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ANNUAL REPORT

**2015**

FACTS AND TRENDS 2014/15



## Import Coal Market at a Glance

		2012	2013	2014 <sup>1)</sup>
<b>World</b>				
Hard Coal Production	Mn t	7,170	7,195	7,181
Hard Coal World Trade	Mn t	1,164	1,237	1,272
thereof Hard Coal Seaborne	Mn t	1,082	1,142	1,187
Hard Coal Cross-Border Trade	Mn t	82	95	85
Coke Production	Mn t	650	681	682
Coke World Trade	Mn t	22	17	19
<b>European Union (28)</b>				
Hard Coal Production	Mn TCE	128	114	108
Hard Coal Imports/Cross-Border Trade	Mn t	212	213	205
Coke Imports	Mn t	6	6	6
<b>Germany</b>				
Hard Coal Consumption	Mn t	58.3	61.0	56.2
Hard Coal Production (saleable production)	Mn t	11.0	7.5	7.6
Total Imports	Mn t	47.9	52.9	56.2
thereof Hard Coal Imports	Mn t	44.9	50.1	53.7
thereof Power Plants	Mn t	35.3	39.9	41.9
Iron and Steel Industry	Mn t	9.6	10.2	11.8
Coke Imports	Mn t	3.0	2.7	2.5
Import Coal Use <sup>2)</sup>	Mn TCE	46.8	52.4	48.4
<b>Prices</b>				
Steam Coal Marker Price CIF NWE	US\$/TCE	108	96	88
Cross-Border Price Steam Coal	€/TCE	93	79	73
CO <sub>2</sub> Certificate Price (average)	€/CO <sub>2</sub>	8	5	6
Exchange Rate	€/US\$	0.78	0.75	0.75
<sup>1)</sup> Some figures provisional				
<sup>2)</sup> Total import and use of import coal differ owing to inventory movements				

## AN INTRODUCTORY WORD – HARD COAL MUST CONTINUE TO PLAY A STABLE ROLE IN THE ENERGY MIX

A study on the acceptance of the raw material coal conducted by the TU Bergakademie Freiberg produced some amazing results: coal's negative image in media reports does not reflect the differentiated opinions about its advantages and disadvantages held by the German population. It is also surprising to see how little the majority of German citizens (despite living in the age of the energy turnaround) actually know about German energy and raw material supplies and the use of coal.

According to BDI President Grillo, about 60% of the population accept coal-fired power plants as guarantors of a secure supply of electric power at a reasonable price. Moreover, coal continues to be the most widely used source of energy for electric power generation worldwide. In Germany itself, about 18% of the country's electricity (109 billion kilowatt-hours) in 2014 was generated using hard coal – holding its own level despite the growing shares of power generated from various renewable sources.

Germany's share of the global energy market and global CO<sub>2</sub> emissions is no more than about one-fortieth. In 2014, CO<sub>2</sub> emissions fell to the lowest level since 2010 according to the German Federal Environmental Agency, a drop of 27% in comparison with the base year 1990.

At the beginning of the year, Dr Bettzüge from the Institute of Energy Economics at the University of Cologne wrote in the Handelsblatt that the German debate on energy issues focuses on the domestic circumstances and that important developments on the global level are not given adequate consideration or are even incorrectly assessed. Instead of depending on an "energy strategy" that responds flexibly to changes in demand and general circumstances, the German government, in rather dogmatic loyalty to the party line, are pursuing a so-called "energy concept" that has apparently been written in stone for decades to come. Scenarios depicting possible long-term developments are interpreted politically to produce plans with fixed plan objectives, and politicians have the task of ensuring that these objectives are met precisely – without any regard whatsoever of what happens in the world and no matter what the cost. Deviations from the plans are not permitted to lead to a rethinking of the path that has been taken under any circumstances; instead, they are used solely as justification for political interventions of increasingly broad scope in the market.

The consequences: the build-out of the power grid is faltering, the power exchange prices stubbornly refuse to move from their low level and the threat to the security of the power supply is growing. In view of this situation, the contribution of hard coal – a reliable guarantee of a prudent transition with a long-term view to a world without nuclear energy and steadily increasing proportions of power from renewable energy sources – becomes all the more important.

Hamburg, July 2015



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- CEO -

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### Disclaimer

### Glossary\*

### Institutions/Links\*

\* We have decided to save space and reduce expenses by not printing the glossary and the list of institutions. However, they are still available for viewing on the German Coal Importer Association's website.

## PROSPECTS FOR THE WORLD COAL MARKET

### **Outlook for world coal trade – has growth become a thing of the past, or has the low point been reached?**

The International Monetary Fund re-analysed the world situation in April 2015. The FAZ (Frankfurter Allgemeine Zeitung) summarised the resulting forecasts in the following 12 points in an article published on 14/04/2015 ([www.faz.net](http://www.faz.net)):

