, Poland and South Africa were compensated by greater supplies from Colombia and the USA.

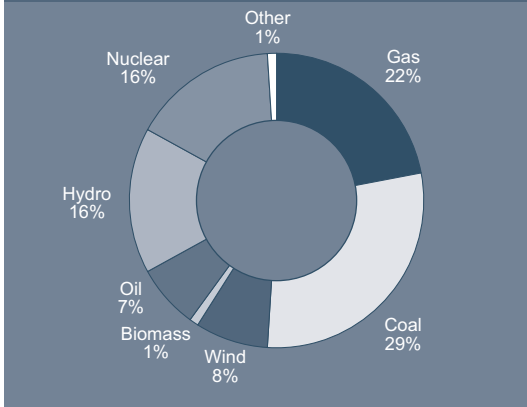
### EU Hard Coal Imports from Third Countries and EU-international Trade



Sources: EUROSTAT, Statistics of Producing Countries

In the EU-27, Poland is the most important producer with 83 million t per year.

### EU Energy Mix 2008 (Total 791 GW) Within Power Generation



Sources: EWEA and Platts Power Vision

### Hard Coal Output in the EU

	2006		2007		2008	
	Mill. t (t=t)	%	Mill. t (t=t)	%	Mill. t (t=t)	%
Germany	24	14	24	15	19	13
Spain	12	7	11	7	10	6
Great Britain	19	11	17	10	18	12
Poland	94	56	87	55	83	56
Czech Republic	14	9	13	9	13	9
Romania	2	1	3	2	3	2
Bulgaria	3	2	3	2	3	2
<b>Total</b>	<b>168</b>	<b>100</b>	<b>158</b>	<b>100</b>	<b>149</b>	<b>100</b>

### Adequate and Flexible Infrastructure

The infrastructure for Europe is being steadily expanded as import volumes rise. The railway lines between the interior and the ARA ports are also being improved.

### Coal Handling in Northwest European Ports in Million t

Ports	2006	2007	2008
Hamburg	4.9	5.7	5.2
Bremen	1.9	2.0	1.8
Wilhelmshaven	1.3	1.3	2.2
Amsterdam	19.6	22.2	22.2
Rotterdam	27.6	28.2	28.6
Zeeland Seaports	3.3	3.5	4.4
Antwerp	9.3	8.6	9.9
Ghent	2.7	3.4	4.2
Dunkirk	10.2	9.6	9.7
Le Havre	1.8	2.4	2.7
<b>Total</b>	<b>82.6</b>	<b>86.9</b>	<b>90.9</b>

Source: Port of Rotterdam

## Energy policy – ambitious EU-27 climate targets

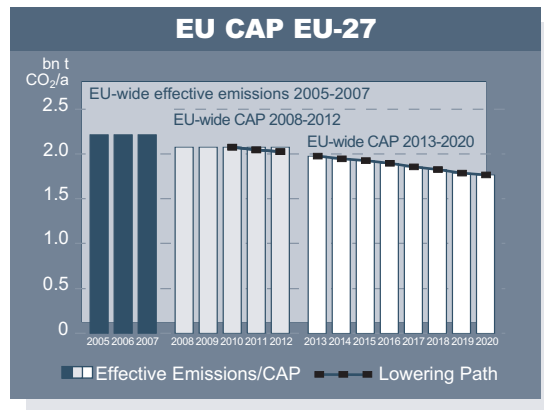
Energy policy objectives in Europe are being defined more and more by Brussels. Just as in the past, however, the EU has still not found a way to achieve adequate world-wide acceptance for its climate policy targets because countries such as China, India and many others simply see their priorities in economic growth, raising the living standards of their populations and reducing unemployment.

The fundamental climate policy of the EU was defined as shown below in the so-called Climate Package of 09/03/2007:

- By 2020 mandatory reduction of GHG (greenhouse gas) emissions by 20% in comparison with 1990
- By 2020 reduction of GHG emissions by 30% in comparison with 1990, to the extent that other states undertake comparable efforts
- Reduction of primary energy consumption (PEC) by 20% by 2020 in comparison with current forecasts (basis 2005)

- Increase in the share of renewable energies in PEC to 20% by 2020
  - Share of biofuels in 2020 10% in every member state
- The reduction of the GHG emissions is above all of the greatest importance for the coal-consuming industry and the CO<sub>2</sub> emissions trading system implemented for it. As of 2013, there will be a change of systems for the reduction of CO<sub>2</sub> emissions:
- The national CO<sub>2</sub> allocation budgets will be merged into one EU CO<sub>2</sub> budget
  - The emission budget for the emission trade in 2020 is supposed to be 21% below the emission level of 2005
  - From 2010 on, the emission budgets will be reduced by 1.74% per year

The chart below shows the procedure:



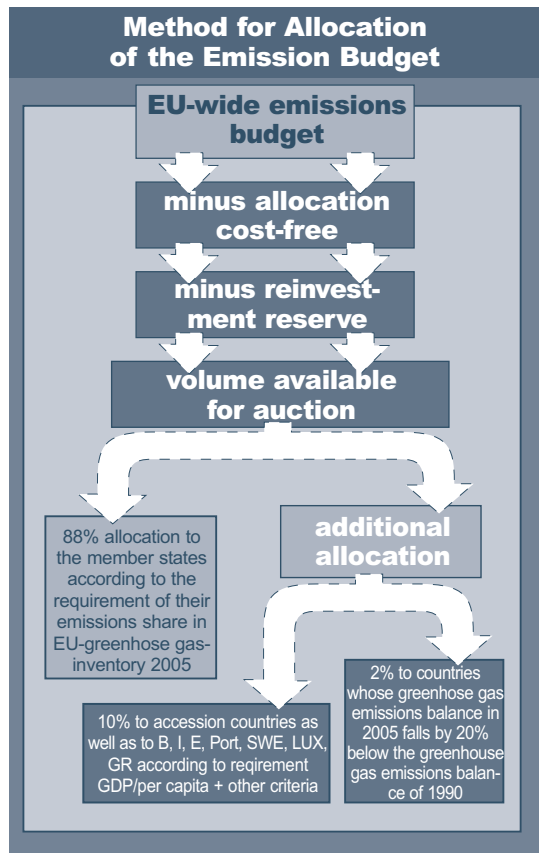
Source: Schafhausen, Klimapolitik, et Heft 3/2009

The CO<sub>2</sub> budget of the EU-27 is supposed to develop as shown here:

### EU-27: Budget of CO<sub>2</sub>-Certificates

Time Period	Mill. t
1st Period 2005-2007	2,299
2nd Period 2008-2012	2,083
3rd Period 2013-2020	1,720
<b>Total Reduction 2005-2020</b>	<b>579</b>

CO<sub>2</sub> certificates will be allocated as shown in the figure below:



Source: Schafhausen, Klimapolitik et Heft 3/2009

This method will cause substantial problems in terms of fairness of competition among the various countries. Above all, Germany will be at a disadvantage.

The CO<sub>2</sub> certificates

- are supposed to be auctioned off at 100% for power generation
- will initially be allocated to the industry at no charge if it could otherwise suffer disadvantages in international competition
- Other industry sectors must buy 20% of the shares from 2013 on. This share will rise to 70% by 2020 and is supposed to reach 100% by 2027 at the latest

The 100% auctioning for electric power generation serves neither climate protection nor cost savings for power consumers; its sole purpose is to open up new revenue sources for the government.

The planned restrictive handling of CDM/JI measures is also questionable. Since climate warming is a global problem, it should be possible to implement the CO<sub>2</sub> prevention measures without any restrictions at the places where they are most efficient.

The full scope of the planned reduction of CO<sub>2</sub> emissions between 2005 (2.3 billion t) and 2020 (1.7 billion t) amounts to 0.6 billion t CO<sub>2</sub>.

According to the IEA reference scenario, the world's CO<sub>2</sub> emissions in 2020 will be about 36 billion t, i.e., the total effect of the EU efforts will result in a reduction of merely 1.7% of the CO<sub>2</sub> emissions from electric power generation and will achieve virtually nothing in affecting or improving the global climate.

## GERMANY

### Economic Growth collapses in the 4th quarter of 2008

In 2008, the gross national product in Germany as a whole grew by a mere 1.3%.

The 1st quarter of 2008 made an especially substantial contribution to the generally modest growth. But in the last quarter of 2008, the economy suffered a major jolt as a consequence of the slowdown in the world economy.

Germany – along with Japan and China – is especially hard hit by the worldwide weakness in demand as it is a country heavily oriented to exports.

Even though energy prices have declined sharply, 2009 is expected to be a difficult year with lower energy consumption as a consequence of economic conditions. Economic forecasts assume a decline in gross national product of -5% to -6% in 2009.

### Energy consumption increases slightly in 2008 because of weather conditions

Primary energy consumption in Germany rose in 2008 by 5.4 million TCE or a good 1% in comparison with 2007 to 477.8 million TCE.

The higher demand was largely caused by weather conditions which were cooler in comparison with the previous year. But energy demand from industry declined sharply in November/December 2008 and moderated the increase in consumption.

The structure of the primary energy consumption in 2008 changed very little in comparison with the previous year 2007. Oil and natural gas together made up about 57% and remained the most important primary energy sources; in fact, they were even able to increase their share slightly by about 1%. The main reason here was the higher consumption of light fuel oil on the heating market. Consumption of mineral oil rose by 8.2 million TCE to 166 million TCE.

Natural gas consumption declined slightly (-1.1 million TCE). While demand for natural gas as heating energy and for power generation was rising, the demand in the industrial sector fell by 5%. Natural gas is also feeling the competition from renewable energies more and more in new residences where there is an increasing use of solar energy technologies and heat pumps.

Hard coal and lignite lost in sales. Hard coal consumption fell by 4.9 million TCE from 67.4 million TCE in 2007 to 62.5 million TCE in 2008.

Coal-fired power plants reduced their demand in 2008 by almost 9% in comparison with the previous year. However, 2007 had been marked by the shutdown, at times simultaneously, of 4 nuclear power plants. A large part of the loss from these shutdowns was compensated by hard coal-generated power in 2007.

The steel industry's consumption declined substantially in the 4th quarter of 2008 and, for the year as a whole, fell by 4%.

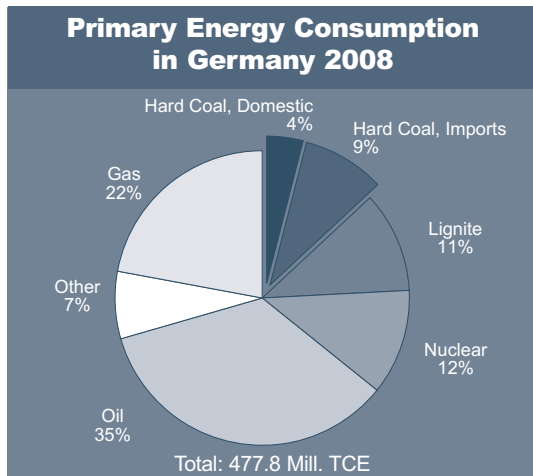
Lignite consumption also declined by 2 million TCE to 53.0 million TCE in 2008. This is primarily a consequence of reduced use in power plants. However, the fall in CO<sub>2</sub> certificate prices could make electric power generated from lignite less expensive and lead to slightly increased production in 2009.

Nuclear energy increased its contribution by 3.1 million TCE because two nuclear power plants which were shut down in 2007 resumed operations.

Renewable energy sources – supported by massive consumer subsidies – increased their share in primary energy consumption by 2.4 million TCE. Their production of 35.4 million TCE now covers 7.4% of the primary energy demand. Of this

- about 16.0 million TCE (45%) electric power,
- about 13.6 million TCE (38%) heating market,
- about 5.8 million TCE (17%) generation of fuel.

If temperature factors and inventory effects are taken into account, the primary energy consumption in 2008 probably declined structurally by about 2% in comparison with 2007.



Source: AGEB

### Changes in Primary Energy Consumption in 2008: +5.4 million TCE

Energy Source	Sales Losses Mill. TCE	Energy Source	Sales Increases Mill. TCE
Gas	-1.1	Öl	+8.2
Hard coal	-4.9	Nuclear Energy	+3.1
Lignite	-2.0	Renewable Energy Sources	+2.4
Miscellaneous	-0.3		
<b>Total</b>	<b>-8.3</b>	<b>Total</b>	<b>+13.7</b>

### Energy Productivity Continues to Improve

Energy productivity – measured in euros per gigajoule – increased further in 2008. The best way to evaluate the structural development is to use the values as adjusted for temperature and inventories:

**Energy Productivity**

	2007	2008	Difference in %
Gross Domestic Product (€bn)	2,242	2,270	+1.3
Primary Energy Consumption in Petajoules (Adjusted for Temperature and Inventories)	14,420	14,157	-1.8
Energy Productivity (in €/GJ)	156	160	+2.6

Source: AGEB

This means that energy productivity has risen significantly over the average rate of increase of +2.0% (1990-2007). The main cause is undoubtedly the more thrifty utilisation of heating energy and fuels due to the high prices for oil and natural gas.

### Electric Power Generation Increases Slightly

Gross electric power generation once again rose slightly. But German consumption sank slightly from 618.4 TWh in 2007 to 616.4 TWh in 2008. The export surplus increased from 19.1 TWh in 2007 to 22.5 TWh in 2008.

The Energy Mixture of the Gross Power Generation				
Energy Source	2006	2007	2008	Difference
	TWh	TWh	TWh	2007/2008
Lignite	151	155	150	-5
Hard coal	138	142	129	-13
Nuclear energy	167	141	149	+8
Natural gas	73	76	83	+7
Miscellaneous	50	56	61	+5
Hydroelectric/Wind	58	68	67	-1
<b>Total</b>	<b>637</b>	<b>638</b>	<b>639</b>	<b>+1</b>

Source: DIW

The cross border electric power trading volume (total of imports and exports) came to about 103 TWh or 17% of the net power generation of 601 TWh in 2008.

Power generation in 2008 was marked by the recommissioning of nuclear power plants and increased natural gas-fired power generation – above all in combined heat and power plants. Despite the expansion of capacities by 7.4% or 1,610 MW to the current almost 24,000 MW, the production of wind power practically

stagnated at 40 TWh. This corresponds to about 1,670 full capacity hours a year or 19% use of capacity in relation to the number of hours in the year. Substantially higher degrees of efficiency are achieved in countries with more favourable wind conditions, e.g., Spain. The wind supply in Germany in 2007 was also higher than average, but returned to a normal level in 2008. Unfortunately, wind capacities are evidently being expanded where the highest subsidies are available and not where the best wind conditions dominate.

Power Generation from Renewables (preliminary figures)			
Sort	2006	2007	2008
	TWh	TWh	TWh
Wind	30.7	39.5	40.2
Hydro	20.0	20.7	20.8
Biomass and Waste (only estimated share of renewables)	19.2	23.8	28.0
Photovoltaic	2.2	3.5	4.0
<b>Total</b>	<b>72.1</b>	<b>87.5</b>	<b>93.0</b>

Source: AGEB

The strongest growth was realised by power generation from biomass. All in all, the share of renewable energy sources in the gross power generation in Germany came to 14.5% and exceeded in 2008 the target of 12% set for 2010-2012.

Owing to the irregular generation of wind energy – e.g., during times of weak demand – part of the wind power must be diverted to the Netherlands and Poland at very low prices. In other words, German taxpayers are subsidising the power consumption and climate protection of neighbouring countries who, at the same time, take some of the burden off of their CO<sub>2</sub> balance.

### *Steel Production Drastically Throttled in 4th Quarter 2008*

The demand for steel took a deep plunge in the 4th quarter of 2008 as a consequence of the automotive industry's difficulties in selling cars and the decline in demand from the steel-processing industry. RWI, Essen, predicts a decline in steel production of 30% in 2009.

Crude steel production fell by 2.6 million t from 48.4 million t in 2007 to 45.8 million t in 2008. Most of this production decline occurred in the 4th quarter of 2008 and translates into a decrease of more than 20% over the quarter. Pig iron production also fell by a similar magnitude in the 4th quarter of 2008.

<b>Pig Iron Production</b>				
	2006	2007	2008	Difference
	Mill. t	Mill. t	Mill. t	2007/2008 %
Crude steel	47.2	48.4	45.8	-5.4
Pig iron	30.4	31.0	29.1	-6.1

The table below shows the average specific consumption in the German steel industry:

<b>Consumption by the Steel Industry</b>				
Energy Source	2006	2007	2008	
Coke (kg per t/pig iron)	363	362	366	
PCI (kg per t/pig iron)	99	107	106	
Sintering fuels (kg per t/pig iron)	51	49	51	
Oil (kg per t/pig iron)	20	20	19	

### **Hard coal market as a whole shrinks in 2008, but imports are stable**

The primary energy consumption of hard coal fell by 4.9 million TCE from 67.4 million TCE in 2007 to 62.5 million TCE in 2008.

2007 was a good year for hard coal, but the sale of hard coal in 2008 moved along the lower limit of its sales potential, which covers a bandwidth of 60-70 million TCE.

Hard coal consumption in million TCE was covered as shown below:

<b>Cover of Hard Coal Consumption in Germany</b>				
	2006	2007	2008	Decline
	Mill. TCE	Mill. TCE	Mill. TCE	2007/2008 Mill. TCE
Import coal	45.3	45.1	44.0	-1.1
Domestic production	20.3	22.3	18.5	-3.8
<b>Total</b>	<b>65.6</b>	<b>67.4</b>	<b>62.5</b>	<b>-4.9</b>

The consumption of import coal fell by 1.1 million TCE. German coal had to reduce its sales by 3.8 million TCE because of lower output. So domestic coal bore the main burden of the volume adjustment.

The sale of hard coal in t=t developed as shown here:



(The difference in quantities between the “TCE” figures and the “t=t” figures results mainly from the steam coal sector because coal with calorific values under 7,000 kcal/kg is used here. This is why the t=t figures are higher).

### Hard Coal Sales Total in Germany

Utilisation	2006	2007	2008
	Mill. t (t=t)	Mill. t (t=t)	Mill. tt (t=t)
Power plants	53.8	55.4	52.3
Steel industry	18.4	18.8	17.7
Heating market	1.3	1.6	1.7
<b>Total</b>	<b>73.5</b>	<b>75.8</b>	<b>71.7</b>

Imports in 2008 contributed a good 70% to the high-quality supplies for the German market. Without the import and supplies of high-quality import coking coal, the RAG-Kokerei Prosper, for example, would not be able to produce coke in the quality required for the steel mills because German coking coal is mined in only small quantities and does not meet all of the quality requirements.

Import coal and domestic coal contributed to the supplies in the various consumption sectors in 2008 as shown here:

### Consumption Sectors Import Coal and Domestic Coal

	Import coal		Domestic coal	
	Mill. t	%	Mill. t	%
Power Plants	35.7	71	16.6	78
Steel Mills	13.5	27	4.2	20
Heating Market	1.3	2	0.4	2
<b>Total</b>	<b>50.5</b>	<b>100</b>	<b>21.2</b>	<b>100</b>

So import coal covers:

- 68% of power plant demand
- 76% of steel mill demand
- 76% of heating market demand.

Imports break down according to quality as shown here: It must be pointed out here that the import figures in 2008 differ from the consumption figures due to inventory movements. This was also the case in previous years.

### Imports According to Quality in Mill. t (t=t)

Products	2006	2007	2008
	Mill. t (t=t)	Mill. t (t=t)	Mill. t (t=t)
Steam coal	32.7	32.7	33.2
Anthracite	0.4	0.5	0.5
Coking coal	9.1	10.2	10.3
Coke	4.3	4.1	4.0
<b>Total</b>	<b>46.5</b>	<b>47.5</b>	<b>48.0</b>

Source: German Federal Statistical Office, own calculations

The steam coal was dominated by:

- South Africa 8.1 million t
- Russia 6.9 million t
- Colombia 5.7 million t
- Poland 3.8 million t
- USA 3.1 million t
- Spitzbergen 1.5 million t
- Indonesia 0.5 million t.

The supply structure for steam coal is broadly diversified. The USA and South Africa increased their exports while Russia remained stable, and Colombia, Poland and Indonesia supplied smaller quantities in 2008. The trend of a decline in Poland's importance is accelerating.

The most important suppliers for coking coal were:

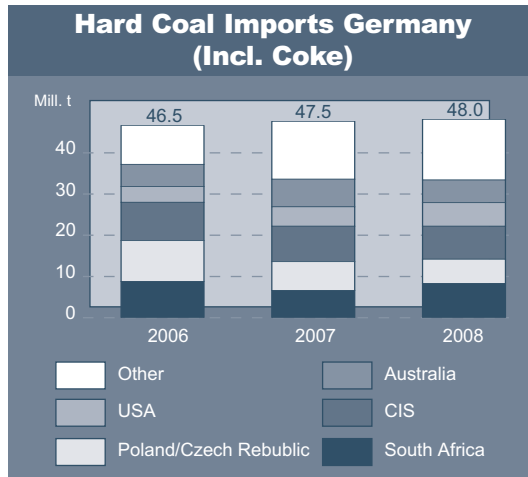
- Australia 5.0 million t
- USA 2.6 million t
- Canada 1.7 million t
- Russia 0.6 million t

Australia increased its share of supplies once again.

The import situation for coke is shown below:

- Poland 1.6 million t
- China 0.6 million t
- Spain 0.5 million t
- Czech Republic 0.3 million t
- Russia 0.2 million t

Overall, the supply structure for all qualities is broadly diversified and originates mainly from politically stable countries. There were no logistical problems in 2008.



Sources: Federal Statistical Office, BAFA, internal calculations

### *No Problems for Import Logistics to Germany*

The approximately 48.0 million t of import coal entered Germany via the following transport routes:

<b>Transport Routes for Import Coal in Germany</b>			
Transport Route	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
German ports	13.6	14.1	14.7
Rail	12.0	11.2	10.1
Domestic ships from ARA ports	20.9	22.2	23.2
<b>Total</b>	<b>46.5</b>	<b>47.5</b>	<b>48.0</b>

<sup>1)</sup> Provisional figures

### *Energy Prices Rise Across a Broad Front, but Steam Coal Maintains its Competitive Advantages*

The key competitive prices for steam coal rose in 2008 in the same way as coal prices, while the price developments for HS and natural gas went in different directions.

This is what happened during the year:

<b>Development of Energy Prices</b>			
	01.01. €/TCE	01.07. €/TCE	31.12.08 €/TCE
Heavy fuel oil (HS)	255	376	170
Natural gas to power plants	234	276	306
Import coal price CIF ARA (spot market)	102	162	67

HS followed the trend of crude oil prices and plunged sharply in the second half of 2008.

Gas prices rose continuously throughout the entire year and did not begin to waver until December 2008. The reason for this is that there are contractual obligations which cause the natural gas price to follow the oil price, but with a certain time lag. In the spring of 2009, gas prices fell steeply on the spot market.

But in all of these market situations, import coal still enjoyed a major competitive advantage in 2008.

### Energy Price Development as a Yearly Average

	2006 €/TCE	2007 €/TCE	2008 €/TCE	Difference 2007/2008 %
Heavy fuel oil (HS)	203	198	275	+39
Natural gas/ Power plants <sup>1)</sup>	231	210	269	+28
Border-crossing price/ Imported coal	62	68	112	+64

<sup>1)</sup> Mean BAFA price for year

The price advantages of import coal over HS and natural gas developed on the basis of the above values as shown below:

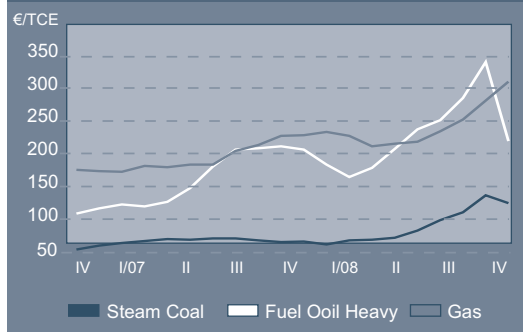
### Price Advantages of Import Coal

	2006 €/TCE	2007 €/TCE	2008 €/TCE
Import coal/HS	141	130	163
Import coal/Natural gas	169	142	157

Despite the greater increases in price, import hard coal was able to maintain its price advantages over natural gas and HS.

The German cross border price ("BAFA" price) follows the spot market development (API#2) with a time lag of 4-6 months. But there appears to be a tendency for this lag to become shorter.

### Development of Energy Prices free Power Station



Sources: Statistik der Kohlenwirtschaft-Gas preliminary, BAFA, own calculations

The price behaviour of steam coal and coke is in line with the short-term market tendencies. Coking coal is generally negotiated in annual agreements and price increases/decreases always appear in the border-crossing prices with a certain time lag during the year.

Contract benchmark prices for hard coking coal in the most recent negotiations (2008/2009) and the border-crossing prices for coking coal from third countries developed as shown in the tables. They demonstrate that the border-crossing prices follow the contract prices after a certain time lag.

### Contract Benchmark Prices Hard Coking Coal in US\$/t FOB

	US\$/t „FOB“
2005/2006 <sup>1)</sup>	125.00
2006/2007 <sup>1)</sup>	115.00
2007/2008 <sup>1)</sup>	95.00

<sup>1)</sup> April-March = Japanese fiscal year

### Third Countries Cross Border Price in €/t<sup>1)</sup>

	€/t „FOB“
<b>2005</b>	95.00
<b>2006</b>	106.00
<b>2007</b>	96.00
<b>2008</b>	133.00

<sup>1)</sup>Average values covering all coking coal qualities

The German cross border price is often influenced by the inclusion of semi-coking coking coal and PCI qualities in the price and is not determined solely by the hard coking coal price.

Just as is the case for steam coal, the relationship of the euro to the US dollar plays a role.

In 2008, however, the average price of €133/t was a record high for coking coal. In the 4th quarter of 2008, the coking coal price even went as high as an average of €197/t.

The high contract price from spring 2008 will continue to influence the markets until the middle of 2009 because the contracts run until May/June 2009.

The coke prices developed as shown below:

### Third-country Imports

	Third-country Imports €/t	EU Imports €/t
<b>2006</b>	156.00	171.00
<b>2007</b>	157.00	182.00
<b>2008</b>	272.00	282.00
<b>Increase 2007/2008</b>	<b>115.00</b>	<b>100.00</b>

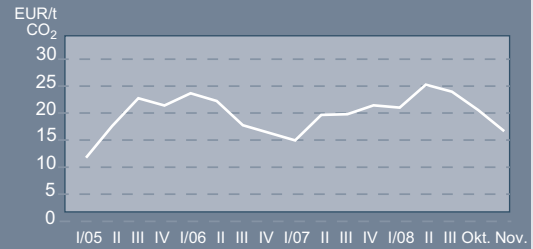
Coke prices rose strongly because of the overheated steel economy. The collapse in the steel economy did not yet have any effect on import prices because the contracts for the imported quantities had largely been concluded during the days of the steel boom. Substantially lower quantities and prices can be expected for 2009.

### Prices and Trading with CO<sub>2</sub> Certificates – Weakening Economy Pushes Down Certificate Prices

2008 saw the start of the 2nd period of CO<sub>2</sub> trading which will run from 2008 to the end of 2012.

Due to the shortage of the allocated certificates, a substantially higher price once again developed after the zero price at the end of the first trading period 2005-2007.

### Prices of CO<sub>2</sub> Certificates 2008 Forward Market 2005-2008

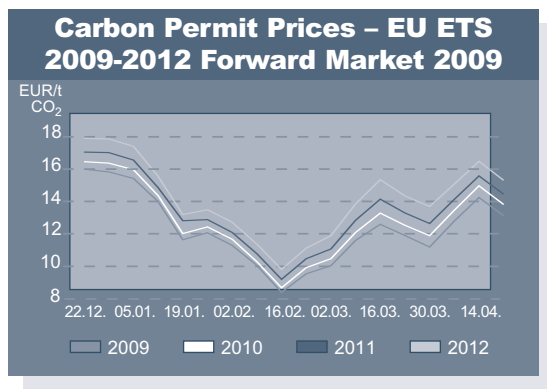


Source: EEX

However, liquidity on the certificate market rose strongly due to the economic collapse so that the price fell sharply. It can also be conjectured that banks withdrew from the business. However, the decisive point is most likely that many industrial companies released certificates when they scaled back production and offered them on the market.

Market fluctuations of this nature are normal in a trading system which is subject to supply and demand. The prices will surely rise again when the economy recovers.

The figure below shows price expectations as per 04/2009.



Source: EEX

It is at this time difficult to assess how great the volume of CO<sub>2</sub> certificates from CDM and JI measures is. Germany is allowed to purchase an additional 22% of the allocation quantity for each. A sluggish bureaucracy has been created for the certification of CO<sub>2</sub> certificates from CDM and JI measures, which delays and complicates the availability of imported certificates.

Low certificate prices weaken the profitability of climate improvement measures abroad. According to the UBA, the 1,659 plants which are subject to emission trade emitted 473 million t of CO<sub>2</sub> in 2008. This corresponds to a deviation of 22 million t of CO<sub>2</sub> from the budget of 451 million t of CO<sub>2</sub> (EUA).

### *Trends in Price Development in 2009 – Substantial Decline in Import Prices Expected*

The FOB prices for steam coal continued to develop in a downward direction during the first months of 2009. Freight rates also persist at a low level.

On the other hand, the US dollar has gained in strength with respect to the euro. But only time will tell if the huge expansion of the money supply in the USA will not lead to a renewed weakening of the US dollar.

Based on the spot market prices for steam coal in the 1st quarter of 2009, the BAFA price will presumably move from about €102/TCE in January 2009 to a price level averaging €60-70/TCE as an average for the year 2009.

The coking coal prices will probably fall from their historic peaks as well. The Japanese steel mills are attempting to use the contract negotiations for contract year 2007/2008 to restore the level of FOB prices from the negotiations 2007 which was about US\$95/t FOB. The first contracts concluded at the beginning of April 2009 showed US\$125-135/t for hard coking coal.

The coke prices should also decline sharply in 2009.

## Still no clear direction in energy policy

The German energy policy has lost sight of the balance of the target triangle consisting of

- Affordability
- Supply security
- Environmental compatibility

and is increasingly putting Germany's industrial position at risk, despite the lip service paid by politicians of all parties to its importance, by assigning priority to environmental compatibility.

The nonsense of allowing two ministries to share responsibility for shaping the German energy policy leads to blockades and prevents establishment of a consistent energy policy which balances out the target triangle and should and could ensure a balanced, low-cost energy mixture.

This division of responsibility is above all a disaster for the representation of German interests in Brussels because German industrial interests are not being given due consideration.

Yet many countries envy Germany for having an electric power generation structure which is largely independent of short-term world market procurements at this time:

- Nuclear energy
- Lignite
- Hard coal (domestic)
- Renewable energy sources

provide 65%-70% of the power, offering comfortable assurance of supply security. The rest is supplemented by imported hard coal at favourable prices and natural gas which come from various geopolitically secure countries and are broadly diversified.

Germany, which has slightly more than 1% of the world's population and just over 3% of the greenhouse gas emissions in the world, has only a marginal influence on the global climate. So there is no understandable reason for weakening the tried and proven pillar coal.

The lack of clarity in the attitude of the federal government, however, encourages provincial thinking because there is no overall concept concerning energy policy for the federal government. "Give me a good washing, but don't get me wet," is the slogan, especially in municipal government. Basically speaking, no energy source is still considered desirable:

- Nuclear energy: Discontinuation has been decided
- Coal: CO<sub>2</sub> emissions too high
- Gas: Dependency on Russia too great
- Renewable energy sources: High subsidies, disfigurement of the landscape

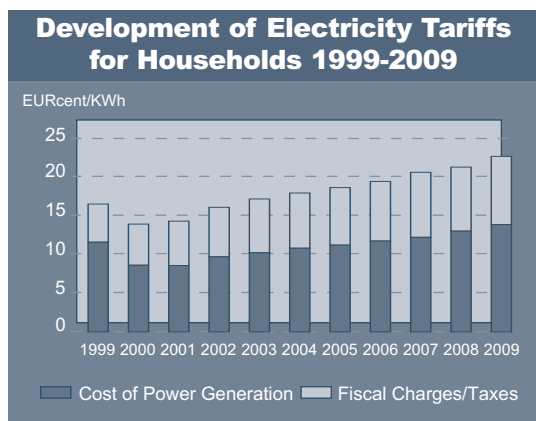
In addition, there are the problems of the slow expansion of the grid. But the new geographic production structure which is becoming discernible demands the expansion of overland networks so that electric power can be transported from the north and east of Germany to the consumption centres in the west, southwest and south of Germany.

Burdens placed on consumers by government levies and taxes on energy are increasing while real income is declining because of globalisation, a trend which has now been exacerbated by the economic crisis.

But the government is the greatest price driver. Levies and taxes have in the meantime reached a share of more than 40% of the price, e.g., for household current. This turns the price increases in end energies induced by the government into a social problem.

It is therefore urgently necessary to turn the energy policies back to an emphasis on supply security and economic efficiency. It makes little sense to relocate production with high CO<sub>2</sub> emissions to other countries and to import unemployment.

The high demand for energy in the threshold and developing countries will in the long run continue to drive energy prices up, and this alone will be enough to ensure energy conservation and improvements in efficiency.



Source: bdew

### *No Change in the Coal Policy Decision to Discontinue in 2018*

The discontinuation schedule for German mining was defined in the German Hard Coal Financing Act passed at the end of 2007.

The quantities shown below are the short-term result:

### Presumable Quantities

	2007 Mill. t	2008 Mill. t	2009 Mill. t
West	2.98	3.0	3.0
Walsum	2.54	1.3	30/06/08 Closure
Prosper Haniel	3.52	3.5	3.5
Lippe	2.14	2.0	01/01/09 Closure
Auguste Viktoria	3.14	3.2	3.2
Ost	1.55	1.6	1.6
Ensdorf	3.55	1.0	1.0
Ibbenbüren	1.91	1.9	1.9
<b>Total</b>	<b>21.33</b>	<b>17.5</b>	<b>14.2</b>

Source: Own estimates

This provides for an adjustment in output of about 7 million t for the period from 2007 to 2009.

The development in output shown below could result in the longer term:

### Outlook for Output

Year	Estimate up to 2018 Mill. t
2008	17.5 Closure of Walsum as per 30/06/2008
2008	Reduction of Ensdorf
2009	14.2 Closure of Lippe as per 01/01/2009
2010	12.5 Closure Ost as per 30/09/2010
2012	12.0 Closure of Ensdorf + Closure West
2013	8.0
2014	8.0
2015	6.0
2016	6.0
2017	4.0
2018	4.0

Source: Own estimates

The discussion about maintaining the German mining industry was sparked once again in 2008 by the temporarily high prices on world markets.

Assuming average production costs of €170/TCE for German production, the following competitive position for German steam coal was determined in the course of 2008. The German production costs were compared in this case with the spot prices CIF ARA:

### Comparison German Steam Coal/ Spot Price cif ARA

	01/01/ €/TCE	31/07/ €/TCE	31/12/08 €/TCE
Costs German coal – free mine	170	170	170
Spot price – CIF ARA	102	162	67
Advantage import coal	68	8	103

The following figures are the result of a comparison of German costs with the cross border price (BAFA price):

### Comparison German Steam Coal/ Cross Border Price (BAFA) 2008

	01/01/ €/TCE	31/08/ €/TCE	31/12/08 €/TCE
Costs German coal – free mine	170	170	170
BAFA price (cross border price)	86	137	103
Advantage import coal	84	33	67

These comparisons assume that the costs for German mines remained constant in 2008.

The comparison makes it clear that, with the exception of a short period in the summer of 2008, the difference between German coal and import coal in terms of the former being competitive with the world market was very large.

The prices for the imports of coking coal between January and July 2008 were in a range of €102-112/t, approximately €60/t below the German costs. But import prices have been rising quickly since August 2008 as a consequence of contractual conditions, and the following development has been observed:

### Development of Coking Coal Import Prices 2008 Pursuant to Contractual Conditions

Year 2008	German costs	Import price	Difference
	€/t	€/t	€/t
August	170	147	-23
September	170	154	-16
October	170	172	+2
November	170	212	+42
December	170	206	+36

The high coking coal import prices will undoubtedly continue in the first half of 2009, but will then presumably drop again to a level of €80-100/t owing to the developments on the world market.

All in all, the German hard coal mines required significantly lower subsidies in 2008 as a consequence of the high world market prices.

The political agreements provide a revision clause for 2012. It remains to be seen whether another boom in demand with corresponding effects on prices which would make German coal internationally competitive on a sustained basis will occur by that date.

The most recent experience has demonstrated that the record high prices are a flash in the pan at the end of an energy and raw material boom.

### *Renewable Energy Sources on the Advance – from Start-up Financing to Permanent Subsidisation*

The proportion of renewable energy sources rose further in 2008 owing to massive subsidies pursuant to the EEG (German Act Regarding Renewable Energy Sources).



Renewable energies accounted for:

- 35.4 million TCE of primary energy demand, equalling a share of 7.4%
- 93.2 TWh of gross electric power generation, equalling a share of 14.5%

<b>Primary Energy Consumption/ Renewable Energies According to Sectors</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. TCE	Mill. TCE	Mill. TCE
Electric power	12.4	14.9	15.9
Heating	11.0	12.2	13.5
Fuels	5.5	5.9	6.0
<b>Total</b>	<b>28.9</b>	<b>33.0</b>	<b>35.4</b>

The positive aspect is undoubtedly that a certain independence from world market procurements has been gained, although at a high price. As the president of the Ifo Institute notes, the EEG makes no sense for climate protection if the emission trade functions properly. On the contrary, its effects run counter to the emission trade. The production of "green electric power" in Germany reduces energy production using fossil energy sources, releasing CO<sub>2</sub> certificates for trade. The price for the CO<sub>2</sub> certificates falls. Other EU countries can then generate more electric power using fossil energy sources at a lower cost. The German consumers end up subsidising fossil electric power generation in the EU.

But emission trade in Europe itself achieves almost nothing in terms of climate protection. Although it reduces the demand for fossil energy sources in Europe and makes their use more expensive, it does nothing to reduce the worldwide supply of fossil energy sources. Unless a worldwide CO<sub>2</sub> trading system is established and a global climate protection treaty is concluded, German and European efforts are doomed to failure and are an unnecessary expense for taxpayers.

"Consequently, the CO<sub>2</sub> reduction resulting from the Act Regarding Renewable Energy Sources is virtually nil because of the logic of the certificate system."<sup>1)</sup>

The amended EEG caused the subsidies/feed-in compensation to rise even higher as of 01/01/2009 (Source: VIK).

- Wind onshore: +17%
- Wind offshore: +72%
- Geothermal energy: +67%

Subsidies for solar energy – already being subsidised at an unimaginably high level – will be reduced by only 7% although drastic price reductions for many of the construction elements for solar power generation have resulted from the increased competition. A "subsidy bubble" is being built up here without making any major contribution to power supply and prevention of CO<sub>2</sub>. Feed-in from solar-generated energy in 2008 came to less than 5% of the total feed-in, but cashed in on 20% of the compensation volume.

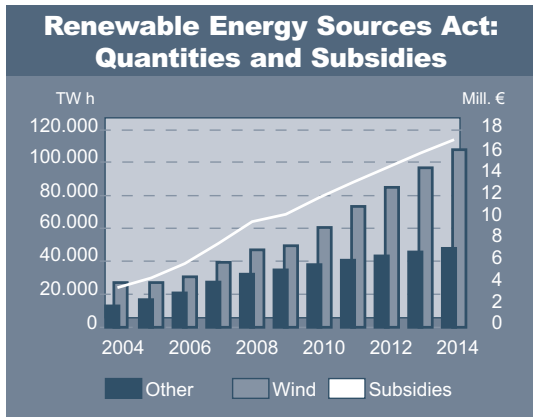
According to information from the BDEW, the German electricity customers paid €4.70 billion for support of ecological electricity in 2008. The support of renewable energy sources is moving further and further away from focusing on start-up financing for new technologies and in the direction of permanent subsidisation by consumers

<sup>1)</sup> *Handelsblatt* 4/5 2009 Blankart

which is increasing in volume and is far in excess of the subsidies for German coal mining.

Since wind energy is not generated on the basis of demand, increasingly large quantities must be redirected to other countries (Netherlands/Poland) at the lowest prices. Assuming a feed-in payment of about 9.0 eurocents/kWh and a wholesale price of 4.0 to 4.5 eurocents/kWh, the subsidy comes to 4.5 to 5.0 eurocents/kWh, corresponding to €135-€150/TCE. In other words, subsidies paid for wind energy are currently more than twice as high as those for German domestic coal. When wind power is redirected into the network in Germany and abroad during low-demand phases, wind energy realises revenues of only 2.0-2.5 eurocents/kWh, making the subsidies even higher. A more forceful reduction of the subsidies for wind energy should also be called for. A further increase in wind energy subsidies for "repowering" would be completely wrong in terms of regulatory policies. After all, "repowering" is intended to reduce the costs for power generation.

The VDN predicts the following EEG expenses from power generation using renewable energy sources:



Source: BDEW (EEG-Mittelfristprognose 2000 bis 2014)

But as the revision of the EEG unfortunately shows, only slight corrections have been made. A subsidisation mentality has become deeply rooted in the EEG industry.

### Renewable Energy Source Act: Total Subsidies/Effective Additional Costs



Source: VIK

### CCS Technology Requires Legal Framework

The EU took an important step for climate protection in 2008 with its framework directive for CCS technology. The initial drafts from the German government for a national law did not make an appearance until the beginning of 2009. As customary, a difference of opinion arose between the involved ministers for economics and for environmental protection.

But since German companies have initiated a number of pilot projects, a legal framework is urgently needed to drive forward the development and testing of this technology and to create a basis for gaining public

acceptance. The countries with the largest coal reserves in the world – the USA, China, Russia and India – intend to rely on a major expansion of coal-fired electric power generation in the long term. In this respect, the development of the CCS technology will lead to great market opportunities in the long term. Moreover, these are high-tech products which, unlike simple wind energy technology, cannot be copied so easily.

### Hard coal-fired electric power generation – 7.600 MW under construction

Federal policy supports the modernisation of the country's coal-fired power plants:

German Chancellor Angela Merkel<sup>1)</sup>: "It would also be a fatal mistake to discontinue the use of coal." She continues: "Coal should continue to function as one of the pillars of the German energy mixture."

Sigmar Gabriel, Minister of the Environment<sup>2)</sup>: "We will provide 40% of the power from high-efficiency coal-fired power plants."

<sup>1)</sup> *Trend 1/2009*

<sup>2)</sup> *Road Map Energy Policy 2020*

But despite this support, hard coal-fired power generation is struggling with the modernisation programme.

Still (gross output):

- 7,600 MW are under construction
- 9,900 MW are in the approval process
- 2,300 MW are in the planning stage
- 2,900 MW have been postponed for the time being.

All of the new plants achieve degrees of efficiency exceeding 45%. Co-generation of district heating improves the exploitation of the fuel even further.

The construction of modern hard coal-fired power plants is becoming increasingly difficult as a consequence of regional resistance, delaying a possible reduction of CO<sub>2</sub> emissions. At the same time, this prevents the development and implementation of modern German power plant technology. The worldwide expansion of coal-fired power generation from today's 40% to 45% in 2030 of total power generation urgently requires modern coal-fired power plants which have been proven to be highly efficient in operation so that the CO<sub>2</sub> emissions can be reduced by a technological approach. Modern coal technology is the key to CO<sub>2</sub> reductions worldwide.

The increased competition in the electric power sector which the federal government would like to see is simultaneously being undermined by its actions. The new construction of hard coal-fired power plants by municipal operators and foreign companies is being systematically prevented, although they could represent production alternatives to the four large utility companies in Germany.

The fast-paced modernisation of hard coal-fired power plants could also provide important stimulus for the economy.

In view of the planned discontinuation of the use of nuclear power, a supplementing of the energy mixture

with coal-fired power plants is essential, especially in the event of a rise in the utilisation of renewable energy sources. In its study of March 2008, the DENA expressly refers to a capacity gap which can already be discerned in the midterm as long as the decision to discontinue the use of nuclear energy remains firm.

### Hard Coal-fired Power Plant Projects

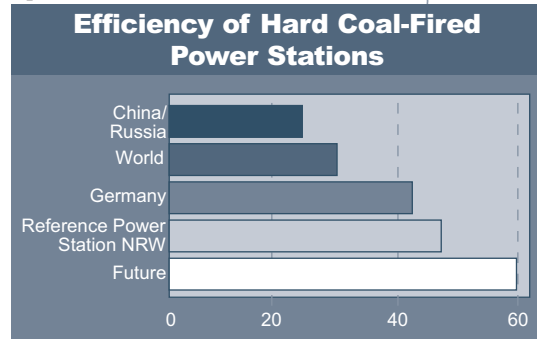
Operator	Location	Capacity (MW)
1.) Coal-fired power plants now under construction or approved		
GDF Suez	Wilhelmshaven	800
EnBW	Karlsruhe	912
E.ON	Datteln	1,055
Evonik Steag/EVN	Duisburg-Walsum	790
RWE Power	Hamm	1,600
Trianel	Lünen	750
Vattenfall	Hamburg-Moorburg	1,640
<b>Total gross output</b>		<b>7,547</b>
2.) Coal-fired power plants in approval process		
Dong Energy	Lubmin	1,600
GDF Suez	Brunsbüttel	800
GDF Suez	Stade	800
E.ON/		1,100
Stadtwerke Hannover	Hanau	
Kraftwerke Mainz/		823
Wiesbaden	Mainz	
GKM	Mannheim	910
SüdWestStrom/Iberdrola	Brunsbüttel	1,800
Trianel	Krefeld/Uerdingen	750
<b>Total gross output</b>		<b>8,583</b>
3.) Coal-fired power plants in approval process, but momentarily suspended		
E.ON/Stadtwerke Kiel	Kiel	800
Evonik Steag	Heme	750
Evonik Steag	Lünen	750
<b>Total gross output</b>		<b>2,300</b>
4.) Coal-fired power plants in planning		
EnBW/BKW	Dörpen	900
E.ON	Stade	1,100
E.ON	Wilhelmshaven	500
Stadtwerke Düsseldorf	Düsseldorf	400
<b>Total gross output</b>		<b>2,900</b>

Source: BDEW, January 2009

### CO<sub>2</sub> Emissions from Hard Coal Consumption Fall by About 12 million t in 2008 – Reduction by 80% by 2050

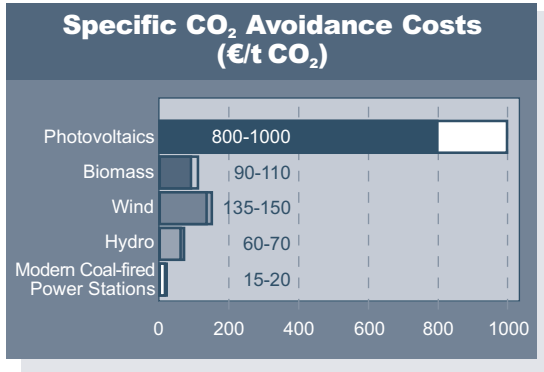
The decline in hard coal consumption for electric power generation and steel production caused a reduction in CO<sub>2</sub> emissions. The lower emissions in the steel industry are the consequence of the severe drop in production in the 4th quarter of 2008. Hard coal-fired power plants ran at a lower level because of the recommissioning of nuclear power plants. The CO<sub>2</sub> emissions of the steel mills fell by an estimated 3 million t of CO<sub>2</sub>, the CO<sub>2</sub> emissions from hard coal-fired power generation by 9.5 million t CO<sub>2</sub>.

The declines described above will accelerate even more in the next few years when the modern hard coal-fired power plants now under construction begin operation.



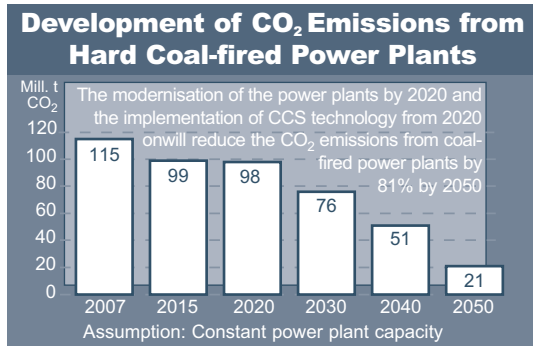
Source: GVST

The realisation of the projects currently in the approval process and in the planning stage could cause a further substantial reduction of CO<sub>2</sub> emissions owing to an improved degree of efficiency.



Source: VGB 2004

CCS technology will result in even further reductions from 2020 on. The chart below shows the potential.



Sources: Arbeitsgemeinschaft Energiebilanzen, 12/2007  
Arbeitsgemeinschaft WI, DLR, ZSW, PIK, own calculations

It is assumed here that the utilisation of nuclear power continues and that the power coal output remains by about 30 MW. The successive implementation of CCS technology could reduce CO<sub>2</sub> emissions by more than 80% by 2050.

CCS technology costs substantially less in comparison with a number of renewable energy sources and involves lower costs for the prevention of CO<sub>2</sub>.

For example, offshore power generation is presumably twice as expensive as power generation in hard coal-fired power plants using CCS technology.

## OUTLOOK FOR THE WORLD COAL MARKET

### World Trade nosedives in 2009

After five years of growth in the world's economy, a decline in economic performance of 2%-3% and a decline in world trade of 6%-13% is being predicted. The forecasts have been repeatedly revised in recent months, but always in a negative sense. Growth is predicted solely for the Asian region.

	Gross National Product (%)		
	2008	2009	2010
World	2.8	-1.9	2.0
USA	1.1	-3.9	0.6
Japan	-0.7	-8.7	-1.9
Euroland	0.7	-3.4	0.3
Asia	6.8	9.6	5.5
China	9.0	7.0	6.6

Source: Deutsche Bank 03/2009

The economic crisis hits Japan the hardest, but North America and Europe will also be hit hard, and recovery in 2010 will be weak.

The forecasts for world trade in bulk products have been reduced sharply. The economic collapse has had especially serious consequences in the steel industry.

<b>Bulk goods</b>				
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Difference</b>
	Mill. t	Mill. t	Mill. t	2008/2009
				%
Steel industry				
• Iron ore	782	843	754	-11
• Coking coal	202	207	188	-9
• Scrap	90	93	95	+2
• Coke	23	23	19	-13
• Pig iron	17	17	16	-7
• Steel products	271	268	243	-9
<b>Total</b>	<b>1,385</b>	<b>1,451</b>	<b>1,315</b>	<b>-9</b>
Steam coal/ Bauxite/Phosphate	623	638	640	+/-0
Grain	420	432	384	-3
<b>Total</b>	<b>2,428</b>	<b>2,521</b>	<b>2,339</b>	<b>-8</b>

Source: Clarkson/VDKi 03/2009

So the world market for bulk goods is plunging and will shrink by 8% for the largest bulk goods in terms of volume. The weakest growth rate in the last 10 years was 1% in 1999.

During the boom phase, a substantial order volume for bulk carriers was placed. Although some of these orders have been cancelled and many plans have been put on the back burner for the moment, the capacity of the fleet – despite increasing scrapping – will presumably rise further in 2009.

### Capacities of the Bulk Carrier Fleet Forecast Based on Order Books and Delivery Dates

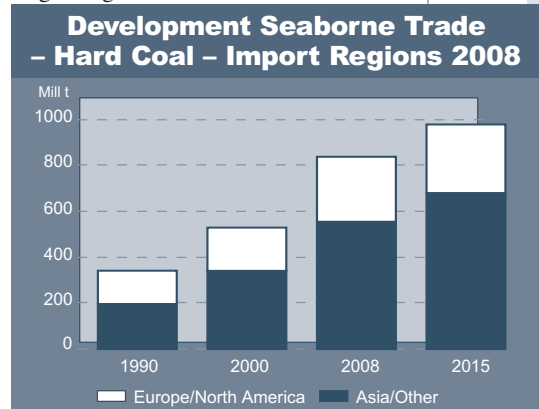
	<b>Planned additional construction</b>			
	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
	m dwt	m dwt	m dwt	m dwt
Capesize	144	177	61	61
Panamax	115	125	23	26
Handymax	83	101	19	16
Handysize	77	84	9	10
<b>Total</b>	<b>419</b>	<b>487</b>	<b>112</b>	<b>113</b>

Source: Clarkson 03/2009

The planned additional construction in 2009 alone appears utopian from today's standpoint, and that is even more true for the predicted additional construction in 2010 and the following years. But the combination of declining bulk goods volume and rising fleet capacity points inexorably in the direction of a relaxed situation on the freight market. During the first months of 2009, capacity rose by only 1% or 3 million DWT. This development is not in line with forecasts which assumed that the increase would be greater.

### Coal world market with break in growth in 2009/2010

The trend to rapid growth in coal world trade observed for many years will probably be curbed for the next 2 years. A distinction must be made here between the steam coal market and the coking coal market because they will be affected differently by the weakness in global growth.



Source: Different estimations, own assumptions

In the middle term, the coal market will again grow at an above-average rate and achieve increases of 3%-4% annually.

This will probably mean that the mark of 1 billion t will be exceeded in 2015. Of the average growth of 30-32 million t per year, 20-22 million t will presumably come from the steam coal market and 8-10 million t from the coking coal market.

### Steam coal market stable in 2009

#### Demand

The demand for electric power is unabated on the Asian market and is recording high growth rates in many countries.

Large parts of the Asian, African and South American populations still have no access to electricity.

In Europe, imported coal is replacing the decline in domestic output, but it is also viewed increasingly as a low-price alternative to natural gas.

Since it must be assumed that domestic production in Germany, Poland and Spain will continue to decline, the import volume will probably be retained for the long term as well, but not increase by any substantial amount because of the burdens which would be incurred for the costs of the CO<sub>2</sub> certificates.

The IEA projects an increase in power consumption worldwide from 15,665 TWh in 2006 to about 28,141 TWh in 2030 (an average of 2.5% per year).

Growth rates of 4.6% and 5.7% are projected from the developing countries China and India, respectively.

The share of power generated using coal will rise from 7,900 TWh to 14,400 TWh in 2030. The share of power generated using coal in the worldwide power production will rise from 40% in 2006 to 44%-45% in 2030.

#### Supply

The Pacific suppliers – above all Indonesia – are continuing to increase their supplies. The programme for the expansion of ports and railways in Australia will presumably bear fruit in 2009. China is continuing to reduce its export supplies because of high domestic demand, but

### Population with/without Access to Electric Power

	China		India		World	
	Mill.	%	Mill.	%	Mill.	%
Population with access to electricity	1,302	99.4 %	607.6	55.5 %	4,875	75.6 %
Population without access to electricity	8.5	0.6 %	487.2	44.5 %	1,577	24.4 %
<b>Total</b>	<b>1,310.5</b>	<b>100 %</b>	<b>1,094.8</b>	<b>100 %</b>	<b>6,452</b>	<b>100 %</b>

remains an important exporter. It is difficult to assess Vietnam's potential. However, exports have been increased rapidly. The Vietnamese government was concerned about the high export volume and cut it back. However, the government has recently eased the restraints on export because domestic demand is estimated to be weaker. Russia is also increasing its Pacific exports and expanding loading capacities in the Far East.

In the Atlantic region, Colombia and Russia in particular are increasing their exports; South Africa is currently stagnating, but will supposedly again raise exports in the coming years. The seaborne exports by Poland continue to decline rapidly. Indonesia will presumably give up market share on the Atlantic market in favour of Asian customers. The smaller steam coal producers – Venezuela, USA and Spitzbergen – round off the available pool.

The USA exported substantially more steam coal in 2008. Stimulated by the high market prices, the export volume from the USA, above all to Europe, rose in 2008. But the low market prices caused the competitive position of the USA to worsen. In terms of volume, Venezuela remains a limited source for the foreseeable future.

### Coking coal market – drastic plunge to be expected in 2009

#### Demand

The negative trend in the steel economy continued at an even faster pace in the first two months of 2009. With the

exception of China, all of the steel-producing countries reduced their pig iron production:

- Japan: -32%
- EU: -43%
- USA: -56%

Global steel production plunged by about 25% in the 1st quarter of 2009. Since China remained stable by and large, the decline in the "rest of the world" was correspondingly greater. This "destocking" in the steel-processing industry reinforced the collapse of demand even further. The weak demand had a full impact on the world market because precisely those countries which obtain their coking coal from the world market were the ones with the fastest fall.

Assuming that there is a recovery in the 2nd half of 2009, demand in coking coal world trade will presumably drop by 20%-25%. Prices for iron ore and coking coal will drop accordingly. The steel mills will also be reducing their inventories first, further reducing the demand for coking coal and iron ore. Substantial price discounts will be expected from producers during price negotiations.

In the midterm, the coking coal will most likely recover and grow with the worldwide steel consumption.



## Growth in Crude Steel Production

	2007 Mill. t	2008 Mill. t	Difference 2007/2008 %	Forecast 2009 Mill. t	Difference 2008/2009 %
China	489	502	+2.6	522	+5.0
World except China	856	828	-3.3	621	-25.0
<b>Total</b>	<b>1,345</b>	<b>1,330</b>	<b>-1.2</b>	<b>1,143</b>	<b>-14.0</b>

Source: World Steel Association

### Supply

Australia, the USA and Canada continue to be the major suppliers to the global market. They will presumably continue to increase production and exports in 2009 and the following years. Russia, Colombia and New Zealand supply smaller quantities of coking coal. Indonesia, Venezuela, Vietnam and South Africa contributed PCI coal.

New coking coal projects are under review in Indonesia, Mongolia and Colombia.

Mozambique could begin exporting from the Moatize Mine in 2010/2011; it has been designed for a capacity of 11 million t annually, of which 8.5 million t is coking coal and 2.5 million t is steam coal. Construction has begun.

Riverdale is also planning a project in Mozambique of 15-20 million t per year, 50% of it dedicated to coking coal.

### Infrastructure of hard coal world trade

#### A worldwide weakness in demand eases the situation

Owing to the rapid growth in recent years of bulk commodities as a whole as well as of coal in particular, bottlenecks have occurred in the infrastructure. There have been major bottlenecks in both loading and discharging ports, domestic railway lines and sea transport. However, the chance to exploit market opportunities of a rising demand in coal triggered a worldwide expansion – even though it was late – of the infrastructure across all of the links of the transport chain 2 years ago. Expansion projects along the entire coal chain have been launched from almost all of the major countries involved in world coal trade. Yet the problems differ from one country to another. In Australia, for example, the primary problem is the bottleneck in port and railway capacities, while South Africa has been unable to increase output.

The realisation of many measures has significantly improved the situation, above all in Australia, and the queues in the loading ports have already been reduced substantially.

No bottlenecks in the logistics of the coal world market are expected in 2009/2010, especially against the back-drop of weaker demand for coking coal.

Expansion projects in the loading ports have been launched in Indonesia, Colombia, Russia and South Africa, and some of them are already being carried out.

### Market concentration continues

The tendency toward market concentration continues in all of the producing countries. The Chinese, for example, are striving to create large hard coal companies with over 100 million t output for the long term. 5-6 companies are also handling the lion's share of production and export in Indonesia.

However, the long-term world market prospects are also luring new companies into the coal export business, thereby expanding the pool of suppliers.

In the case of coking coal – above all, hard coking coal – Australia has created an overly dominant position with a market share of almost 65%-68%, which in turn is in the hands of just a few producers. However, another player – Vale (CVRD) – has stepped onto the coking coal scene. Vale (CVRD) is developing into another market participant through projects in Mozambique as well as the entry into Australian coal mining.

BHP's efforts to take over its competitor Rio Tinto have come to naught for the moment. Nor are Vale (CVRD)'s efforts to incorporate Xstrata a way to promote competition; fortunately they have been dropped.

The competition in the area of steam coal continues to be broader, and in recent years Russia and Indonesia have strengthened their positions on markets alongside the traditional suppliers Australia, South Africa and Colombia. The USA has also returned to the ranks of the worldwide suppliers. Presumably, however, its exports will once again decline because of lower world market prices.

### Damper on developments for coal gasification and liquefaction projects

Due to high oil and gas prices, coal liquefaction projects (CTL = coal to liquids) were being considered in Australia, China and the USA on the basis of low-cost coal deposits. This could lead to the development of a new sales market for coal with low extraction costs in 5-10 years. The prerequisite is low mining costs.

But the rapid drop in the price of oil has put a major damper on many of the projects and could delay them for a number of years.

South Africa is currently the only country where coal is liquefied in large amounts. About 45 million t of coal are processed.

## COUNTRY REPORTS

### AUSTRALIA

#### Production

Despite the difficulties at the beginning of 2008, it was possible to increase production slightly once again. Fear of substantial drops in output led to hysterical market reactions at the beginning of 2008 during the contract negotiations for coking coal contracts 2008/2009.

Production developed as shown below in Australia's production regions:

#### Saleable Production of the Major Production States of Australia

	2006 Mill. t	2007 Mill. t	2008 Mill. t
New South Wales (NSW)	128	133	137
Queensland (QL)	176	180	188
<b>Total</b>	<b>304</b>	<b>313</b>	<b>325</b>

There are still some smaller hard coal production facilities in Western Australia and Tasmania (about 9 million t per year) in addition to the output in NSW and QL. This output is used exclusively on the domestic market.

Besides hard coal production, about 70 million t of lignite per year, which are consumed domestically, are mined in Victoria.

Australia is making great efforts for improvement of coal technology, in particular in mining, processing and improved exploitation of the potential of deposits. 25% of Australian mining is done in underground operations, 75% in opencast pits. The project list for steam coal as well as for coking coal is long. The scope and speed of the increase in output is not so much a question of financing and reserves; it is being increasingly dictated by the development of the infrastructure, which is lagging behind actual need. Bottlenecks are at this time found primarily along the railway lines ahead of the export ports.

Australia continues to hold a world market share of about 30% of global coal trade and has the largest sustainable expansion potential for steam and coking coal for the long term. However, the financial crisis could lead to the postponement of some projects, especially for coking coal.

#### Infrastructure

Strain on the infrastructure was once again high in 2008. The first steps in the improvement of the ports became apparent. All in all, it was possible to increase export volume once again by about 10 million t.

Now that a series of expansion measures for the ports have been initiated or even concluded, the rail transport as a bottleneck is moving into focus.

At the end of 2008, demurrage time for ships in Australian ports were reduced substantially.

### Coal Loading Ports

Coal Loading Ports	Exports 2006	Exports 2007	Exports 2008
	Mill. t	Mill. t	Mill. t
Abbot Point	11.207	11.756	13.685
Dalrymple Bay	50.946	44.787	47.983
Hay Point	32.152	39.675	35.972
Gladstone	49.750	53.382	56.075
Brisbane	3.952	5.263	5.322
<b>Total Queensland</b>	<b>148.007</b>	<b>154.863</b>	<b>159.037</b>
Newcastle	79.805	84.796	91.436
Port Kembla	11.184	12.924	11.715
<b>Total New South Wales</b>	<b>90.989</b>	<b>97.720</b>	<b>103.151</b>
<b>Total</b>	<b>238.996</b>	<b>252.583</b>	<b>262.188</b>

The transshipment figures for the coal loading ports do not coincide precisely with the export figures. There may be customs-related reasons for this.

Almost all of the Australian ports have plans for expansion:

### Expansion Plans Australian Ports

Port	Current Capacity	Short-term Increase (2008-2009)	Middle-term Expansion (2010-2012)
	Mill. t	Mill. t	Mill. t
Newcastle	102	105	175
Port Kembla	14	14	14
Dalrymple Bay	60	68	85
Hay Point	44	44	55
Gladstone	45	68	88
Abbot Point	15	21	50
Brisbane	5	5	5
Miscellaneous	-	-	30
<b>Total</b>	<b>285</b>	<b>325</b>	<b>502</b>

AUS\$9 billion are supposed to be invested in the expansion of the infrastructure, including railways, in Queensland alone in the next few years.

Xstrata-Coal is examining the possible construction of its own terminal for 20 million t annually near Port Alma. But the economic crisis has prompted the repeated review of many projects, and the mining companies are reluctant to enter into long-term obligations. There will probably not be any bottleneck situations in 2009 as a consequence of the expected weakening of demand for coking coal.

### Export

Overall, coal exports were increased by 11 million t despite the substantial disruptions in production. The export of hard coking coal did not, as was feared, plunge; in fact, it was maintained at the level of the previous year. This is also true for semi-soft coking coal and PCI coal. In total, coking coal export fell slightly by 3 million t. Exports would have risen if the production disruptions at the beginning of 2008 had not occurred. The shortfalls were compensated primarily by the USA.

### Coal Exports by Qualities

Coal Quality	2006	2007	2008
	Mill. t	Mill. t	Mill. t
1.) Coking coal (HCC)	80	85	84
Semi-soft coking coal	44	53	51
2.) Steam coal	113	112	126
<b>Total</b>	<b>237</b>	<b>250</b>	<b>261</b>

Steam coal exports increased by 14 million t. It was sold above all in the Asian region where it compensated for the decline in Chinese exports.

Hard coking coal (HCC) from Australia is used all over the world because of its good quality. The sales of the other coking coal qualities focus primarily on the Pacific region. The largest customers for Australian coking coal are Japan (50.5 million t) and India (25 million t). Exports to South Chinese coastal steel works are also increasing as world market prices fall.

### Key Figures Australia

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	314	322	334
Hard coal exports	237	250	261
• Steam coal	113	112	126
• Coking coal	124	138	135
Imports Germany	5.4	6.7	5.5
• Steam coal	0.8	1.2	0.5
• Coking coal	4.6	5.5	5.0
Export quota in %	77.0	76.0	79.0

## INDONESIA

### Production

Indonesian coal mining continued to expand in 2008. Preliminary estimates show an increase in output from 231 million t to about 255 million t. Official figures show output to be 203 million t. This must be increased by the output which is not officially recorded and which is in part purchased by large companies. Adaro,

for example, purchased 6 million t in addition to its own output.

### The Largest Hard Coal Producers in Indonesia

Company	Output <sup>1)</sup> 2008 Mill. t	Exports <sup>1)</sup> 2008 Mill. t
Bumi	52.8	46.3
Adaro	34.5	30.2
Kideco	21.6	15.9
Banpu	19.8	19.5
Berau	12.9	8.1
Bukit Asam	10.0	4.3
<b>Total</b>	<b>151.6</b>	<b>124.3</b>
<b>Indonesia Total<sup>1)</sup></b>	<b>255.0</b>	<b>202.0</b>

<sup>1)</sup>Excluding additional purchase

Of the total output, 201 million t were exported and about 45 million t were used for domestic consumption. The inventory situation in Indonesia is unknown. The middle-term to long-term tendency of the Indonesian output and with it the exports is in the direction of lower calorific values. An approximation is that the Indonesian production of 255 million t breaks down into:

- 230 million t in Kalimantan and
- 25 million t in Sumatra.

The production in Sumatra especially is required for domestic consumption because the deposits are located close to the power consumption centre in densely populated Java. The interest in the drying and briquetting of low calorific coal is rising as well, and a number of pilot facilities are being planned or are already under construction.

Besides hard coal production, there is lignite output of 28-30 million t.

A number of coking coal projects (Kalteng, Guloi, Lampunet, Tulup) are also being examined in Indonesia.

Japanese, Chinese and Australian companies (Sumitomo/BHP) are beginning to develop coking and steam coal projects in Eastern and Central Kalimantan. There are coking coal deposits on Sumatra as well which are attracting interest.

#### Infrastructure

Indonesia currently has six larger deep-water ports on Kalimantan with an annual handling capacity of 135 million t, allowing the loading of freighters of 60,000 to 180,000 DWT. In addition, there are ten more coal terminals nationwide (including Samarinda and Palikpapan) with an annual capacity totalling 80-100 million t and a depth which, as a rule, is adequate for Panamax sizes. Handling capacities are also available on Sumatra. Moreover, there are numerous off-shore loading opportunities for smaller ships.

The large number of loading opportunities have favoured the strong development of exports. In the long term, further growth is also dependent on an improvement in the infrastructure upcountry (construction of railway lines) because as of this point only the coal reserves which are either in the proximity of the coasts or have a good river connection for further transport to the coast have been developed.

#### **Export and Port Capacities in Indonesia**

	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
Adang Bay	13	15	15
Banjarmarsin	7	10	25
Kotabaru	15	16	20
Pulau Laut	30	30	30
Tanjung Bara	34	37	40
Tarahan	3	3	5
<b>Total</b>	<b>102</b>	<b>111</b>	<b>135</b>

10 additional smaller coal loading ports and  
20 offshore loading opportunities

**Total Capacity**      **177<sup>1)</sup>**    **200<sup>1)</sup>**    **235<sup>1)</sup>**

<sup>1)</sup> Estimated figures in part

#### Export

The official export figure currently available is about 160 million t. Based on available statistics, we are assuming a figure of 201 million t. This means an increase of 12 million t in 2008 in comparison with 2007.

So Indonesia continued to expand its leading world market position as a steam coal exporter in 2008.

Indonesia was more than able to compensate for the decline in Chinese exports. An estimated 2-3 million t from Indonesian output went onto the market as PCI coal. The focus of Indonesian exports is on the Pacific market. Volumes to the European and American countries were stable in 2008.

#### **Coal Exports According to Markets**

	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
Pacific	141	166	179
Europe	25	18	18
America	5	5	5
<b>Total</b>	<b>171</b>	<b>189</b>	<b>202</b>

<sup>1)</sup> Estimated

The largest individual buyers are found in Asia.

#### **The Largest Buyers of Indonesian Coal**

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Japan	31.4	34.1	39.7
South Korea	20.8	26.5	26.6
Taiwan	24.4	25.8	25.8
India	19.4	24.8	29.2
China	6.2	14.9	16.1

Export will continue to grow. Domestic demand, on the other hand, is growing slowly because many power plant projects of the 10,000 MW special programme have been delayed. Focus of exports will remain Kalimantan. The long-term goal of the government is to provide electric power to 97% of the population and to increase coal-fired power generation to about 110 million t by 2018 for this purpose.

### Key Figures Indonesia

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output (sub-bituminous)	199	231	255
Steam coal exports	171	189	202
Imports Germany	1.5	1.2	0.5
Export quota in %	85	82	79

## RUSSIA

The countries of the former Soviet Union with major coal production are shown below:

### Coal Production

	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
Russia	310	314	330
Ukraine	80	75	78
Kasakhstan	92	88	90
<b>Total</b>	<b>482</b>	<b>477</b>	<b>498</b>

<sup>1)</sup> Provisional

Coal is being reassessed in all of these countries due to the high prices for oil and gas. The use of coal for domestic electric power generation in particular is to be expanded.

Only Russia is of any significance for the world market. In the past, Ukraine exported about 2-3 million t of steam coal and anthracite and about 2-3 million t of coke from its own production, depending on the market situation, through the Black Sea ports. Kazakhstan traditionally exported about 24-25 million t of steam coal to Russia and smaller quantities of coking coal to Ukraine. Only Russia will be considered in the following remarks.

### Production

Russia was able to further increase production by 16 million t and reached a figure of about 330 million t. Initial estimates indicate that opencast pit output rose by 15 million t to 219 million t, while production from underground operations increased from 110 million t to 111 million t.

The production comprises the following segments:

### Production Russia

	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
Coking coal	70	70	74
Steam coal	239	244	256
• High volatile coal	103	122	145
• Low volatile coal	52	51	50
• Anthracite	9	7	6
• Lignite	75	64	55
<b>Total</b>	<b>309</b>	<b>314</b>	<b>330</b>

<sup>1)</sup> Party estimated

The focus of Russian hard coal output is found in the Kemerovo region, reaching 182 million t in 2008, about 100 million t from opencast pits and about 82 million t from underground operations. At the beginning of 2007, Gazprom wanted to acquire an interest in SUEK, the largest producer. The background for their interest is above all cooperation in electric power generation. However, the transaction was abandoned in 2008.

Russia is planning to replace gas-fired power plants with coal-fired plants so that more natural gas will be available for export. In the long term, the share of coal in power generation is supposed to increase from 23% today to 30%. The financial crisis will presumably lead to delays in the new construction programme because the demand for electricity is declining and the financing costs are rising.

#### Infrastructure

Owing to the high transit fees and handling rates of the Baltic ports, Russia is increasingly directing its exports through Murmansk. Greater use is also being made of the Baltic Sea port Ust-Luga. Nevertheless, it was necessary to continue utilisation of the Tallinn port (Muuga) to satisfy the growing demand. Shortages in rail cars occurred. It must be noted that the Russian seaborne coal exports in recent years have increased significantly. However, efforts are being made to eliminate the bottlenecks. A further expansion of the port Ust-Luga is projected. There are also expansion plans for Murmansk. In the Far East, Vanino is supposed to be expanded so that it can handle Capesize ships and capacities of up to 13 million t per year in 2012. The first loadings are planned for 2008.

Krutrade is investing in its own railway cars so that it can be more independent of the national railway system. In total, Russia's export capacities are supposed to be expanded to as much as 135 million t by 2020.

<b>Russian Ports</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
<b>Baltic Sea Ports and North Russia</b>			
Murmansk	10.5	11.7	10.6
Vysotsk	4.0	4.3	2.8
Riga	10.7	10.4	12.8
Ventspils	3.9	4.2	4.3
Tallinn (Muuga)	7.5	3.7	-
St. Petersburg	2.5	2.3	2.1
Ust-Luga	3.5	6.4	4.9
Miscellaneous	0.4	0.6	3.3
<b>Total</b>	<b>43.0</b>	<b>43.6</b>	<b>40.8</b>
<b>South Russia and Ukraine</b>			
Mariupol	2.2	2.2	1.4
Tuapse	3.2	2.9	3.1
Yuzhny	4.8	3.7	3.3
Miscellaneous	5.6	7.5	7.7
<b>Total</b>	<b>15.8</b>	<b>16.3</b>	<b>15.5</b>
<b>Russia Far East</b>			
Vostochny	15.4	15.3	14.1
Vanino	0.5	0.6	0.7
Miscellaneous	2.4	3.4	6.5
<b>Total</b>	<b>18.3</b>	<b>19.3</b>	<b>21.3</b>
<b>Total</b>	<b>77.1</b>	<b>79.2</b>	<b>77.6</b>

The export figures of the ports do not always agree with the data from customs authorities regarding the exports.

#### Export

Coal exports continued to rise in 2008 to 95 million t, 9.3 million t of which went over the green border into CIS countries. Exports to other countries amounted to 85.7 million t, 77.6 million t as seaborne exports



and 8.1 million t as overland exports. Total exports of 95 million t break down into about 8 million t coking coal and 87 million t steam coal and anthracite.

Of the seaborne exports of 77.6 million t, about 3 million t were coking coal and about 74.6 million t steam coal. 21 million t of coal were shipped to the Far East, thereof 3 million t coking coal; 53.6 million t of steam coal went to the European region.

In Europe, Great Britain reduced its imports of Russian coal, but remains the most important buyer. Germany reduced its purchases of Russian coal slightly. Since exports from Poland are declining steadily, the exports from Russia will probably rise in the midterm.

### Key Figures Russia

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Coal output	310	314	330
Hard coal exports <sup>1)</sup>	75	79	78
• Steam coal	69	74	75
• Coking coal	6	5	3
Imports Germany	9.3	8.6	8.0
• Steam coal	8.2	7.3	6.9
• Coking coal	0.9	1.1	0.9
• Coke	0.2	0.2	0.2
Export rate in %	25.0	25.0	24.0

<sup>1)</sup> seaborne only

## COLOMBIA

### Production

Colombia's hard coal output rose by about 4 million t to about 73 million t in 2008. The Colombian coal industry is adhering to a policy of expansion and is continuously rising. All of the larger producers are planning to increase output. Drummond, for example, has acquired the El Descanso licence and with it the potential to double its current output to as much as 40 million t annually. Cerrejon also has plans for further middle-term expansion to 40 million t annually. The Brazilian raw materials group Vale has acquired coal licences from Cementos Argos, continuing to build-up its coal division.

Coal licences have been granted to newcomers as well as to established companies. Colombia also has some smaller coking coal deposits of its own which are attracting more and more interest. Foreign investments in Colombia's coal mining industry are increasing steadily.

### Exports According to Companies

Exporter	2006 Mill. t	2007 Mill. t	2008 Mill. t
Cerrejon	27.5	29.9	31.4
Drummond	20.8	22.7	22.2
Prodeco/ Carbones De la Jagua	8.2	10.7	11.5
Carbones del Caribe	0.3	0.7	2.0
Miscellaneous	1.4	0.8	1.6
<b>Total</b>	<b>58.2</b>	<b>64.8</b>	<b>68.7</b>

In the long term, output of more than 100-110 million t per year can be expected in 2015, most of which will continue to be exported.

### Infrastructure

Transport and transshipment capacities were expanded by about 4 million t to 79.3 million t in 2008. Colombia's infrastructure is to undergo a major expansion so that the planned coal exports can be realised. The Colombian government bought back the railway company Atlantic Rail in order to pass it on to an international syndicate (incl. Glencore and Drummond) which is supposed to expand and maintain the systems. For example, there are plans to increase the route La Loma/Santa Marta (200 km) from its current annual handling capacity of about 25 million t to an annual capacity of 45 million t.

The Colombian government is also planning the construction of a large coal terminal – Puerto Nuevo – with a handling capacity of 30 million t annually and an additional expansion stage to 50 million t annually. A number of export-oriented companies want to participate in a construction syndicate. So far, the infrastructure has been able to handle the increasing export volume.

<b>Port Capacities of Colombia</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
Puerto Bolivar	28.0	32.0	32.0
Cienaga (Drummond)	24.0	28.0	28.0
Prodeco Puerto	6.0	6.0	9.0
Carbosam	4.0	4.0	4.0
Rio Cordoba	3.0	3.0	3.0
Barranquilla	1.5	1.5	1.6
Cartagena	2.0	0.7	1.7
<b>Total</b>	<b>68.5</b>	<b>75.2</b>	<b>79.3</b>

The government has promised to build feeder roads in the areas where rail access is difficult.

### Export

The Colombian steam coal exports overtook South Africa for the first time in 2008, making Colombia the world's fourth-largest exporter. Colombian coal goes primarily to the Atlantic market. Of the total exports of steam coal of 68.7 million t, about 4.7 million t went to Chile and Peru, i.e., the Pacific region.

The major portion of the exports, however, is sent to the USA, which increased its imports from 21.8 million t in 2007 to 21.9 million t in 2008.

The European region purchases dropped by 0.8 million t coal less. The largest importers were Germany (5.8 million t), UK (4.0 million t), France (2.6 million t), Portugal (1.9 million t) and Israel (2.0 million t). Smaller quantities of coking coal and coke were exported in addition to the steam coal.

Smaller quantities of coking coal and coke are not included in the export figures.

<b>Steam Coal Exports Structure of Colombia</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
<b>America</b>	26.3	29.5	34.3
North America (USA + Canada)	22.1	23.3	24.2
South- and Central America	4.3	6.2	10.1
<b>Europe</b>	31.9	35.2	34.4
Mediterranean region	13.0	11.2	11.2
Northwest Europe	18.9	23.9	23.2
<b>Total</b>	<b>58.2</b>	<b>64.7</b>	<b>68.7</b>

Exports should continue to rise in 2009. The government is supporting the expansion of coal production. The high world market prices make coal exports from Colombia especially attractive for the national economy in 2008.

### Key Figures Colombia

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	63.7	69.0	73.0 <sup>1)</sup>
Hard coal exports	58.5	65.5	69.3
• Steam coal	58.2	64.9	68.7
• Coking coal	0.3	0.6	0.6
Imports Germany	3.7	6.9	5.8
Export quota in %	92	95	95

<sup>1)</sup> provisional

In the long term, the expansion of the Panama Canal planned for 2014 could open up Pacific sales potential to Colombia as well. The speed with which production is expanded will depend on further international developments.

## REPUBLIC OF SOUTH AFRICA

### Production

South African production in 2008 declined by 8 million t (-3%) from 243 million t to 235 million t.

To date, the many new companies under the BEE regime (Black Economic Empowerment) have regrett-

ably not made any contributions to an expansion of production due to a lack of investments. In some cases, BEE companies have done nothing more than to take over existing mines from large mining companies. However, there are now indications that concrete steps are being taken to initiate a number of expansion projects.

The critical power supply to the South African industry also casts a bad light on South Africa's economic policies.

One highly disturbing point is the poor management of the electric power supply of the country. Since prices for power are kept low by government measures, no new generating capacities have been built so that it is no longer possible to cover demand completely, a situation which has caused black-outs to occur for a number of years. The mining sector (gold, platinum, aluminium) and its exports are also affected.

The economic crisis reduced the demand for power in South Africa at the end of 2008/beginning of 2009. However, new construction of coal-fired power plants will presumably increase domestic consumption again as of 2012.

The domestic market in South Africa consumed the following quantities in 2008:

### Consumption of the Domestic Markets

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Power generation	108.6	111.2	119.4
Synthetic fuels (Sasol)	43.8	45.4	44.1
Industry/Domestic fuel	18.2	15.6	18.1
Metallurgical industry	5.1	5.5	4.7
<b>Total</b>	<b>175.7</b>	<b>177.7</b>	<b>186.3</b>

This shows that own consumption rose substantially by almost 9 million t, and this, in combination with the low output, narrowed the export potential even further.

Above all, the demand for coal for power generation increased.

In contrast, new coal production is developing in South Africa's neighbouring states. Projects have been launched in Botswana, Mozambique and Zimbabwe. The possibility of opening a mine is also being examined on Madagascar.

The South African rand weakened with respect to the US dollar. This compensated partially for the falling FOB prices in US\$.

#### Infrastructure

The South African infrastructure – especially rail transport – is still unable to function satisfactorily. Mining companies and Spoornet are busy laying the blame on each other while economic politicians take no action.

#### **Exports Through South African Ports**

	2006 Mill. t	2007 Mill. t	2008 Mill. t
RBCT	66.5	66.2	61.8
Durban	1.4	0.8	1.0
Maputo/Mozambique	1.1	0.7	0.9
<b>Total</b>	<b>69.0</b>	<b>67.7</b>	<b>63.7</b>

RBCT currently has a loading capacity of 76 million t, but only about 82% of the capacity is utilised. The expansion to 91 million t is in progress and is expected to be concluded in 2009. But doubts are growing as to whether the expansion makes any sense in view of stagnating output development and the inadequacies of railway deliveries. The two smaller ports were able to increase their transshipment volumes slightly.

#### **Export Rights to Richards Bay Coal Terminal after Expansion**

<b>Richards Bay Coal Terminal (RBCT)</b>	Mill. t/a <b>72.00</b>	% <b>79.13</b>
Ingwe	26.95	29.62
Anglo Coal	19.78	21.74
Xstrata	15.06	16.54
Total	4.09	4.49
Sasol	3.60	3.96
Kangra	1.65	1.82
Eyesizwe	0.87	0.96
<b>South Dunes Coal Terminal</b>	<b>6.00</b>	<b>6.59</b>
<b>Other Exporters (incl. BEE)</b>	<b>9.00</b>	<b>9.89</b>
<b>Common Users (incl. BEE)</b>	<b>4.00</b>	<b>4.39</b>
<b>Total</b>	<b>91.00</b>	<b>100.00</b>

Alternatives – although currently not necessary in terms of amount of output – are being considered in Namibia and Mozambique.

#### Export

2008 was once again a disappointing year for South African exports. The exports declined further, and the South African coal industry was unable to exploit its export potential during the high-price phase 2007/2008.

#### **Structure of the Overseas Exports in 2008**

	Total Mill. t	Europe <sup>1)</sup> Mill. t	Asia Mill. t	Miscellaneous Mill. t
Steam coal	60.9	46.0	10.4	4.5
Anthracite	1.1	0.5	-	0.6
Coking coal	0.5	0.2	0.3	-
<b>Total</b>	<b>62.5</b>	<b>46.7</b>	<b>10.7</b>	<b>5.1</b>

<sup>1)</sup>incl. neighbouring Mediterranean countries

Europe, including the Mediterranean region, remained the most important market, accountable for 75% of the exports. The largest European consumers were Germany, Spain, France and the Netherlands. India was the dominant customer (8 million t) in the Asian region. Exports to this region will undoubtedly continue to rise in the future. South Korea also increased its purchases.

### Key Figures Republic of South Africa

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	244	243	235
Hard coal exports <sup>1)</sup>	69	68	63
• Steam coal	68	67	62
• Coking coal	1	1	1
Imports Germany	8.7	6.5	8.2
• Steam coal	8.7	6.1	8.1
• Coking coal	–	0.4	0.1
Export quota in %	28	28	27

<sup>1)</sup> seaborne only

## USA

### Production

Production in the USA rose slightly in 2008. As domestic sales were stable, the additional volume was exported. Output in the Appalachian coalfields, which have favourable access to export opportunities, rose by 13 million t. "Western" also increased production.

More than 50% of the generation of electric power in the USA continues to be based on coal, and the long-term tendency is rising.

### Allocation of Output USA

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Appalachian <sup>1)</sup>	370	344	355
Interior	142	138	137
Western	554	561	576
<b>Total</b>	<b>1,066</b>	<b>1,043</b>	<b>1,068</b>
East of Mississippi	462	435	448
West of Mississippi	604	608	620
<b>Total</b>	<b>1,066</b>	<b>1,043</b>	<b>1,068</b>

<sup>1)</sup>Incl. coal from stockpile processing, incl. lignite

Source: EIA

The new administration wants to exploit coal potential more strongly by employing modern technology as a way to reduce the dependency of the USA on oil imports. Coal to liquid (CTL) projects are also under consideration. However, the sharp decline in oil prices has put a damper on expectations. President Obama classifies coal as the most important energy resource. The plan for modernisation of the energy sector provides US\$3.4 billion for the CCS programme.

### Infrastructure

The infrastructure of the railways and ports is well developed. Since the private railway companies with their networks hold a monopolistic position in some of the output areas, the freight rates have risen substantially in recent years. About 82 million t, including domestic deliveries, were handled by the American ports in 2008. The infrastructure has proven to be highly flexible and allowed additional exports of more than 16 million t. This is a demonstration of the Americans' capability of seizing on market opportunities on relatively short notice.

### Utilisation of Port Capacity USA 2007/2008

Port	Terminal	2007 (Actual) Mill. t	2008 (Actual) Mill. t
Hampton Roads	Lamberts Point	11.70	16.06
	DTA	5.34	8.77
	KM Pier IX	3.46	8.54
Baltimore	Chesapeake	0.88	1.92
	CNX Marine (Consol)	5.80	7.78
Mobile Lower River		6.70	7.51
	IMT (2/3 KM)	3.15	} 7.96
	United (Electrocoal)	5.40	
	IC Marine Terminal	1.08	
<b>Total</b>		<b>43.51</b>	<b>58.54</b>

Source: McCloskey

#### Export/Import

Exports from the USA increased by a good 20 million t in 2008. The high world market prices for coking coal and steam coal made the international markets attractive once again for US producers, and they returned as "swing suppliers". Seaborne export rose by 16 million t, while overland exports – primarily to Canada – increased by about 4 million t.

#### Exports USA 2008

	Coking coal Mill. t	Steam coal Mill. t	Total Mill. t
Seaborne	35.4	17.1	52.5
Overland (Canada)	3.2	17.8	21.0
<b>Total</b>	<b>38.6</b>	<b>34.9</b>	<b>73.5</b>

The USA also profited from Australia's inability to increase its coking coal exports in 2008. Seaborne coking coal exports rose by 9 million t in comparison with the previous year, steam coal exports by 7 million t. Coal imports stagnated. Primary suppliers were Colombia, Indonesia and Venezuela. The export/import balance increased again.

#### Import-Export Balance USA (Seaborne)

	2000 Mill. t	2002 Mill. t	2004 Mill. t	2007 Mill. t	2008 Mill. t
Export (seaborne)	33	21	26	37	53
Import (seaborne)	11	15	25	31	31
<b>Difference</b>	<b>22</b>	<b>6</b>	<b>1</b>	<b>6</b>	<b>22</b>

A weakening of exports is to be expected for 2009 because the price level is falling rapidly due to the weak economic development. This could also mean the end of the "swing supplier" role once again.

However, the weakening domestic demand in the USA could mean that export quantities become available despite the lower world market prices. Almost 14 million t, above all steam coal, were exported additionally to Europe. Japan also bought 1.6 million t.

Canada increased its imports from the USA by 4 million t to 21 million t.

<b>Key Figures USA</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
Hard coal output <sup>1)</sup>	1,066	1,043	1,068
Hard coal exports	46	53	74
• Steam coal	20	24	35
• Coking coal	26	29	39
Hard coal imports (incl. Canada)	30	33	31
Imports Germany	2.2	2.9	5.7
• Steam coal	0.3	1.1	3.1
• Coking coal	1.9	1.8	2.6
Export rate in %	4	5	7

<sup>1)</sup> Excluding lignite

## PEOPLE'S REPUBLIC OF CHINA

Overall, 2008 was another year of strong growth with an increase of more than 9% in the gross national product. However, even the Chinese economic development suffered a significant slowdown in the 4th quarter of 2008. Electric power generation in total increased by 4.5%, coal-fired power generation by 3%. Power generation from coal alone amounted to 2,786 TWh, corresponding to a share of 82%.

## Power/Crude Steel/Pig Iron/Coal Production

		<b>2006</b>	<b>2007</b>	<b>2008</b>
Power generation	TWh	2,834	3,260	3,405
Crude steel production	Mill. t	424	489	502
Pig iron production	Mill. t	406	469	471
Coal production	Mill. t	2,331	2,523	2,716

Pig iron and crude steel production were also unable to maintain the high pace of growth of past years and their rate of increase slowed down.

The Chinese government is aiming for growth in gross national product of at least 8% for 2009 again and is supporting the achievement of this target with comprehensive economic programmes.

### Production

Coal output was further expanded to secure the supply of energy. It was possible to increase production by 193 million t to 2,716 million t. The greatest growth was again achieved by the state-owned mines, while the provincial mines were able to increase production only slightly. The large number of small businesses realised almost 36.5% of the total output. However, the number of small mines is to be reduced further. In the long term, their numbers are supposed to be reduced to well under 10,000 with a total capacity of 700 million t a year. But the small operations currently produce almost 1 billion t, so they remain a major pillar of Chinese coal production.

## Coal Production in China

	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
State-owned mines	1,126	1,240	1,377
Provincial mines	308	324	345
Small operators	892	959	994
<b>Total</b>	<b>2.326</b>	<b>2.523</b>	<b>2.716</b>

Coal production is being increasingly burdened by levies for reclamation, mine safety and exploration.

Hard coal output is to be increased further. At the moment, according to Chinese information, capacities of about 1 billion t annually are under construction. A total of 500 million t of this is supposed to go into production in 2009. It remains to be seen how much capacity will be lost from the closure of small operations.

Assuming that growth rates in the demand for electric power and steel remain high, coal production will presumably grow at an average rate of 150-200 million t a year and could reach a level of 3 billion t a year in 2010. The concentration process in the Chinese coal industry continues. China wants to reduce the number of small mines to below 10,000. China's coking plant capacity amounts to 400 million t a year. The collapse of the export market and the weakening of the domestic market will undoubtedly lead to reassessment and concentration in this sector as well.

#### Infrastructure

China's infrastructure is being steadily expanded. Chinese railways transported 1.34 billion t of coal in 2008, almost 50% of the total output. The expansion of the railway system is a great challenge for China because more and more coal must be transported from the north to the consumer centres in the south.

Port handling of coal increased by 46 million t to 508 million t. This figure breaks down as shown here:

- 58 million t export of coal/coke
- 41 million t import of coal
- 409 million t handling via Chinese ports for retransport to the interior

Exports in 2008 were handled as shown below:

<b>Export Coal Handling 2008 in China</b>				
<b>Port</b>	<b>Steam Coal</b>	<b>Coking coal</b>	<b>Coke</b>	<b>Total</b>
	Mill. t	Mill. t	Mill. t	Mill. t
Quinhuangdao	14.01	-	-	14.01
Huang Hua	16.00	-	-	16.00
Tianjin	3.48	0.51	8.89	12.88
Qindao	0.13	0.65	0.14	0.92
Rizhao	0.27	0.98	0.32	1.57
Lianyungang	0.14	0.30	2.26	2.70
Jingtang	1.60	0.58	0.10	2.28
Bayuquan/Yinkou	-	-	0.07	0.07
Other or border transport	6.25	0.44	0.35	7.04
<b>Total</b>	<b>41.88</b>	<b>3.46</b>	<b>12.13</b>	<b>57.47</b>

#### Export/Import

The export of hard coal declined again in 2008 and fell by 8 million t to 45 million t. Exports of steam coal declined (9.6 million t). Exports of coking coal (+1 million t) and anthracite (+0.8 million t), on the other hand, rose slightly. Coke export declined from 15.3 million t in 2007 to 12.1 million t in 2008. The export of coke plunged drastically above all in the 4th quarter of 2008 due to the worldwide steel crisis and amounted to only 1 million t. In January/February 2009, exports came practically to a standstill.

The largest buyers of steam coal were South Korea (13 million t), Taiwan (11 million t) and Japan (8.7 million t). Coking



coal deliveries of 1.8 million t were made to Japan, and 1.0 million t went to South Korea.

### Coal Exports According to Qualities

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Steam coal	53.7	45.3	35.7
Coking coal	4.4	2.5	3.5
Anthracite	5.2	5.3	6.1
<b>Total</b>	<b>63.3</b>	<b>53.1</b>	<b>45.3</b>
Coke	14,5	15,3	12,1

Imports decreased by about 9.6 million t to 41.1 million t. They break down according to quality as shown here:

### Coal Imports According to Qualities

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Steam coal	10.8	16.0	14.8
Coking coal	4.8	6.3	6.9
Anthracite	22.6	28.4	19.4
<b>Total</b>	<b>38.2</b>	<b>50.7</b>	<b>41.1</b>

In particular, imports of anthracite from Vietnam fell by almost 8 million t while the import of coking coal from Mongolia increased further.

The export/import balance developed as shown below:

### Export/Import Balance

	2006 Mill. t	2007 Mill. t	2008 <sup>1)</sup> Mill. t
Exports	63	53	45
Imports	38	51	41
<b>Difference</b>	<b>25</b>	<b>2</b>	<b>4</b>

<sup>1)</sup> Estimated

The import of steam coal could continue to decline in 2009 owing to the weaker domestic economy. Coking coal imports may increase slightly.

The export of Chinese coal and coke is tied to state-issued licences.

The export figures for the coal exporters authorised to conduct exports developed as shown below:

### Companies Authorised to Conduct Exports

	2006 Mill. t	2007 Mill. t	2008 Mill. t
China Coal	27.2	19.2	16.1
Shenhua	25.5	25.6	22.3
Shanxi	5.3	5.0	4.2
Minmetals	3.9	4.0	3.0
<b>Total</b>	<b>61.9</b>	<b>53.8</b>	<b>45.6</b>

The number of companies exporting coke was further reduced in 2008.

The coal policies of the Chinese government aim to make exports more expensive and imports cheaper.

### Key Data People's Republic of China

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	2,326	2,523	2,716
Hard coal exports	63.2	53.1	45.3
• Steam coal	58.8	50.6	41.8
thereof anthracite	5.2	5.3	6.1
• Coking coal	4.4	2.5	3.5
Coke exports	14.5	15.3	12.1
Hard coal imports	38.2	50.7	41.1
• Steam coal	10.8	16.0	14.8
• Coking coal	4.8	6.3	6.9
• Anthracite	22.6	28.4	19.4
Imports Germany	0.9	0.9	0.6
• Steam coal	—	—	—
• Coke	0.9	0.9	0.6
Export quota in %	3	2	2

## CANADA

### Production

Coal output in Canada came to 73 million t in 2008. The producing provinces are British Columbia, Alberta and Saskatchewan. Of this output, about 40 million t of steam coal come from Alberta and Saskatchewan, most of which is consumed as hard lignite or lignite in local power plants.

Most of the hard coal production – largely from British Columbia – is exported as coking coal, PCI coal and, in smaller quantities, as steam coal.

In contract year 2008/2009, the Canadian export mines benefited from a substantially improved earning situation on the world markets. The mines will undoubtedly enjoy an advantage here in 2009 as well.

Suspense is high as observers await the negotiations for contract year 2009/2010. Only a sufficiently high price level will presumably support the further long-term expansion of Canadian mining. Canadian exports are extremely dependent on the worldwide steel business. Volume reductions could put pressure on the Canadian mining industry even if the price level is sufficiently high.

In the long term, Canada has the potential to increase its exports by 20-25 million t, primarily coking coal and PCI coal.

### Infrastructure

Export coal is delivered to the Westshore Terminal near Vancouver by CP Rail, while CN transports the coal to the Neptune Terminal. The more northerly Ridley Terminal was again able to handle significant coal tonnage (4.9 million t) in 2008. A further increase is possible in the middle

term. These potential quantities come from newly opened mines in Northeast British Columbia.

Handling capacities are shown below:

<b>Port Capacities 2008</b>		
<b>Terminal</b>	<b>Capacities</b> Mill. t/a	<b>Exports</b> Mill. t/a
Neptune Bulk Terminal	8	4
Westshore Terminal	26	22
Ridley Terminal	16	5
<b>Total</b>	<b>50</b>	<b>31</b>

So the port capacities are prepared for additional exports in the event of a rise in demand and production. Thunder Bay Terminal, which has a capacity of 11-12 million t, is used for inland shipment of Canadian coal to the USA over the Great Lakes. Thunder Bay Terminal is also used for handling US import coal from the Powder River Basin.

### Exports

Exports in 2008 rose by 1.8 million t to 32.5 million t. Seaborne exports amounted to 30.7 million t, thereof 25.2 million t coking coal and 5.5 million t steam coal. 1.7 million t were loaded for overland transport to the USA. The largest buyers were Japan (11.5 million t) and South Korea (6.7 million t). 7.4 million t went to the European region, including Mediterranean countries. The import development of India and China

will be of decisive importance for the long-term increase in Canadian exports.

<b>Key Figures Canada</b>			
	<b>2006</b>	<b>2007</b>	<b>2008</b>
	Mill. t	Mill. t	Mill. t
Hard coal output <sup>1)</sup>	34	37	38
Hard coal exports	28	31	33
• Steam coal	3	4	6
• Coking coal	25	27	27
Imports Germany	1.6	1.8	1.7
• Coking coal	1.6	1.8	1.7
Export rate in %	82	84	100

<sup>1)</sup>Excl. sub-bituminous, lignite

## VIETNAM

### Production

Production declined slightly in 2008 by about 5 million t to 40 million t. Domestic consumption rose from 17 million t to 20 million t. Most of this output is anthracite; small quantities of lignite and sub-bituminous coal are also mined. The latter are used exclusively for domestic consumption while the anthracite output is largely exported.

The output capacities of the Vietnamese mines were estimated

as shown below on the basis of information from Vinacom (2006):

Opencast pits	26.5 million t
<u>Underground operations</u>	<u>38.1 million t</u>
Total	64.6 million t

To this extent, the capacities are not fully being utilised. But output is to be increased further and to reach 80 million t in the long term. Production from opencast pits is currently dominant, but it will be necessary to change over to underground operations more and more as reserves are depleted if these output targets are to be reached. Exports would have reached a higher level if a typhoon had not destroyed the loading facilities in Cam Pha.

The higher-priced exports subsidise domestic sales. Vietnam has put great hopes in the development of coal reserves in the Red River Delta.

Vietnam's dynamically growing economy could trigger a growing import demand for steam coal.

### Infrastructure

The waters on the eastern coast of Vietnam are mostly shallow and have in the past allowed access only by ships of less than 10,000 DWT. As a result of dredging work in Cam Pha, larger ships can now be loaded there. So there is also a possibility to handle 65,000-DWT ships with additional loading when in the roads. Hon Gai Port can handle 10,000-DWT ships at the pier and 30,000-DWT ships in the roads.

According to information from Vinacom, export capacities in the ports amount to about 34 million t/a:

### Export and Port Capacities in Vietnam 2007

	2007 Mill. t
Cam Pha/Cua Ong	15.0
New ports in Cam Pha	10.0
Hon Gai/Nam Cau Trang	3.0
Hon Gai/Dien Vang	1.5
Hon Gai/Troi	1.5
Uong Bi/Dien Cong	3.0
<b>Total</b>	<b>34.0</b>

The inland infrastructure, i.e., roads and railway lines, is also being expanded with Chinese aid.

#### Export

Vietnam reduced exports by almost 13 million t in 2008. This strongly affected south-west China above all in the amount of 7.7 million t.

In addition to China, Japan, Thailand and South Korea bought volumes. The Vietnamese anthracite coal is also used in part as PCI coal.

Exports were restricted because of the country's own rising demand and declining output.

The high Vietnamese export of anthracite steam coal is in part low calorific and is profitable only because of the short sea routes to China. This coal would not stand a commercial chance on the normal international steam coal market. Nevertheless, it covers demand which otherwise might have to be covered by purchases on the world market and thus alleviates pressures on this market. A small part of the exports also goes overland to China.

### Key Figures Vietnam

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Output	38.0	45.0	40.0 <sup>1)</sup>
Export	29.8	32.5	19.7
thereof China	20.1	24.6	16.9
Export rate in %	78	72	49

<sup>1)</sup>provisional

Similar export volume is expected in 2009. The target is 20.5 million t.

### VENEZUELA

#### Production

Following President Chavez' announcement in 2007 to restrict coal production to 10 million t, all of the expansion projects have become unrealistic. Activities are becoming increasingly paralysed because of domestic political problems. The production at Carbones Del Guasare above all dropped sharply by 25% because of geological problems and strikes. In addition, all of the sales contracts had to be renegotiated.

### Production/ Exports by Company

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Carbones Del Guasare	5.50	6.00	4.45
Interamerican Coal	1.00	0.65	0.56
Carbones De La Guajira	0.63	1.01	0.61
Miscellaneous	0.62	0.67	0.62
<b>Total</b>	<b>7.75</b>	<b>8.33</b>	<b>6.24</b>

Ultimately, Venezuela is planning to nationalise the mines. Peabody and Amcoal still each hold 25.5% of Guasare.

In 2005, President Chavez supported the coal industry and its plans for expansion. This attitude appears to have been completely reversed.

#### Infrastructure

Now that President Chavez has set the maximum annual exports at 10 million t, the existing infrastructure is adequate, although not ideal. The entire transport from the mines to the shipping ports is handled by lorries.

#### Exports of Venezuelan Coal Via Venezuelan Ports

Port	User	2006	2007	2008 <sup>1)</sup>
		Mill. t	Mill. t	Mill. t
Bulk Wayuu	Carbones Del Guasare	5.60	6.00	4.45
El Bajo	Carbones De La Guajira, Interamerican Coal	1.00	1.00	0.75
Guanta	Geoconsa	0.20	0.20	0.20
La Ceiba	Carbones Del Caribe, Interamerican, Millinton	0.80	0.80	0.60
Palmarejo	Xcoal, Caneveca, Millinton, Carbones Del Guasare	0.47	0.40	0.25
<b>Total</b>		<b>8.00</b>	<b>8.40</b>	<b>6.25</b>

<sup>1)</sup>Provisional

About 1-1.5 million t of Colombian coal were also shipped through the Venezuelan ports.

#### Export

Exports declined in 2008 by 2 million t from 8.3 million t to about 6.2 million t. Despite the best opportunities for sales, Venezuela is unable to exploit its potential.

The purchase of 2.4 million t made the USA the largest customer, but Europe also bought 2.4 million t. The remainder went to Central and South America.

#### Key Figures Venezuela

	2006	2007	2008
	Mill. t	Mill. t	Mill. t
Hard coal output	8	8.3	6.2
Hard coal exports	8	8.3	6.2
• Imports Germany	0.108	0.15	0.92
• Steam coal	0.108	0.15	0.92
Export quota in %	100	100	100

## POLAND

#### Production

The decline in Polish output continued in 2008 as well. Total output fell by 3.8 million t from 87.4 million t to 83.6 million t. Over the last two years, Polish production has fallen by more than 10 million t despite the good earnings situation.

#### The Largest Steam Coal Producers of Poland

Company	Output		Exports	
	2007	2008	2007	2008
	Mill. t	Mill. t	Mill. t	Mill. t
Kompania Weglowa	46.8	44.6	8.5	5.5
Katowicka Group Kapitalowa	15.4	14.0	1.3	1.2
Jastrzebska Spółka Weglowa	11.8	13.6	1.6	1.6
Independent mines	13.4	11.4	0.7	0.0
<b>Total</b>	<b>87.4</b>	<b>83.6</b>	<b>12.1</b>	<b>8.3</b>

All of the mining groups reduced their production levels. It is becoming increasingly evident that too little has been invested in the mines for the new development of reserves in recent decades. Another factor negatively affecting the economic efficiency of mining is the conclusion of pay scale agreements far in excess of the progress in productivity. Output is expected to fall even further in 2009.

Virtually no progress is being made in the privatisation of the Polish mining industry. The trade unions oppose privatisation. Nor are there any serious potential buyers for the steam coal mines. The coking coal mines, while more interesting, are in need of massive investments. Owing to the improved economic position of the last two years, efforts are being made to stabilise production by opening new mines. But the current economic crisis will undoubtedly hamper these efforts.

Poland is importing increasing quantities of coal, primarily steam coal, but smaller quantities of coking coal and anthracite as well. The volume in 2008 amounted to 8.9 million t and came primarily from Russia.

Poland has also been given the opportunity by the EU to pay subsidies related to closures to the mining companies.

#### Infrastructure

There were no changes in the transport infrastructure, which is now rather too large for the declining export volume, in 2008. The export logistics in Poland are well developed. Loading ports include Gdansk, Swinoujscie, Szczecin and Gdynia. While Gdansk is able to load Capesize freighters, Swinoujscie and Gdynia are accessible only for Panamax ships, and only Handysize vessels can access Szczecin. Rail transport has also become

increasingly important for coking coal and minor quality coal exports, above all for Germany. Both Polish and German freight companies are active in this sector. Domestic shipping (Oder) is of no major importance for export (potential about 1.5 million t).

#### Export

Export declined from 12.1 million t in 2007 to 8.3 million t in 2008. Since imports came to almost 9 million t, Poland has become a net importer. Of the exported 8.3 million t, 6.6 million t were marketed by Wegelokoks; 1.7 million t were marketed directly by the mining companies.

Exports in 2008 break down as shown below:

<b>Export 2008</b>			
	<b>Coking Coal</b>	<b>Steam Coal</b>	<b>Total</b>
	Mill. t	Mill. t	Mill. t
Seaborne	–	2.0	2.0
Green border	1.0	5.3	6.3
<b>Total</b>	<b>1.0</b>	<b>7.3</b>	<b>8.3</b>

Seaborne exports declined further to a mere 2 million t.

The largest customers for steam coal were Germany (about 4 million t) and the Czech Republic (about 1 million t). The greater part of this volume was transported by rail.

### Key Figures Poland

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	94	87	84
Hard coal exports	16	12.1	8.3
• Steam coal	13	8.5	7.3
• Coking coal	3	3.6	1.0
Coke exports	6.1	6.3	6.5
Hard coal imports	4	6	9
Imports Germany	9.0	6.4	5.4
• Steam coal	7.2	4.6	3.8
• Coking coal	0.2	—	—
• Coke	1.6	1.8	1.6
Export rate in % (Coke converted into coal terms)	26	20	20

Coke exports came to about 6.5 million t.

## CZECH REPUBLIC

### Production

Coal year 2008 was once again a stable one for the Czech Republic. Hard coal output fell slightly from 13.2 million t in 2007 to 12.6 million t in 2008.

Czech coke production amounted to 3.4 million t. Lignite production came to 44.3 million t.

Czech hard coal production is in the hands of one company. OKD has been the owner of New World

Resources since 2004. The company wants to increase the productivity of the mines. Substantial investments of €300 million in the Czech hard coal mining industry are planned for this purpose. If these plans are not realised, there is a threat of a rapid drop in production in the next few years as developed reserves are exhausted. A major part of Czech production is coking coal, a product which commands significantly higher prices than steam coal.

### Infrastructure

Czech coal and coke exports were transported overland and on the Danube (Bratislava).

### Export/Import

Exports of hard coal and coke amounted to about 7 million t, thereof 6.1 million t coal and 0.7 million t coke. Austria (2.0 million t), Slovakia (1.8 million t) and Poland (1.7 million t) were the largest customers. A large part of the exports consists of coking coal. The Czech Republic imported small quantities of coal and coke – about 3 million t – from Poland and Russia.

### Key Figures Czech Republic

	2006 Mill. t	2007 Mill. t	2008 Mill. t
Hard coal output	13	13	12.6
Hard coal exports	5	7	6.1
Coke exports	1	0.8	0.7
Imports Germany	0.9	0.6	0.5
• Steam coal	0.5	0.3	0.2
• Coke	0.4	0.3	0.3
Export rate in % (Coke converted into coal terms)	49	60	56

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<b>World Energy Consumption by Source of Energy and Regions</b>							
<b>Source of Energy</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	Mill. TCE <b>2008</b>
Mineral Oil	5,160	5,280	5,460	5,792	5,584	5,645	5,589
Natural Gas	3,310	3,400	3,509	3,768	3,653	3,767	3,835
Nuclear Energy	880	867	905	940	907	888	896
Hydro Power	850	875	920	1,000	996	1,013	1,030
Hard Coal	3,160	3,460	3,700	4,106	4,014	4,207	4,400
Lignite	330	330	330	330	330	330	330
<b>Total</b>	<b>13,690</b>	<b>14,212</b>	<b>14,824</b>	<b>15,936</b>	<b>15,484</b>	<b>15,850</b>	<b>16,080</b>
<b>Region of Consumption</b>							shares in % <b>2008</b>
North America	28.7	27.9	27.2	26.5	25.8	25.6	25.2
Asia/Australia	28.9	30.0	31.3	32.7	33.4	34.3	35.0
since 2007 EU-27	15.5	15.4	16.8	16.0	15.8	16.4	16.1
CIS	10.1	10.0	9.8	9.2	8.8	8.7	8.7
Remaining World	16.8	16.7	14.9	15.6	16.2	15.0	15.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Coal Consumption</b> (Hard Coal and Lignite)	<b>3,490</b>	<b>3,790</b>	<b>4,030</b>	<b>4,436</b>	<b>4,344</b>	<b>4,537</b>	Mill. TCE <b>4,730</b>
<b>Region of Consumption</b>							shares in % <b>2008</b>
North America	24.8	24.1	24.0	20.8	19.9	19.3	18.9
Asia/Australia	49.1	51.3	52.0	56.7	58.3	59.7	61.0
since 2007 EU-27	8.9	8.7	11.1	10.0	11.1	10.6	9.5
CIS	6.9	7.0	6.3	6.0	5.5	3.6	5.2
Remaining World	10.3	8.9	6.6	6.5	5.2	6.8	5.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Considered were only commercial traded sources of energy				2008 preliminary figures/partly estimated			

Source: BP Statistical Review of World Energy

World Hard Coal Production/Foreign Trade									Mill. t (t=t)
	2003			2004			2005		
	Production	Export	Import	Production	Export	Import	Production	Export	Import
Germany	29	0	35	29	0	39	28	0	36
France	2	0	19	0	0	20	0	0	20
Great Britain	28	0	31	25	0	37	20	0	44
Spain <sup>1)</sup>	13	0	21	14	0	24	12	0	25
Poland	-	-	-	99	19	2	97	20	2
Czech Republic	-	-	-	13	4	1	13	4	1
<b>EU-15/since 2004</b>	72	0	180	180	24	211	170	24	209
<b>EU-25</b>									
Poland	100	21	3	283	66	26	300	70	
Czech Republic	13	4	1	70	26		86	24	
*CIS	320	52	1	80	4	9	78	8	12
<b>Countries Total</b>	433	77	5	433	96	35	464	102	12
Canada	27	25	22	29	26	18	31	28	20
USA	983	38	22	1,020	43	25	1,029	45	27
Colombia	45	44	0	52	51	0	60	55	0
Venezuela	8	8	0	8	8	0	8	8	0
<b>Countries Total</b>	1,063	115	44	1,109	128	43	1,128	136	47
<b>South Africa</b>	238	71	3	243	68	0	241	75	0
<b>Australia</b>	279	215	0	297	225	0	306	234	0
India	320	0	30	348	0	31	370	0	40
China <sup>2)</sup>	1,722	93	11	1,992	87	19	2,190	72	26
Japan	3	0	167	0	2	179		0	181
Indonesia	119	89	0	135	105	0	153	129	0
<b>Countries Total</b>	2,164	182	208	2,475	194	229	2,713	201	247
Other Countries	117	10	230	130	21	243	136	39	296
<b>World</b>	4,366	670	670	4,794	758	758	5,158	811	811

2008 preliminary figures

<sup>1)</sup> Production incl. "Lignito Negro"<sup>2)</sup> Production incl. lignite (about 50 Mill. t estimated)

Sources: Statistik der Kohlewirtschaft, ECE, IEA, statistics of import and export countries, Barlow Jonker, internal calculations  
 \* only for 2003, 2004 onwards Russia, Kazakhstan, Ukraine

## Green Border Trade and Seaborne Trade

Mill. t (t=t)

2006			2007			2008			
Production	Export	Import	Production	Export	Import	Production	Export	Import	
24	0	42	24	0	48	19	0	46	Germany
0	0	21	0	0	18	0	0	19	France
19	0	50	17	0	43	18	0	48	Great Britain
12	0	27	11	0	25	10	0	33	Spain <sup>1)</sup>
94	16	4	87	12	5	83	8	9	Poland
14	5	1	13	7	2	13	7	3	Czech Republic
2			3	0	3	3	0		
168	21	236	158	19	231	149	15	213	<b>EU-27 since 2007</b>
309	89	25	314	93	24	330	95	28	Russia <sup>3)</sup>
92	25	0	88	26	0	90	25	0	Kazakhstan <sup>3)</sup>
80	3	4	75	3	9	78	5	0	Ukraine <sup>3)</sup>
481	117	29	477	122	33	498	125	28	<b>Countries Total</b>
34	28	21	37	31	29	38	33	23	Canada
1,066	46	30	1,043	53	33	1,068	74	31	USA
64	58	0	69	65	0	73	69	0	Colombia
8	8	0	8	8	0	6	6	0	Venezuela
1,172	140	51	1,157	157	62	1,185	182	54	<b>Countries Total</b>
244	69	0	243	68	0	235	63	0	<b>South Africa</b>
314	237	0	322	250	0	334	261	0	<b>Australia</b>
390	0	53	430	0	52	465	0	54	India
2,326	63	38	2,523	53	51	2,716	45	41	China <sup>2)</sup>
0	0	177	0	0	180	0	0	190	Japan
199	171	0	231	189	0	255	202	0	Indonesia
3,473	540	268	3,749	560	283	4,005	571	285	<b>Countries Total</b>
57	40	274	59	49	298	13	37	350	Other Countries
5,351	858	858	5,600	907	907	5,850	930	930	<b>World</b>

<sup>3)</sup>Russia, Kazakhstan, Ukraine: separate since 2004

Table 2

## Seaborne Hard Coal Trade in Million t

Exporting Countries	2003			2004			2005		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Australia	111	104	215	118	107	225	124	110	234
USA	16	3	19	20	6	26	22	5	27
South Africa	2	70	72	1	67	68	1	70	71
Canada	20	1	21	22	1	23	26	2	28
China	13	81	94	6	81	87	5	67	72
Colombia	0	44	44	0	51	51		55	55
Indonesia	0	89	89	0	105	105		129	129
Poland	2	12	14	2	10	12	0	11	11
Russia	7	42	49	10	51	61	8	60	68
Venezuela	0	8	8	0	9	9		8	8
Other	2	12	14	1	17	18	2	21	23
<b>Total</b>	<b>173</b>	<b>466</b>	<b>639</b>	<b>180</b>	<b>505</b>	<b>685</b>	<b>188</b>	<b>538</b>	<b>726</b>
Importing Countries/ Regions	2003			2004			2005		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Europe <sup>1)</sup>	51	162	213	52	166	218	53	170	223
EU-15/since 2004 EU-25	43	139	182	48	163	211	46	163	209
Asia	105	274	379	110	304	414	116	319	435
Japan	54	112	166	56	124	180	55	126	181
South Korea	20	52	72	15	64	79	12	63	75
Taiwan	0	55	55	0	61	61		61	61
Hongkong	0	10	10	0	12	12	0	15	15
India	14	16	30	15	18	33	17	23	40
Latin America	16	10	26	16	11	27	16	17	33
Other (incl. USA)	1	20	21	2	24	26	3	32	35
<b>Total</b>	<b>173</b>	<b>466</b>	<b>639</b>	<b>180</b>	<b>505</b>	<b>685</b>	<b>188</b>	<b>538</b>	<b>726</b>
2008 preliminary figures; excl. land transport			<sup>1)</sup> incl. Mediterranean countries						

Source: analysis of several sources

												Mill. t
<b>2006</b>			<b>2007</b>			<b>2008</b>						
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	<b>Exporting</b>			
124	113	237	138	112	250	135	126	261	Australia			
20	6	26	26	11	37	36	17	53	USA			
1	68	69	1	67	68	0	63	63	South Africa			
23	3	26	25	4	29	25	6	31	Canada			
4	59	63	2	51	53	4	42	46	China			
1	58	59	1	65	66	0	69	69	Colombia			
	171	171		189	189	0	202	202	Indonesia			
1	9	10	1	4	5	0	2	2	Poland			
6	69	75	6	72	78	3	75	78	Russia			
	8	8		8	8	0	6	6	Venezuela			
3	30	33	2	35	37	4	24	28	Other			
<b>183</b>	<b>594</b>	<b>777</b>	<b>202</b>	<b>618</b>	<b>820</b>	<b>207</b>	<b>632</b>	<b>839</b>	<b>Total</b>			
<b>2006</b>			<b>2007</b>			<b>2008</b>			<b>Importing Countries/ Regions</b>			
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total				
45	167	212	50	161	211	50	159	209	Europe <sup>1)</sup>			
40	164	204	45	156	201	45	143	188	EU-15/since 2004 EU-25			
123	310	433	131	346	477	139	368	507	Asia			
73	119	192	74	126	200	56	131	187	Japan			
20	60	80	21	65	86	23	73	96	South Korea			
9	58	67	9	61	70	11	60	71	Taiwan			
0	11	11		12	12	0	11	11	Hongkong			
19	23	42	23	29	52	29	25	54	India			
13	4	17	14	6	20	18	5	23	Latin America			
2	113	115	7	105	112	0	100	100	Miscellaneous (incl. USA)			
<b>183</b>	<b>594</b>	<b>777</b>	<b>202</b>	<b>618</b>	<b>820</b>	<b>207</b>	<b>632</b>	<b>839</b>	<b>Total</b>			

Table 3

## Qualities of Coking Coal Traded on the World Market

Exporting Countries/ Index Qualities	Volatile %	Ash %	Latent Moisture %	Sulphur %	Phosphorus %	Swelling Index FSI
<b>Low Volatile</b>						
Australia/NSW	21-24	9.3-9.5	1.0	0.38-0.40	0.03-0.07	6-8
Australia/Qld.	17-25	7.0-9.8	1.0-1.5	0.52-0.70	0.007-0.06	7-9
Canada	21-24	9.5	0.6	0.30-0.60	0.04-0.06	6-8
USA	18-21	5.5-7.5	1.0	0.70-0.90	k.A.	8-9
<b>Middle Volatile</b>						
Australia/NSW	27-28	7.9-8.3	1.5-1.8	0.38-0.39	0.04-0.06	5-7
Australia/Qld.	26-29	7.0-9.0	1.2-2.0	0.38-0.90	0.03-0.055	6-9
Canada	25-28	8.0	0.9	0.30-0.55	0.03-0.07	6-8
USA	26-27	6.8-9.0	1.0	0.95-1.10	no figure	7-9
Poland	23-28	7.0-8.9	0.7-1.5	0.60-0.80	no figure	6-9
China	25-30	9.5-10.0	1.3-1.5	0.35-0.85	0,015	
<b>High Volatile</b>						
Australia/NSW	34-40	5.5-9.5	2.4-3.0	0.35-1.30	0.002-0.05	4-7
Australia/Qld.	30-34	6.5-8.2	2.0	0.50-0.70	0.02-0.04	8-9
Canada	29-35	3.5-6.5	1.0	0.55-1.20	0.006-0.04	6-8
USA	30-34	6.8-7.3	1.9-2.5	0.80-0.85	no figure	8-9
Poland	29-33	6.9-8.9	0.8-1.5	0.60-1.00	no figure	5-8
<b>Germany</b>	26.6 <sup>1)</sup>	7.4 <sup>1)</sup>	1.5 <sup>1)</sup>	1.1 <sup>1)</sup>	0.01-0.04	7-8

Figures in bandwidths

<sup>1)</sup> Utilization mixture for coking plant

<sup>2)</sup> CSR-value (Coke Strength under Reduction) describing the heating strength of coke after heating up to 1,100° C and following CO<sub>2</sub>-fumigation. The CSR-values classified to the coal are only standard values.

Sources: Australian Coal Report, Coal Americas, companies' information

<b>Coke strength CSR-value<sup>2)</sup></b>	<b>Fluidity max. ddpm</b>	<b>Con- traction max. %</b>	<b>Dilatation max. %</b>	<b>Reflection middle %</b>	<b>Macerale reactiv %   inert %</b>		<b>Minerals %</b>
50-65 60-75 65-72 60-70	500-2000 34-1400 10-150 30-100	20-30 24-34 20-26 25-28	25-140 35-140 7-27 30-60	1.23-1.29 1.12-1.65 1.22-1.35 1.30-1.40	38-61 61-75 70-75 65-75	36-58 20-34 20-35 20-30	3-4 3-5 5 3
40-60 50-70 50-70 60-70 no figure	200-2000+ 150-7000 150-600 500-7000 no figure	25-35 19-33 21-28 22-18 26-32	0-65 (-)5-240 50-100 50-100 30-120	1.01-1.05 1.00-1.10 1.04-1.14 1.10-1.50 no figure	50-53 58-77 70-76 72-78 no figure	43-44 20-38 20-24 18-24 no figure	4-6 3-4 5 4 no figure
35-55 65-75 50-60 60-70 no figure	100-4000 950-1000+ 600-30000 18000-26847 no figure	27-45 23-24 22-31 26-33 no figure	(-)10-60 35-160 50-148 150-217 no figure	0.69-0.83 0.95-1.03 1.00-0.95 1.00-1.10 no figure	67-84 61-79 76-81 75-78 no figure	11-28 18-36 17-19 18-21 no figure	2-5 3-4 2-4 4 no figure
50-65	30-3000	27-28	108-170	1.15-1.45	60-80	15-35	5

Table 4

### Qualities of Steam Coal Traded on the World Market

Exporting Countries	Volatile %	Ash %	Moisture %	Sulphur %	F. Carbon %	Grinding Index	Calorific Value kcal/kg
<b>Atlantic Supplier</b>							
USA (east coast)	17-39	5-15	5-12	0.5-3.0	39-70	31-96	6000-7200
South Africa	16-31	8-15	6-10	0.5-1.7	51-61	43-65	5400-6700
Colombia	30-39	4-15	7-16	0.5-1.0	36-55	43-60	5000-6500
Venezuela	34-40	6-8	5-8	0.6	47-58	45-50	6500-7200
Poland	25-31	8-16	7-11	0.6-1.0	44-56	45-50	5700-6900
Czech Republic	25-27	6-8	7-9	0.4-0.5	58-60	60-70	6700-7100
Russia	27-34	11-15	8-12	0.3-0.6	47-58	55-67	6000-6200
<b>Pacific Supplier</b>							
Australia	25-30	8-15	7-8	0.3-1.0	47-60	45-79	5900-6900
Indonesia	37-47	1-16	9-22	0.1-0.9	30-50	44-53	3700-6500
China	27-31	7-13	8-13	0.3-0.9	50-60	50-54	5900-6300
Russia (east coast)	17-33	11-20	8-10	0.3-0.5	47-64	70-80	5500-6800
Vietnam/Anthr.	5-6	15-33	9-11	0.85-0.95	58-83	35	5100-6800
<b>Germany</b>	19-33	6-7	8-9	0.7-1.4	58-65	60-90	6600-7100
Indication in gross bandwidths							

Sources: see table 4



<b>Hard Coal Export of Australia</b>								1,000 t
<b>Importing Countries</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
Germany	1,394	5,022	4,357	4,445	5,372	6,744	5,540	
France	4,989	4,736	4,639	4,033	4,542	3,733	3,782	
Belgium/Luxembourg	1,814	1,182	1,790	1,906	1,600	2,580	2,858	
The Netherlands	5,971	2,202	3,622	3,704	3,975	3,240	2,383	
Italy	2,190	2,734	2,533	2,286	2,234	2,466	2,096	
Great Britain	4,886	5,777	5,477	5,034	4,568	3,478	3,929	
Denmark	317	909	156	130	0	0	0	
Spain	3,888	3,688	3,321	3,508	2,977	3,043	2,089	
Portugal	705	797	0	0	0	0	0	
Sweden	1,048	1,193	1,323	1,261	1,289	1,273	1,383	
<b>EU-27 since 2007</b>	27,202	28,240	27,218	26,307	26,557	27,709	25,177	
Israel	1,806	2,130	987	849	300	348	824	
Turkey	993	1,381	758	815	1,118	838	2,342	
Romania	150	487	45	0	0	0	0	
Other Europe <sup>1)</sup>	1,415	1,289	1,867	1,246	1,120	315		
<b>Europe</b>	31,566	33,527	30,875	29,217	29,095	29,210	28,343	
Japan	91,636	95,271	101,896	104,812	103,293	115,466	118,030	
South Korea	21,385	22,488	30,061	30,158	23,576	22,096	37,455	
Taiwan	14,815	13,968	18,828	21,868	22,653	25,463	24,487	
Hongkong	585	619	1,038	0	0	0	303	
India	14,069	12,829	16,556	18,985	18,938	22,511	25,621	
China	4,691	5,222	6,271	5,468	7,450	3,957	3,603	
Brazil	3,757	4,887	3,143	3,454	2,929	3,360	5,085	
Chile	1,404	1,215	1,605	984	1,625	462	464	
Other Countries	19,484	24,971	14,775	18,724	27,718	27,899	17,941	
<b>Export in Total</b>	<b>203,392</b>	<b>214,997</b>	<b>225,048</b>	<b>233,069</b>	<b>237,277</b>	<b>250,454</b>	<b>261,332</b>	
1) incl. Mediterranean countries 2008 preliminary figures								

sources: IEA, Australian Coal Report, Joint Coal Board, Queensland Coal Board

Hard Coal Export of Indonesia								1,000 t
Importing Countries	2002	2003	2004	2005	2006	2007	2008	
Germany	400	405	492	132	1,509	1,168	513	
The Netherlands	1,500	1,881	1,106	2,139	3,704	1,822	1,669	
Italy	2,500	4,580	5,198	6,285	8,626	6,290	6,252	
Great Britain	0	531	1080	1,302	1,822	1,141	2,126	
Ireland	400	0	0	602	609	152	318	
Denmark	200	8	0	0	-	-	0	
Spain	2,700	3,004	2,776	3,317	4,033	4,226	3,826	
Slovenia	-	-	623	634	1,562	1,242	2,032	
Other	-	-	1,106	770	2,835	2,000	1,014	
<b>EU-27 since 2007</b>	9,000	10,409	12,381	15,181	24,700	18,041	17,750	
USA	900	1,914	1,960	2,050	2,646	2,962	2,956	
Chile	1,000	271	839	1,368	1,733	1,600	498	
Japan	18,000	20,486	22,700	27,313	32,842	34,135	39,719	
Südkorea	7,000	7,857	11,741	14,377	20,780	26,521	26,620	
Hongkong	4,600	6,814	7,439	9,409	10,514	11,550	10,382	
Taiwan	14,500	15,798	17,769	17,896	24,397	25,753	25,754	
Malaysia	4,000	5,199	6,113	7,400	7,324	7,814	9,415	
Philippines	4,000	3,091	3,603	3,906	4,113	4,290	6,160	
Thailand	4,000	4,338	4,787	6,404	7,800	9,413	11,371	
India	5,000	7,846	10,674	16,255	19,822	24,840	29,283	
China	2,000	534	1,473	2,503	6,219	14,894	16,093	
Other countries	2,320	4,477	4,386	4,981	8,049	7,492	6,259	
<b>Export in total</b>	<b>76,320</b>	<b>89,034</b>	<b>105,865</b>	<b>129,043</b>	<b>170,939</b>	<b>189,305</b>	<b>202,260</b>	
2008 preliminary figures								

Sources: own calculations, companies' information

<b>Hard Coal Export of Russia</b>								1,000 t
<b>Importing Countries</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
Germany	1,870	2,600	5,460	6,620	9,100	8,367	7,800	
Belgium/Luxembourg	900	400	900	1,000	1,747	1,327	1,867	
Italy	1,600	1,660	2,400	1,800	1,522	818	1,723	
Great Britain	4,400	5,200	9,820	18,000	22,701	19,828	21,434	
Spain	2,200	1,960	3,130	4,200	2,761	905	2,623	
Finland	2,000	5,900	5,430	2,400	4,440	5,080	3,745	
Poland			2,300	2,500	3,327	5,000	5,267	
Romania	0	0	0	0	0	982	1,009	
Other					6039	8,029	5,533	
<b>EU-27 since 2007</b>	14,000	21,100	32,000	37,000	51,637	50,336	51,001	
Turkey	4,000	5,000	6,500	7,000	6,500	4,013	2,229	
Romania	1,500	1,700	2,500	3,000	1,505	0	0	
Japan	6,300	7,600	9,280	10,700	9,204	11,491	9,960	
South Korea	3,000	3,500	5,140	3,300	1,071	6,358	7,495	
Taiwan	1,900	2,000	1,380	1,200	1,305	1,329	1,203	
China	1,150	2,000	570	800	1,030	269	760	
Other countries <sup>1)</sup>	8,150	6,500	2,830	5,200	2,248	5,104	4,952	
<b>Export in total<sup>2)</sup></b>	<b>40,000</b>	<b>49,400</b>	<b>60,200</b>	<b>68,200</b>	<b>74,500</b>	<b>78,900</b>	<b>77,600</b>	

<sup>1)</sup> 2002-2008 exports via Cyprus/Libanon; the quantities were partially exported in other not known countries  
<sup>2)</sup> only hard coal exports (seaborne trade) in countries outside of the former UdSSR  
2008 preliminary figures

*sources: 2002-2003: internal calculations, 2004-2008: information from companies*

## Hard Coal Export of Colombia

1,000 t

Importing Countries	2002	2003	2004	2005	2006	2007	2008
Germany	5,932	5,918	4,719	4,256	3,729	6,931	5,791
France	2,098	2,686	4,348	2,228	3,341	2,720	2,589
Belgium/Luxembourg	604	147	134	510	0	0	149
The Netherlands <sup>1)</sup>	2,158	1,435	3,765	4,597	6,031	5,554	6,100
Italy	2,205	2,074	2,441	2,589	1,993	1,887	2,026
Great Britain	2,189	2,344	2,853	2,133	2,511	3,003	4,041
Ireland	482	271	1,152	893	1,129	475	661
Denmark	1,071	2,715	1,388	1,252	1,998	2,259	1,869
Greece	0	0	0	0	71	149	0
Spain	1,410	1,662	1,290	1,988	1,501	2,219	2,301
Portugal	1,678	1,812	2,550	2,521	2,920	2,590	1,903
Finland	134	59	0	0	158	0	130
Sweden	83	41	184	0	0	0	0
Slovenia	-	-	782	426	220	238	356
<b>EU-27 since 2007</b>	<b>20,044</b>	<b>21,164</b>	<b>25,606</b>	<b>23,393</b>	<b>25,602</b>	<b>28,163</b>	<b>28,909</b>
Israel	3,051	2,690	2,838	4,722	3,371	3,527	2,092
Other Europe <sup>1)</sup>	331	2,849	2,851	2,703	2,898	3,437	3,351
<b>Europe</b>	<b>23,426</b>	<b>26,703</b>	<b>31,295</b>	<b>30,818</b>	<b>31,871</b>	<b>35,127</b>	<b>34,352</b>
Japan	0	31	0	0	27	28	31
Hongkong	0	0	0	0	0	0	0
USA	6,781	11,989	13,342	17,641	20,179	21,830	21,919
Canada	1,998	1,514	1,671	2,132	1,944	1,450	2,214
Brazil	124	244	442	285	268	208	1,038
Other Countries	3,074	3,876	4,440	3,924	4,211	6,034	9,123
<b>Export in total</b>	<b>35,403</b>	<b>44,357</b>	<b>51,190</b>	<b>54,800</b>	<b>58,500</b>	<b>64,677</b>	<b>68,677</b>

<sup>1)</sup> incl. Mediterranean countries, Turkey

2008 preliminary figures

Sources: IEA, Intercor, The McCloskey Group, Coal Americas, internal calculations

## Hard Coal Export of South Africa

1,000 t

Importing countries	2002	2003	2004	2005	2006	2007	2008
Germany	4,980	8,962	9,876	9,453	8,189	6,505	8,226
France	4,624	4,140	8,760	5,473	4,267	4,799	5,450
Belgium/Luxembourg	1,733	2,159	2,456	1,677	1,512	1,088	1,192
The Netherlands <sup>1)</sup>	11,174	11,439	3,116	7,713	13,687	10,580	8,307
Italy	4,117	4,503	4,758	5,286	4,616	4,776	4,170
Great Britain	8,106	8,443	10,210	11,837	8,431	4,580	3,110
Ireland	389	566	510	788	389	478	6
Denmark	1,680	2,590	1,430	1,651	2,300	2,130	820
Greece	140	0	0	132	0	0	0
Spain	9,982	8,882	9,700	8,836	7,585	6,724	5,981
Portugal	2,240	2,340	1,750	1,561	1,000	1,970	1,660
Finland	60	300	0	0	120	0	150
Other				441	170	535	1,672
<b>EU-27 since 2007</b>	<b>49,225</b>	<b>54,324</b>	<b>52,556</b>	<b>54,848</b>	<b>52,266</b>	<b>44,165</b>	<b>40,744</b>
Israel	5,396	5,220	6,910	5,123	4,780	4,520	3,720
Morocco	3,270	2,130	1,780	2,835	2,890	1,267	1,333
Turkey	994	1,647	1,550	1,302	1,913	1,349	1,350
Japan	863	320	0	140	0	440	50
South Korea	140	120	0	130	0	290	1,150
Taiwan	1,656	1,576	1,390	411	70	410	
Hongkong	210	0	0	0	0	0	
India	3,854	3,000	738	3,904	2,469	8,492	8,115
China	620	260	60	0	0	30	
USA	330	130	40	126	0	100	
Brazil	1,058	780	760	654	1,484	759	1,223
Other countries	1,584	1,475	2,136	5,089	3,064	6,068	4,814
<b>Export in total</b>	<b>69,200</b>	<b>70,982</b>	<b>67,920</b>	<b>74,562</b>	<b>68,936</b>	<b>67,890</b>	<b>62,499</b>

<sup>1)</sup> till 2003 incl. sales for other countries      2008 preliminary figures

Sources: IEA, South African Mineral Bureau, South African Coal Report, own calculations

## Hard Coal Export of the United States

1,000 t

Importing Countries	2002	2003	2004	2005	2006	2007	2008
Germany	868	1,283	1,540	606	2,191	2,065	5,662
France	1,184	975	787	1,146	1,475	2,162	3,213
Belgium/Luxembourg	2,147	1,637	1,545	1,881	1,959	1,907	2,746
The Netherlands	1,480	1,798	1,622	4,247	1,191	4,117	2,976
Italy	2,790	2,373	1,908	2,226	2,975	3,212	2,891
Great Britain	1,707	1,337	1,793	1,599	2,251	3,032	5,342
Ireland	632	216	0	0	0	74	142
Denmark	-	261	67	66	348	72	283
Spain	1,734	1,605	1,380	1,685	1,472	1,337	2,161
Portugal	115	406	405	143	267	258	391
Finland	147	449	426	259	661	265	425
Sweden	393	346	570	535	426	483	667
Other				239	849	2,300	6,315
<b>EU-27 since 2007</b>	13,197	12,686	12,043	14,632	16,065	21,284	33,214
Israel	119	0	0	0	0	0	0
Turkey	524	991	1,179	1,708	1,106	1,306	1,736
Romania	-	0	256	1,391	1,002	0	0
Other Europe <sup>1)</sup>	1,129	1,423	225	1,495	1,240	4,087	5,414
<b>Europe</b>	14,969	15,100	13,703	19,226	19,413	26,677	40,364
Canada	14,443	18,212	15,722	17,577	18,030	16,625	20,589
Mexico	754	1,078	929	906	454	422	1,092
Argentina	172	218	265	218	317	273	331
Brazil	3,171	3,186	3,942	3,792	4,110	5,908	5,785
Japan	1,137	5	4,014	1,888	301	5	1,572
South Korea	211	176	112	1,304	515	201	1,225
Taiwan	0	2	449	0	2	2	71
Other countries	69	190	3,829	0	1,581	3,091	2,468
<b>Export in total</b>	<b>34,926</b>	<b>38,167</b>	<b>42,965</b>	<b>44,911</b>	<b>44,723</b>	<b>53,204</b>	<b>73,497</b>

1) incl. Mediterranean countries

2008 preliminary figures

Source: McCloskey

<b>Hard Coal Export of China</b>								1,000 t
<b>Importing countries</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
Germany	264	257	347	75	0	43	14	
France	820	556	240	8	0	166	216	
Belgium/Luxembourg	736	82	127	282	189	170	143	
The Netherlands	368	240	313	141	245	51	68	
Italy	201	380	185	0	0	0	0	
Great Britain	68	84	172	54	34	0	0	
Spain	71	319	0	332	292	0	104	
Greece	0	0	136	0	0	0	0	
<b>EU-15</b>	<b>2,528</b>	<b>1,918</b>	<b>1,520</b>	<b>892</b>	<b>760</b>	<b>430</b>	<b>545</b>	
Japan	27,662	31,255	28,471	23,175	20,586	15,548	13,337	
South Korea	25,387	29,722	24,798	21,206	18,779	19,225	16,457	
Taiwan	14,249	16,040	19,855	16,230	13,258	12,690	10,597	
Hongkong	2,964	2,118	1,123	944	855	674	475	
India	2,323	2,363	3,084	3,855	5,001	539	1,006	
Malaysia	389	102	65	46	36	37	52	
Thailand	262	69	249	0	28	1		
North Korea	258	468	407	147	576	237	228	
Philippines	2,879	2,908	2,928	1,916	1,035	1,019	1,109	
Brazil	1,989	2,489	548	278	191	283	157	
Other countries	2,651	4,187	3,512	2,986	2,127	2,435	1,322	
<b>Export in total</b>	<b>83,541</b>	<b>93,639</b>	<b>86,560</b>	<b>71,675</b>	<b>63,232</b>	<b>53,118</b>	<b>45,285</b>	

2008 preliminary figures

sources: The McCloskey Group, China Coal Report

Hard Coal Export of Canada							1,000 t
Importing countries	2002	2003	2004	2005	2006	2007	2008
Germany	1,046	1,295	2,123	1,757	1,608	1,733	1,673
France	259	324	388	529	372	598	569
Belgium/Luxembourg	228	309	293	0	0	0	0
The Netherlands	1,037	1,250	1,139	807	1,194	1,047	307
Italy	705	994	892	1,469	1,178	1,013	1,084
Great Britain	1,138	1,078	1,064	1,677	1,418	1,492	1,123
Denmark		0	0	0	0	0	0
Spain	332	392	113	344	175	227	235
Portugal	0	0	0	0	0	0	0
Finland	147	197	200	516	494	345	426
Sweden	0	0	0	0	0	0	0
<b>EU-27 since 2007</b>	4,892	6,022	6,212	7,099	6,439	7,086	6,357
Other Europe <sup>1)</sup>	1,280	685	1,707	1,170	1,582	1,203	1,426
<b>Europe</b>	6,172	6,524	7,919	8,269	8,021	8,289	7,783
Japan	9,388	7,753	5,384	7,499	8,676	10,548	11,482
South Korea	4,393	3,659	0	5,014	4,975	6,078	6,736
Taiwan	1,078	1,077	991	1,276	1,221	1,130	1,154
Brazil	1,173	1,642	1,483	1,718	1,584	1,545	2,020
USA	1,796	1,789	2,497	1,709	1,750	1,758	1,725
Chile	401	349	322	549	721	702	411
Mexico	257	467	1,395	406	274	230	695
Other countries	327	1,716	5,950	1,490	344	369	464
<b>Export in total</b>	<b>24,985</b>	<b>24,976</b>	<b>25,941</b>	<b>27,930</b>	<b>27,566</b>	<b>30,649</b>	<b>32,470</b>

<sup>1)</sup> incl. Mediterranean countries                      2008 preliminary figures

Sources: McCloskey, own estimations



## Hard Coal Export of Poland

1,000 t

Importing countries	2002	2003	2004	2005	2006	2007	2008
Germany	6,910	7,020	7,170	7,022	7,330	4,651	3,834
France	1,312	1,013	819	1,227	762	340	
Belgium	455	2	500	649	291	1	1
The Netherlands	1	2	191	270	320	70	1
Italy	601	0	94	540	248	111	
Great Britain	2,243	2,031	1,365	1,614	1,008	277	197
Ireland	253	263	276	287	235	255	266
Denmark	2,154	860	1,088	821	523	350	151
Spain	233	16	134	111	150	64	
Portugal	345	0	0	221	0	0	
Finland	1,698	2,081	1,626	653	513	273	88
Austria	1,573	1,346	1,328	1,155	1,233	1,807	906
Sweden	355	567	327	172	283	288	60
Czech Republic	-	-	1,227	1,146	1,642	2,365	1,017
Slovakia	-	-	1,147	802	1,030	617	64
Hungary	-	-	183	380	249	259	127
Other			53	50	72	8	1,029
<b>EU-27 since 2007</b>	<b>18,133</b>	<b>15,201</b>	<b>17,528</b>	<b>17,120</b>	<b>15,889</b>	<b>11,736</b>	<b>7,741</b>
CIS	822	1,176	0	13	36	0	0
Czech Republic	1,181	1,174	-	-	-	0	0
Slovakia	482	588	-	-	-	0	0
Hungary	166	315	-	-	-	0	0
Bulgaria	-	0	0	0	0	0	0
Romania	-	0	0	0	0	0	0
Brazil	282	0	0	0	70	0	0
Other countries	1,733	2,300	3,062	1,438	620	364	559
<b>Export in total</b>	<b>22,799</b>	<b>20,754</b>	<b>20,590</b>	<b>18,571</b>	<b>16,509</b>	<b>12,100</b>	<b>8,300</b>

2008 preliminary figures

Sources: McCloskey, WEGLOKOKS since 1998 Germany: Federal Statistical Office, own calculations

## Hard Coal Import of EU-Countries: Import and Domestic Trade

1,000 t

	2002	2003	2004	2005	2006	2007	2008
Germany	33,070	35,360	39,080	39,900	46,500	47,480	46,200
France	15,130	18,500	19,300	20,500	20,700	19,200	21,400
Italy	18,800	21,190	25,500	24,500	24,500	24,600	26,700
The Netherlands	13,300	13,800	14,000	13,000	12,000	13,000	12,800
Belgium	8,900	9,500	11,100	10,000	9,000	8,000	6,000
Luxembourg	125	150	150	150	150	150	150
Great Britain	28,700	31,490	36,110	43,800	49,000	43,400	42,800
Ireland	2,000	2,100	2,300	2,500	3,000	3,000	2,300
Denmark	7,000	9,030	7,120	5,200	7,000	8,000	7,700
Greece	1,300	850	800	700	800	800	800
Spain	24,500	21,480	24,300	24,700	22,550	20,800	16,500
Portugal	4,300	5,000	5,500	5,300	5,700	5,500	3,800
Finland	5,700	9,070	7,650	4,500	7,000	7,000	4,600
Austria	4,000	4,000	3,900	4,100	4,000	4,000	4,200
Sweden	2,800	3,000	3,000	2,700	3,000	3,200	2,500
Poland		2,000	2,000	2,000	5,200	5,800	1,200
Czech Republic		1,000	1,000	1,000	1,900	2,500	2,200
Hungary		600	600	500	1,900	2,000	1,900
Slovakia		6,500	6,000	5,600	5,600	5,300	4,900
Slovenia		500	500	500	600	500	0
Latvia		200	200	200	300	n.a.	n.a.
Lithuania		500	500	500	700	n.a.	n.a.
Estonia		500	500	500	100	n.a.	n.a.
Cyprus		-	-	-	-	-	-
Malta		-	-	-	-	-	-
Bulgaria				(1,500)	(1,600)	1,400	1,300
Romania				(3,500)	(3,300)	3,300	3,200
<b>EU-25</b>	<b>169,625</b>	<b>196,320</b>	<b>211,110</b>	<b>212,350</b>	<b>231,200</b>		
<b>EU-27 since 2007</b>				<b>217,350</b>	<b>236,100</b>	<b>230,830</b>	<b>213,150</b>
(Thereof domestic trade (Poland and Czech Republic))				19,000	18,700	18,700	18,700
<b>Coke</b>	11,750	13,000	10,000	11,000	12,000	11,000	11,000
there of Coke:					there of Coke:	there of Coke:	there of Coke:

2008 preliminary figures

sources: McCloskey, internal calculations

<b>Coal Consumption in the EU-Countries</b>						
Mill. t						
	<b>Hard Coal</b>		<b>Therefrom Hard Coal Import in t=t</b>		<b>Lignite</b>	
	<b>2007</b>	<b>2008</b>	<b>2007</b>	<b>2008</b>	<b>2007</b>	<b>2008</b>
Germany	75.8	71.7	50.3	50.5	180.4	175.2
France	18.2	21.4	19.2	21.4		
Italy	24.6	26.7	24.6	26.7		
The Netherlands	13.0	12.7	13.0	12.8		
Belgium	8.0	6.0	8.0	6.0		
Luxembourg	0.2	0.2	0.2	0.2		
Great Britain	59.8	60.3	43.4	42.8		
Ireland	3.0	2.3	3.0	2.3		
Denmark	8.0	7.7	8.0	7.7		
Greece	0.8	0.8	0.8	0.8	65.8	65.6
Spain	35.9	26.8	20.8	16.5	6.2	0.0
Portugal	5.5	3.7	5.5	3.8		
Finland	7.0	4.5	7.0	4.6		
Austria	4.0	4.2	4.0	4.2		
Sweden	3.0	2.5	3.2	2.5		
<b>EU-15</b>	<b>266.8</b>	<b>251.5</b>	<b>211.0</b>	<b>202.8</b>	<b>252.4</b>	<b>240.8</b>
Poland	93.2	84.6	5.8	1.2	56.8	59.4
Czech Republic	15.4	14.8	2.5	2.2	49.3	47.5
Hungary	2.0	1.9	2.0	1.9	9.8	9.4
Slovakia	4.9	4.9	5.3	4.9	2.2	2.4
Slovenia	0.5	0.0	0.5	0.0	4.5	4.0
Latvia*	0.0	0.0	0.0	0.0		
Lithuania*	0.0	0.0	0.0	0.0		
Estonia*	0.0	0.0	0.0	0.0		
Cyprus*						
Malta*						
Bulgaria	0.0	4.0	1.4	1.3	28.4	26.1
Romania	5.9	5.9	3.3	3.2	32.4	32.6
*other						
<b>EU-27 since 2007</b>	<b>388.7</b>	<b>367.6</b>	<b>231.8</b>	<b>217.5</b>	<b>435.8</b>	<b>422.2</b>

Sources: Arbeitsgemeinschaft Energiebilanzen, BP statistical review, internal calculations, 2008 estimations  
The coal consumption differs from hard coal supply by changes in stock

Primary Energy Consumption in Germany in Million TCE							
Energy Sources	2002	2003	2004	2005	2006	2007	2008
Hard Coal	64.3	68.7	65.8	62.8	65.6	67.4	62.5
thereof Import Coal	(35.7)	(37)	(40)	(37.8)	(45.3)	(46.0)	(44.1)
Lignite	56.6	55.9	56.2	54.5	53.7	55.0	53.0
Mineral Oil	183.2	180.2	177.9	175.8	176.7	157.9	166.1
Natural Gas	106.2	110	110.4	110.9	112.1	106.6	105.5
Nuclear Energy	61.4	61.5	62.2	60.7	62.3	52.3	55.4
Hydro and Wind Power	4.9	4.6	5.6	5.9	6.3	7.4	7.7
Foreign Trade Balance	0.1	-1	-0.9	-1.0	-2.4	0.2	-0.1
Electricity							
Other Energy Sources	12.7	13.2	15.1	18.0	23.2	25.6	27.7
<b>Total</b>	<b>489.4</b>	<b>493.1</b>	<b>492.3</b>	<b>487.6</b>	<b>497.5</b>	<b>472.4</b>	<b>477.8</b>
							Shares in %
Energy Resources	2002	2003	2004	2005	2006	2007	2008
Hard Coal	13.1	13.9	13.4	12.9	13.2	14.3	13.1
thereof Import Coal	(7.3)	(7.5)	(8.1)	(7.8)	(9.1)	(9.7)	(9.2)
Lignite	11.6	11.3	11.4	11.2	10.8	11.6	11.1
Mineral Oil	37.4	36.6	36.2	36.1	35.5	33.4	34.7
Natural Gas	21.7	22.3	22.4	22.7	22.6	22.6	22.1
Nuclear Energy	12.6	12.5	12.6	12.4	12.5	11.1	11.6
Hydro and Wind Power	1.0	0.9	1.1	1.2	1.3	1.5	1.6
Foreign Trade Balance	0.0	-0.2	-0.2	-0.2	-0.5	0.0	0.0
Electricity							
Other Energy Sources	2.6	2.7	3.1	3.7	4.6	5.5	5.8
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Sources: *Arbeitsgemeinschaft Energiebilanzen (The Working Group on Energy Balances), The Federal Statistical Office of Germany, internal calculations*

Coal Handling in German Ports								1,000 t
	2002	2003	2004	2005	2006	2007	2008	
<b>North Sea Ports</b>								
Hamburg	4,301	4,794	4,944	4,636	4,963	5,781	5,195	
Wedel-Schulau	707	700	700	600	871	0	0	
Bützfleth	27	43	12	19	13	6	4	
Wilhelmshaven	890	1,453	1,672	1,520	1,332	1,360	2,229	
Bremen	1,547	1,464	1,505	1,216	1,715	1,965	1,668	
Brunsbüttel	655	387	393	273	622	749	874	
Emden						5	5	
Nordenham	1,703	1,439	2,058	1,915	2,129	2,162	1,889	
Papenburg	170	260	289	214	170	143	149	
Remaining North Sea Ports S.H.	62	67	126	37	70	632	574	
Remaining North Sea Ports N.S.	7	2	-	-	-	-	-	
<b>Total</b>	<b>10,069</b>	<b>10,609</b>	<b>11,699</b>	<b>10,430</b>	<b>11,885</b>	<b>12,803</b>	<b>12,587</b>	
<b>Baltic Sea Ports</b>								
Rostock	993	1,145	1,187	1,145	1,251	993	1,443	
Wismar	41	41	42	33	30	22	35	
Stralsund	2	2	1	3	0	0	1	
Lübeck	-	3	-	-	-	-	-	
Flensburg	261	358	343	325	275	246	301	
Kiel		113	418	402	193	123	291	
Saßnitz						7	3	
Wolgast						2	-	
Remaining Baltic Sea Ports	4	7	4	2	3	-	1	
<b>Total</b>	<b>1,301</b>	<b>1,669</b>	<b>1,995</b>	<b>1,910</b>	<b>1,752</b>	<b>1,393</b>	<b>2,075</b>	
<b>Total Total</b>	<b>11,370</b>	<b>12,278</b>	<b>13,694</b>	<b>12,340</b>	<b>13,637</b>	<b>14,196</b>	<b>14,662</b>	

Source: Federal Statistical Office

## Imports of Hard Coal and Coke

Countries	2005					2006				
	Steam C.	Coking C.	Anthracite	Coke	Total <sup>1)</sup>	Steam C.	Coking C.	Anthracite	Coke	Total <sup>1)</sup>
Poland	6,875	147	14	1,175	8,211	7,158	155	17	1,637	8,967
Czech Republic	522			354	880	525		1	405	931
Spain				144	144				701	701
France				207	207				279	279
<b>EU-15/since 2004 EU-25</b>	7,397	147	14	1,880	9,442	7,683	155	18	3,022	10,878
CIS	5,855	480	286	135	6,756	8,215	548	338	201	9,302
Norway	905	323			1,228	1,138	133			1,271
USA	198	1,274			1,472	338	1,852			2,190
Canada		1,566			1,566	0	1,608			1,608
Colombia	4,750	7			4,757	3,997				3,997
South Africa	8,230	5	4		8,239	8,505	161	2		8,668
Australia	434	3,115			3,549	819	4,553		0	5,372
China	160		19	1,040	1,219	8	27	2	883	920
Indonesia	206				206	1,509				1,509
Venezuela	1				1	108				108
Other Third Countries	623	165	112	560	1,465	388	24	65	200	677
<b>Third Countries</b>	21,362	6,935	421	1,735	30,458	25,025	8,906	407	1,284	35,622
<b>Total</b>	<b>28,759</b>	<b>7,082</b>	<b>435</b>	<b>3,615</b>	<b>39,900</b>	<b>32,708</b>	<b>9,061</b>	<b>425</b>	<b>4,306</b>	<b>46,500</b>

<sup>1)</sup>2008 preliminary figures

Sources: Federal Statistical Office, BAFA, internal calculations

**to Germany**

1,000 t

2007					2008					Countries
Steam C.	Coking C.	Anthracite	Coke	Total <sup>1)</sup>	Steam C.	Coking C.	Anthracite	Coke	Total <sup>1)</sup>	
4,613	37		1,720	6,370	3,790	45	0	1,566	5,401	Poland
302		1	314	617	168	0	0	183	351	Czech Republic
			744	744				482	482	Spain
			23	23				459	459	France
1,100	27	67	248	1,442	969	6	70	484	1,529	Other
6,015	64	68	3,049	9,196	4,927	51	70	3,174	8,222	<b>EU-27 since 2007</b>
7,357	701	349	196	8,603	6,939	607	292	173	8,011	CIS
1,816		81		1,897	1,522	148	70		1,740	Norway
1,102	1,803			2,905	3,079	2,583			5,662	USA
104	1,734			1,838	22	1,651			1,673	Canada
6,917	15			6,932	5,710	82			5,792	Colombia
6,187	317	2		6,506	8,086	140			8,226	South Africa
1,176	5,544			6,720	520	5,020			5,540	Australia
10	38	2	870	920	10	2	628		642	China
1,168				1,168	513				513	Indonesia
8	7		10	25	63			29	92	Venezuela
762	3		1	766	1,851		35	1	1,887	Other Third Countries
26,607	10,162	434	1,077	38,280	28,315	10,233	399	831	39,778	<b>Third Countries</b>
<b>32,622</b>	<b>10,226</b>	<b>502</b>	<b>4,126</b>	<b>47,476</b>	<b>33,242</b>	<b>10,284</b>	<b>469</b>	<b>4,005</b>	<b>48,000</b>	<b>Total</b>

Table 19

Hard Coal Sales in Germany								1,000 t
	2002	2003	2004	2005	2006	2007	2008	
<b>Total Sales<sup>1)</sup> in Hard Coal, Coke and Briquettes</b>								
Power Stations	49,630	51,618	55,319	50,000	53,800	55,400	52,300	
Iron and Steel Industry	14,666	14,588	14,836	17,400	18,400	18,800	17,700	
Heating Market/Other <sup>2)</sup>	2,954	2,155	1,882	1,100	1,300	1,600	1,700	
<b>Total</b>	<b>67,250</b>	<b>68,361</b>	<b>72,037</b>	<b>68,500</b>	<b>73,500</b>	<b>75,800</b>	<b>71,700</b>	
<sup>1)</sup> Domestic Sales <sup>2)</sup> incl. Consumption of Mines, Benefits Sources: Statistik der Kohlenwirtschaft, internal calculations								
<b>There of import coal</b>								
Power Stations <sup>3)</sup>	26,100	27,900	30,900	27,300	33,400	34,400	35,700	
Iron and Steel Industry	10,300	11,300	11,600	11,300	14,700	14,700	13,500	
Heating Market	2,767	2,000	1,800	700	1,000	1,200	1,300	
<b>Total Imports</b>	<b>39,167</b>	<b>41,200</b>	<b>44,300</b>	<b>39,300</b>	<b>49,100</b>	<b>50,300</b>	<b>50,500</b>	
<sup>3)</sup> Imports of power plants accord. to K-Bogen (BAFA, Division 431), own calculations								

Sources: BAFA, Statistik der Kohlenwirtschaft, internal calculations/partly estimations



## Consumption, Import/Export and Power Generation in Germany

	2002	2003	2004	2005	2006	2007	2008
<b>Gross Electricity Consumption</b> in billion kWh	587.4	599.5	608.6	610.5	617.0	618.4	616.6
<b>Electricity Foreign Trade</b> in billion kWh							
Exports	45.5	53.8	51.5	61.9	65.9	63.4	62.7
Imports	46.2	45.8	44.2	53.4	46.1	44.3	40.2
Balance	-0.7	8.0	7.3	8.5	-19.8	-19.1	-22.5
<b>Gross Electricity Generation</b> in billion kWh	586.7	607.5	616.0	619.0	636.8	637.6	639.1
<b>Utilization of Energy Resources for Power Generation</b> in billion kWh							
Hard Coal therefrom Import Coal <sup>1)</sup>	134.6 (75.7)	146.5 (81.4)	140.8 (91.8)	134.1 (85.3)	137.9 (85.4)	142.0 (86.2)	128.5 (86.4)
Lignite	158.0	158.2	158.0	154.1	151.1	155.1	150.0
Natural Gas	56.3	61.3	61.4	71.0	73.4	75.9	83.0
Fuel Oil	8.7	9.9	10.3	11.6	10.5	9.7	10.5
Nuclear Energy	164.8	165.1	167.1	163.0	167.4	140.5	148.8
Hydro/Wind Power	44.2	42.2	52.4	53.9	57.5	67.8	67.2
Other	20.1	24.3	26.0	31.3	39.1	46.4	51.1
<b>Total</b>	<b>586.7</b>	<b>607.5</b>	<b>616.0</b>	<b>619.0</b>	<b>636.8</b>	<b>637.6</b>	<b>639.1</b>
<sup>1)</sup> Sales to power stations	2008 preliminary figures						

Sources: VDEW, Statistik der Kohlenwirtschaft, BAFA, AG Energiebilanzen, DIW, own calculations

## European/International Price Quotations

	2002	2003	2004	2005	2006	2007	2008	
<b>Crude Oil Prices</b>								
USD/Barrel Brent	25.00	29.00	38.00	55.00	65.14	72.44	95.49	
USD/tce	128.00	150.00	195.00	283.00	335.00	373.00	491.15	
<i>Source: MWV</i>								
<b>Natural Gas Prices: Free German Border</b>								
€/tce	105.00	111.00	105.00	142.00	191.00	180.00	237.00	
<i>Source: Statistik der Kohlenwirtschaft</i>								
<b>Steam Coal Marker Prices 1% S, CIF NW Europe</b>								
USD/tce	37.00	50.00	83.90	71.25	74.41	101.03	174.74	
€/tce	39.10	44.20	67.44	57.27	59.23	73.17	118.29	
<i>Source: McCloskey</i>								
<b>Sea Freight Rates Capesize Units – Port of Destination ARA (Amsterdam, Rotterdam, Antwerp)</b>								
South Africa USD/t	6.50	14.60	20.60	15.75	15.94	32.33	30.36	
USA/East Coast USD/t	5.30	11.90	19.60	16.60	14.87	34.47	32.65	
Australia/NSW USD/t	9.50	20.50	31.00	24.00	24.07	51.77	50.91	
Colombia USD/t	5.40	12.10	20.10	16.10	14.89	33.55	31.71	
<i>Sources: Frachtcontor Junge, internal calculations</i>								
<b>EU: Price Development for Imported Hard Coal from non-EEC Countries</b>								
	2002	2003	2004	2004	2005	2006	2007	1. HY, 2008
	EU-15	EU-15	EU-15	EU-25	EU-25	EU-25	EU-27	EU-27
Steam Coal €/tce	45.50	39.80	56.20	55.98	61.86	60.43	72.49	94.73
Coking Coal €/t	59.00	53.50	61.66	61.20	91.03	104.26	103.27	95.97
Steam Coal: Utilisation in power plants; weighted average of cross border price in the EU-countries								
Coking Coal: Indicative CIF-price, own calculations for determination of the annual values								
<i>Source: EU-commission</i>								

## Germany – Energy Prices/Exchange Rates

	2002	2003	2004	2005	2006	2007	2008
<b>Exchange Rates</b>							
€/US\$ <i>Source: Deutsche Bundesbank</i>	1.0575	0.884	0.8039	0.8038	0.7965	0.7296	0.6799
<b>Cross Border Price for Coking Coal and Coke – €/t</b>							
Imported Coking Coal	59.49	56.47	63.50	95.25	105.88	96.22	132.62
Imported Coke	87.32	102.15	214.35	230.30	166.79	175.55	281.20
<i>Sources: Coking Coal – 2002 BAFA, Division 432; since 2003 Federal Statistical Office Coke: Federal Statistical Office</i>							
<b>Cross Border Price for Steam Coal in €/TCE: Utilization in Power Plants</b>							
	Year	1. quarter	2. quarter	3. quarter	4. quarter	Annual Value	
	2001	50.17	54.08	55.26	53.47	53.18	
	2002	50.76	47.33	40.31	39.41	44.57	
	2003	38.42	37.83	40.43	42.27	39.87	
	2004	48.68	55.44	58.76	61.81	55.36	
	2005	64.81	64.01	65.59	65.80	65.02	
	2006	63.03	61.61	59.75	62.54	61.76	
	2007	63.10	63.51	67.14	78.54	68.24	
	2008	93.73	106.01	131.80	120.13	112.48	
<i>Source: BAFA Division 431 (cross border prices=cif price ARA + freight German border)</i>							
<b>Energy Prices free power station €/TCE</b>							
	2002	2003	2004	2005	2006	2007	2008
<b>Sources of Energy</b>							
Natural Gas	151.00	167.00	176.00	206.00	220.00	209.00	269.00
Heating Oil. Heavy	115.00	124.00	117.00	166.00	203.00	198.00	275.00
Steam Coal	50.00	45.00	60.00	70.00	67.00	73.00	117.00
<i>Sources: BAFA, Statistik der Kohlenwirtschaft, own calculations, natural gas 2008: preliminary</i>							

## Hard Coal Market in Germany

### Quantities and Prices 1957–2008

Quantities								Prices							
Imports of Hard Coal and Coke				Domestic Mining of Hard Coal Mill. t usable output				Steam Coal from non-EEC Countries <sup>1)</sup>				Domestic t-t Industry Coal <sup>2)</sup>			
Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	€/tce	Jahr	€/tce	Year	€/tce	Year	€/tce
1957	18.9	1981	11.3	1957	149.4	1981	87.9	1957	40	1981	84	1957	29	1981	113
1958	13.9	1982	11.5	1958	148.8	1982	88.4	1958	37	1982	86	1958	29	1982	121
1959	7.5	1983	9.8	1959	141.7	1983	81.7	1959	34	1983	75	1959	29	1983	125
1960	7.3	1984	9.6	1960	142.3	1984	78.9	1960	33	1984	72	1960	29	1984	130
1961	7.3	1985	10.7	1961	142.7	1985	81.8	1961	31	1985	81	1961	29	1985	130
1962	8.0	1986	10.9	1962	141.1	1986	80.3	1962	30	1986	60	1962	30	1986	130
1963	8.7	1987	8.8	1963	142.1	1987	75.8	1963	30	1987	46	1963	30	1987	132
1964	7.7	1988	8.1	1964	142.2	1988	72.9	1964	30	1988	42	1964	31	1988	134
1965	8.0	1989	7.3	1965	135.1	1989	71.0	1965	29	1989	49	1965	32	1989	137
1966	7.5	1990	11.7	1966	126.0	1990	69.8	1966	29	1990	49	1966	32	1990	138
1967	7.4	1991	16.8	1967	112.0	1991	66.1	1967	29	1991	46	1967	32	1991	139
1968	6.2	1992	17.3	1968	112.0	1992	65.5	1968	28	1992	42	1968	30	1992	147
1969	7.5	1993	15.2	1969	111.6	1993	57.9	1969	27	1993	37	1969	31	1993	148
1970	9.7	1994	18.1	1970	111.3	1994	52.0	1970	31	1994	36	1970	37	1994	149
1971	7.8	1995	17.7	1971	110.8	1995	53.1	1971	32	1995	39	1971	41	1995	149
1972	7.9	1996	20.3	1972	102.5	1996	47.9	1972	31	1996	38	1972	43	1996	149
1973	8.4	1997	24.3	1973	97.3	1997	45.8	1973	31	1997	42	1973	46	1997	149
1974	7.1	1998	30.2	1974	94.9	1998	40.7	1974	42	1998	37	1974	56	1998	149
1975	7.5	1999	30.3	1975	92.4	1999	39.2	1975	42	1999	34	1975	67	1999	149
1976	7.2	2000	33.9	1976	89.3	2000	33.3	1976	46	2000	42	1976	76	2000	149
1977	7.3	2001	39.5	1977	84.5	2001	27.1	1977	43	2001	53	1977	76	2001	149
1978	7.5	2002	39.2	1978	83.5	2002	26.1	1978	43	2002	45	1978	84	2002	160
1979	8.9	2003	41.3	1979	85.8	2003	25.7	1979	46	2003	40	1979	87	2003	160
1980	10.2	2004	44.3	1980	86.6	2004	25.7	1980	56	2004	55	1980	100	2004	160
		2005	39.9			2005	24.7			2005	65			2005	160
		2006	46.5			2006	20.7			2006	62			2006	170
		2007	47.5			2007	21.3			2007	68			2007	170
		2008	48.0			2008	17.1			2008	112			2008	170

2008 preliminary figures; since 1991 incl. new federal states, €-values are rounded  
<sup>1)</sup> Price free German border (BAFA Div. 432), since 1996: BAFA Div. 431  
<sup>2)</sup> Estimated cost-covering price

Sources: Federal Statistical Office, Statistik der Kohlenwirtschaft, BAFA, RAG, own calculations

Table 24

## Glossary

<b>ARA</b>	Amsterdam-Rotterdam-Antwerp	<b>HS</b>	fuel oil heavy
<b>BAFA</b>	Bundesamt für Wirtschaft und Ausfuhrkontrolle (Federal Office of Economics and Export Control)	<b>IEA</b>	International Energy Agency
<b>BDEW</b>	Bundesverband der Energie- und Wasserwirtschaft e.V. (German Energy and Water Association)	<b>IISI</b>	International Iron and Steel Institute
<b>BEE capesize</b>	Black Economic Empowerment capesize definition for bulk-carrier > 100.000-150.000 DWT	<b>kWh</b>	kilowatt hour
<b>CCS</b>	Carbon Capture Storage	<b>KWK</b>	combined heat and power
<b>cif</b>	INCOTERM: cost-insurance-freight	<b>LNG</b>	liquified natural gas
<b>CIS</b>	formerly Soviet Union	<b>NAR</b>	coal trade: net as received
<b>DIW</b>	Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Research)	<b>mt</b>	metric ton
<b>ECE</b>	Economic Commission for Europe	<b>Panamax</b>	definition for bulk-carrier 50.000-90.000 DWT
<b>EEG</b>	Erneuerbare-Energien-Gesetz (Renewable Energy Sources Act)	<b>PCI-coal</b>	metallurgical area: pulverized coal injection
<b>EEX</b>	European Energy Exchange AG, Leipzig, Germany	<b>sintering coal</b>	low-volatile coal, used in sintering plants
<b>fob</b>	INCOTERM: free on board	<b>TCE</b>	ton coal equivalent (7.000 kcal/kg)
<b>GVSt</b>	Gesamtverband Steinkohle (German Hard Coal Association)	<b>Spotmarkt</b>	short-term market
		<b>st</b>	short ton (= 0,90719 mt)
		<b>t</b>	ton
		<b>t/a</b>	ton per annum
		<b>VDN</b>	Verband der Netzbetreiber (Association of German network operators)
		<b>WCI</b>	World Coal Institute

## Institutions/Links

### **AGEB (Arbeitsgemeinschaft Energiebilanzen/ The Working Group on Energy Balances)**

[www.ag-energiebilanzen.de](http://www.ag-energiebilanzen.de)

### **American Coal Council**

[www.americancoalcouncil.org](http://www.americancoalcouncil.org)

### **Australian Bureau of Agriculture and Resource Economics**

[www.abareconomic.com](http://www.abareconomic.com)

### **Australian Coal Association**

[www.australiancoal.com](http://www.australiancoal.com)

### **Australian Institute of Energy**

[www.aie.org.au](http://www.aie.org.au)

### **Banovici Coal Mining (Bosnian Coal Producer)**

[www.rmub.ba](http://www.rmub.ba)

### **BRGM (Bureau de Recherches Géologiques et Minières)**

[www.brgm.fr](http://www.brgm.fr)

### **CARBUNION (Federation of Spanish Coal Producers)**

[www.carbunion.com](http://www.carbunion.com)

### **Chamber of Mines of South Africa**

[www.bullion.org.za](http://www.bullion.org.za)

### **Coalimp (Association of UK Coal Importers)**

[www.coalimp.org.uk](http://www.coalimp.org.uk)

### **Coal International**

[www.coalinternational.co.uk](http://www.coalinternational.co.uk)

### **COALPRO (Confederation of the UK Coal Producers)**

[www.coalpro.co.uk](http://www.coalpro.co.uk)

### **Coaltrans Conferences Ltd.**

[www.coaltrans.com](http://www.coaltrans.com)

### **DEBRIV (Bundesverband Braunkohle/ German Lignite Organization)**

[www.braunkohle.de](http://www.braunkohle.de)

### **EIA (Energy Information Administration)**

[www.eia.doe.gov](http://www.eia.doe.gov)

### **EPS (Electric Power Industry of Serbia)**

[www.eps.co.yu](http://www.eps.co.yu)

### **Euracoal**

[www.euracoal.org](http://www.euracoal.org)

### **FDBR – Fachverband Dampfkessel, Behälter- u. Rohrleitungsbau e.V.**

**(Association of Steam Boiler Pressure  
Vessel and Piping Manufacturers)**

[www.fdbbr.de](http://www.fdbbr.de)

### **GVSt Gesamtverband Steinkohle (German Hard Coal Association)**

[www.gvst.de](http://www.gvst.de)

### **HBP (Hornonitrianske Bane Prievidza)**

[www.hbp.sk](http://www.hbp.sk)

### **IEA (International Energy Agency)**

[www.iea.org](http://www.iea.org)

### **ISFTA (Institute for Solid Fuels Technology & Applications)**

[www.lignite.gr](http://www.lignite.gr)

### **IZ Klima (Informationszentrum klimafreundliches Kohlekraftwerk e.V.)**

[www.iz-klima.de](http://www.iz-klima.de)

### **MATRA (Mátra Erömű Rt)**

[www.mert.hu](http://www.mert.hu)

### **Mini Maritsa Iztok EAD (Bulgarian Lignite Producer)**

[www.marica-iztoc.com](http://www.marica-iztoc.com)

### **National Mining Association**

[www.infomine.com](http://www.infomine.com)

### **PPC (Public Power Corporation)**

[www.dei.gr](http://www.dei.gr)

### **PPWB (Confederation of the Polish Lignite Industry)**

[www.pppwb.org.pl](http://www.pppwb.org.pl)

### **Premogovnik Velenje (Slovenian Lignite Producer)**

[www.rlv.si](http://www.rlv.si)

### **Svenska Kolinstitutet**

[www.kolinstitutet.se](http://www.kolinstitutet.se)

### **US Department of Energy – Fossil.Energy.gov**

[www.fe.doe.gov](http://www.fe.doe.gov)

### **World Coal Institute**

[www.wci-coal.com](http://www.wci-coal.com)

### **World Steel Association**

[www.worldsteel.com](http://www.worldsteel.com)

### **ZSDNP (Czech Confederation of the Coal and Oil Producers)**

[www.zsdnp.cz](http://www.zsdnp.cz)

## Members of VDKI

<b>Member Company</b>	<b>Area Code</b>	<b>Phone</b>	<b>Fax</b>	<b>Homepage</b>
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<b>AMCI CARBON GMBH</b> Baumstr. 25, 45128 Essen, Germany	+49 201	879-1570	879-1561	www.amciworld.com
<b>Amsterdam Port Authority</b> De Ruijterkade 7, 1013 AA Amsterdam, The Netherlands	+31 20	523 45 77	523 40 77	www.amsterdamports.nl
<b>Antwerp Port Authority</b> Entrepotkaai 1, 2000 Antwerpen, Belgium	+32 3	2052246	205 22 69	www.portofantwerp.be
<b>BHP Billiton Marketing AG</b> Jöchlerweg 2, 6341 Baar, Switzerland	+31 70	315 65 90	315 66 01	www.bhpbilliton.com
<b>BS/ENERGY Braunschweiger Versorgungs- Aktiengesellschaft &amp; Co. KG</b> Taubenstraße 7, 38106 Braunschweig, Germany	+49 531	383-0	383-2644	www.bvag.de
<b>Bulk Trading S.A.</b> Piazza Molino Nuovo 17, 6900 Lugano, Switzerland	+41	916115-130	916115-137	www.bulktrading.ch
<b>CMC Coal Marketing Company Ltd.</b> Fumbally Square, New Street, Dublin 8, Ireland	+353 1	708 2600	708 2699	www.cmc-coal.ie
<b>Constellation Energy Commodities Group Ltd.</b> Rivercourt, 120 Fleet Street, London EC4A 2BB, UK	+44 20	7051 2937	7051 6704	
<b>CS Additive GmbH</b> Baumstr. 25, 45128 Essen, Germany	+49 201	879 15-0	879 15-50	www.cs-additive.de
<b>Currenta GmbH &amp; Co. KG OHG (ehem. Bayer AG)</b> BIS-EN-BM, Geb. G11, 51068 Leverkusen, Germany	+49 214	3057885	30657885	www.currenta.de
<b>Deutsche Bank AG, London Branch</b> Winchester House, 1 Great Winchester Street, London EC2N 2DB, UK	+44 20	754 509 96	754 737 13	www.db.com
<b>Douglas Services GmbH</b> Rohrbergstr. 23 b, 65343 Eltville, Germany	+49 6123	70390	703920	
<b>Duisburger Hafen AG</b> Alte Ruhrorter Str. 42-52, 47119 Duisburg, Germany	+49 203	803-330	803-436	www.duisport.de
<b>EDF Trading (Switzerland) AG</b> Berlin Office, DomAquaree, Karl-Liebknecht-Str. 5, 10178 Berlin, Germany	+49 30	700 140460	700 140 150	www.edftrading.com
<b>EEX European Energy Exchange AG</b> Augustusplatz 9, 04109 Leipzig, Germany	+49 341	2156-0	2156-559	www.eex.com

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<b>EnBW Trading GmbH</b> Durlacher Allee 93, 76131 Karlsruhe, Germany	+49 721	63-15419	63-18848	www.enbw.com
<b>Enerco bv</b> Keerweg 2, 6122 CL Buchten, The Netherlands	+31 46	4819900	485 92 11	www.enerco.nl
<b>E.ON Energy Trading AG</b> Holzstraße 6, 40221 Düsseldorf, Germany	+49 211	732 75-0	73275-1552	www.eon-energy-trading.com
<b>E.ON Kraftwerke GmbH</b> Tresckowstraße 5, 30457 Hannover, Germany	+49 511	439-02	439-4052	www.eon-kraftwerke.com
<b>EUROKOR Logistics B.V.</b> Ridderpoort 40, 2984 BG Ridderkerk, The Netherlands	+31 180	4855555	485533	eurokor-logistics.com
<b>European Bulk Services (E.B.S.) B.V.</b> Elbeweg 117, 3198 LC Europoort Rotterdam, The Netherlands	+31 181	258 121	258 125	www.ebsbulk.nl
<b>Europees Massagoed-Overslagbedrijf (EMO) bv</b> Missouriweg 25, 3199 LB Maasvlakte RT, The Netherlands	+31 181	37 1111	37 1222	www.emo.nl
<b>EVN AG</b> EVN Platz, 2344 Maria Enzersdorf, Austria	+43	223620012352	223620082352	www.evn.at
<b>Evonik Steag GmbH (ehem. Steag AG)</b> Rellinghauser Straße 1-11, 45128 Essen, Germany	+49 201	177-0	177-3196	www.evonik.com
<b>Evonik Trading GmbH (ehem. RAG Trading)</b> Rüttenscheider Straße 1-3, 45128 Essen, Germany	+49 201	801-3500	801-3501	www.evonik-trading.de
<b>Exxaro International Coal Trading B.V. (Zug Branch)</b> Baarerstrasse 8, 6300 Zug, Switzerland	+41 41	727 0570	727 0579	www.exxaro.com
<b>Frachtcontor Junge &amp; Co. GmbH</b> Ballindamm 17, 20095 Hamburg, Germany	+49 40	3000-0	3000-343	www.frachtcontor.com
<b>GDF SUEZ Energie Germany AG</b> Friedrichstr. 200, 10117 Berlin, Germany	+49 30	726153-500	726153-502	www.gdfsuez-energie.de
<b>GLENCORE International AG</b> Baaremattstrasse 3, 6341 Baar, Switzerland	+41 41	7092000	7093000	www.glencore.com
<b>Grosskraftwerk Mannheim AG</b> Marguerrestr. 1, 68199 Mannheim, Germany	+49 621	8684310	8684319	www.gkm.de
<b>HANSAPORT Hafенbetriebsgesellschaft mbH</b> Am Sandauhafen 20, 21129 Hamburg, Germany	+49 40	740 03-1	74 00 32 22	www.hansaport.de
<b>HCC Hanseatic Coal &amp; Coke Trading GmbH</b> Sachsenfeld 3-5, 20097 Hamburg, Germany	+49 40	23 72 03-0	23 26 31	
<b>HMS Bergbau AG</b> An der Wuhlheide 232, 12459 Berlin, Germany	+49 30	656681-0	656681-15	www.hms-ag.com



<b>Member Company</b>	<b>Area Code</b>	<b>Phone</b>	<b>Fax</b>	<b>Homepage</b>
<b>Holcim (Deutschland) AG</b> Willy-Brandt-Str. 69, 20457 Hamburg, Germany	+49 40	360 02-0	36 24 50	www.holcim.com
<b>HTAG Häfen und Transport AG</b> Baumstraße 31, 47198 Duisburg, Germany	+49 2066	209-112	209 194	www.htag-duisburg.de
<b>Imperial Reederei GmbH</b> Dr.-Hammacher-Str. 49, 47119 Duisburg, Germany	+49 203	5794-0	5794-229	www.imperial-reederei.de
<b>Infracor GmbH, DG-IR-VO-EAW</b> Paul-Baumann-Straße 1, 45722 Marl, Germany	+49 2365	49-6084	49-806084	www.infracor.de
<b>L.B.H. Netherlands B.V.</b> Rijsdijk 13, 3161 HK Rhoon, The Netherlands	+31 10	5065000	501 34 00	www.lbh.nl
<b>LEHNKERING Reederei GmbH</b> Schifferstraße 26, 47059 Duisburg, Germany	+49 203	31 88-0	31 46 95	www.lehnkering.com
<b>Mark-E Aktiengesellschaft</b> Körnerstraße 40, 58095 Hagen, Germany	+49 2331	12 3-0	123-22222	www.mark-e.de
<b>NUON Energy Trade &amp; Wholesale</b> Spaklerweg 20, 1096 BA Amsterdam, The Netherlands	+31 20	7995684	5627599	www.corporate.nuon.com
<b>OBA Bulk Terminal Amsterdam</b> Westhavenweg 70, 1042 AL Amsterdam, The Netherlands	+31 20	5873701	6116908	www.oba.bulk.nl
<b>OVET B.V.</b> Schuttershofweg 1, 7th floor, 4538 AA Terneuzen, The Netherlands	+ 31 11	5676700	5620316	www.ovet.nl
<b>Oxbow Coal GmbH</b> Schifferstraße 200, 47059 Duisburg, Germany	+49 203	31 91-0	31 91-105	www.oxbow.com
<b>Pfeifer &amp; Langen KG</b> Dürener Straße 40, 50189 Elsdorf, Germany	+49 2274	701-300	701-293	www.pfeifer-langen.com
<b>Port of Rotterdam</b> Wilhelminakade 909, 3072 AP Rotterdam, The Netherlands	+31 10	252 1638	252 4041	www.portofrotterdam.com
<b>Railion Germany AG, Railion Montan</b> Rheinstraße 2, 55116 Mainz, Germany	+49 6131	15-61100	15-61199	www.railion.com
<b>RBS Sempra Energy Europe Limited</b> 155 Bishopsgate, London EC2M 3 TZ, UK	+44	207847 1234	207847 1150	www.rbssempra.com
<b>Rheinbraun Brennstoff GmbH</b> Stüttgenweg 2, 50935 Köln, Germany	+49 221	480-1364	480-1369	www.energieprofi.com
<b>Rhenus PartnerShip GmbH &amp; Co. KG</b> August-Hirsch-Str. 3, 47119 Duisburg, Germany	+49 203	8009-326	8009-221	www.rhenus.de
<b>RWE Power AG</b> Altenessener Str. 27, 45141 Essen, Germany	+49 201	12-22932	12-22010	www.rwepower.com

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<b>RWE Supply &amp; Trading GmbH</b> Altenessener Str. 27, 45141 Essen, Germany	+49 201	12-09	12-17900	www.rwetrading.com
<b>SEA-Invest N.V.</b> Skaldenstraat 1, 9042 Gent, Belgium	+32 9	255 02 51	259 08 93	www.SEA-INVEST.BE
<b>Stadtwerke Flensburg GmbH</b> Batteriestraße 48, 24939 Flensburg, Germany	+49 461	487-0	487-1880	www.stadtwerke-flensburg.de
<b>Stadtwerke Hannover AG</b> Ihmeplatz 2, 30449 Hannover, Germany	+49 511	430-0	430-2772	www.enercity.de
<b>SUEK AG, Swiss Office</b> Vadianstrasse 59, 9000 St. Gallen, Switzerland	+41 71	226 85 00	226 85 03	www.suekag.com
<b>SüdWestStrom Kraftwerke GmbH &amp; Co. KG</b> Eisenhutstr. 6, 72072 Tübingen, Germany	+49 7071	157-381	157-488	www.suedweststrom.de
<b>Südzucker AG Mannheim/Ochsenfurt</b> Maximilianstraße 10, 68165 Mannheim, Germany	+49 621	421-0	421-466	www.suedzucker.de
<b>swb Erzeugung GmbH &amp; Co. KG</b> Theodor-Heuss-Allee 20, 28215 Bremen, Germany	+49 421	359-2270	359-2366	www.swb-gruppe.de
<b>Terval s.a.</b> Ile Monsin 129, 4020 Liège, Belgium	+32	4 264 9348	4 264 0835	www.terval.com
<b>ThyssenKrupp Steel AG</b> Altendorfer Straße 103, 45143 Essen, Germany (Guest) Kaiser-Wilhelm-Straße 100, 47166 Duisburg, Germany (Post address)	+49 201	188-3567	188-3568	www.thyssenkrupp-steel.com
<b>Trianel Power Kohlekraftwerk Lünen GmbH &amp; Co. KG</b> Lombardenstr. 28, 52070 Aachen, Germany	+49 241	413 20-0	413 20-303	www.trianel.com
<b>Vattenfall Europe Wärme AG</b> Puschkinallee 52, 12435 Berlin, Germany	+49 30	267-10095	267-10719	www.vattenfall.de
<b>Vattenfall Europe Generation AG</b> Vom-Stein-Str. 39, 03050 Cottbus, Germany	+49 355	2887-2644	2887-2737	www.vattenfall.de
<b>Vattenfall Europe Wärme AG</b> Überseering 12, 22297 Hamburg, Germany	+49 40	63 96-3770	63 96-3151	www.vattenfall.de
<b>Vitol S.A.</b> Boulevard du Pont d'Arve 28, 1205 Geneva, Switzerland	+41	22 322 1111	22 781 6611	www.vitol.com
<b>Wincanton GmbH</b> Antwerpener Straße 24, 68219 Mannheim, Germany	+49 621	8048-247	8048-449	www.wincanton.eu
<b>Zeeland Seaports</b> Schelpenpad 2, 4531 PD Terneuzen, The Netherlands	+31 115	647 400	647 500	www.zeeland-seaports.com

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