1. **The global economy will grow by 3.5%** this year and by 3.8% next year. This largely maintains the pace of growth of the previous year and would appear to represent solid progress. Appearances are deceiving.
2. **Some countries are doing better than expected**, others are doing worse. The industrialised countries in particular display greater strength while emerging and developing economies are disappointments. What is happening?
3. **The legacy of the financial and euro crises continues to make itself felt:** weak banks and high debt levels of countries, companies and households put a damper on growth.
4. **Demographic ageing has an impact.** There is no difference in this respect between rich and not so rich countries. It generates pessimism about future outlook and induces potential investors to hold on to their money rather than invest it in actions that promote and encourage growth.
5. **Two price developments are leading to major shake-ups:** the price of oil, which has been cut in half since the middle of 2014, and the price of the US dollar, which has risen strongly during the same period of time. This is not necessarily a bad thing. But it is not necessarily a good thing, either.
6. **The United States continues to be the locomotive of the world economy.** Its economy will grow by 3% in each of the next two years. The country owes this upswing to the low price of oil which has made fuelling vehicles and some industrial processes less expensive. The Federal Reserve will make sure that money remains affordable, even after a slight increase in the prime interest rate, prophesies the Monetary Fund. The eurozone will celebrate a comeback with Germany (+1.5%) because everything is so cheap: oil, money and the euro. Even Japan will post a certain recovery.
7. **The BRIC story can be consigned to the rubbish bin.** The two oil exporters are languishing. Brazil's economy is shrinking, Russia is in a pitiable state with economic performance of -2.4% in 2015, although it will recover a little in 2016. The growth rates for China over the next two years will be only a little over 6%, which will enable oil importer India and its growth rates significantly over 7% to overtake its northern neighbour.
8. **The very poor countries are growing rapidly:** at 5.5% to 6% on average. Some of them would be growing even faster if they had not subsidised fuel costs for motor vehicles the whole time. Now car drivers do not even notice that oil has become less expensive. There is nothing left over in their budgets for additional consumption.

9. **The exchange rate development of the dollar is risky.** Many companies in emerging economies have high debt levels in dollars. Any further increase in the cost of the dollar such as might be caused by the Federal Reserve increasing the prime interest rate could shock the market and lead to truly serious problems for the emerging economies.
10. **Geopolitical crises** in Ukraine, Middle East and West Africa **pose risks.**
11. **The International Monetary Fund advocates an unrestrained money policy,** investments in roads, dams and bridges and a labour market policy that increases participation of the population in the work force – women and the elderly specifically.
12. **Poorer countries should take advantage of this phase of low prices** to stop energy subsidies and to invest the funds in education and health care.

According to the BDI Spring Assessment 2015, the German economy is enjoying a strong upswing and is being driven primarily by cheap oil and the strong devaluation of the euro. On the other hand, development of corporate investments has been weak. Political actions which would have the effect of heightening planning insecurity for companies, however, would also have a dampening impact on investment activities. Such activities include (among others) the constant re-adjusting of the regulations in the energy sector. Calculations by the International Monetary Fund (IMF) indicate that the world economy grew overall by 3.4% in the past year; emerging economies increased production by 4.6%, the industrialised countries by 1.8%. The IMF forecasts growth in GDP in industrialised countries of 0.6% to 2.4% and a decline of 0.3% to 4.3% in emerging economies for the current year. According to

the most recent figures, world trade increased by 3.4% in 2014, and the IMF is projecting growth of 3.7% in the current year.

At the level of producer prices, there will apparently be no relief for the suffering Chinese industrial sector as the Purchasing Managers Index (PMI) fell by 4.6% in May 2015 (at the same rate as in April 2015). Producer prices in China have displayed a steadily downward trend for over three years. This is above all a consequence of the latent problem of overcapacities in numerous heavy industry segments and most recently especially of the falling prices for oil and other raw materials.

Growth of 7.2% in the Indian GDP in 2014 was a little faster than in the past. The IMF expects a rise of 7.5% in economic performance in 2015, higher than that for China. Real GDP in Russia grew by a mere 0.6% in 2014. Owing to the current political situation, the IMF is predicting GDP shrinkage of 2.6% for the current year.

The US economy showed robust growth in the past year, with US GDP rising by 2.4%. The IMF estimates that the US GDP will grow by 3.1% in 2015.

Growth in GDP in the EU 28 in 2015 is estimated at 1.7% by the EU Commission; the forecast for the eurozone (with the exclusion of Lithuania, which became the 19th country to join the currency union on 01/01/2015) is 1.3%.

Gross Domestic Product <sup>*)</sup>			
	2013	2014 <sup>1)</sup>	2015 <sup>2)</sup>
	%	%	%
World	3.4	3,4	3,5
USA	2.2	2.4	3.1
Eurozone	-0.5	0.9	1.3
Japan	1.6	-0.1	1.0
China	7.8	7.8	6.8
<sup>*)</sup> Change with respect to previous year <sup>1)</sup> Provisional			
<sup>2)</sup> Forecast			
Source: IWE, World Economic Outlook, April 2015			

HT-P1

World trade with the most important dry bulk goods experienced growth of 221 million tonnes in 2014, indicating that the world economy had gained momentum, especially in Asia and the USA. Essentially, the increases totalling 7% over 2013 resulted from the unabated rise in coal and iron ore imports of China and India.

Most Important Bulk Goods in Mn Tons				
Natural Resources	2013	2014 <sup>1)</sup>	2015 <sup>2)</sup>	Difference 2013/2014
Steel Industry				
• Iron Ore	1.189	1.335	1.408	12.3
• Steam and Coking Coal	1.179	1.212	1.200	2.8
• Scrap	106	105	106	0.1
• Coke	15	18	19	0.5
• Pig Iron	12	13	13	0.8
• Steel Products	288	303	312	3.0
• Grain	387	411	414	0.7
Total	3.176	3.397	3.472	7.0
<sup>1)</sup> Provisional <sup>2)</sup> Forecast, own calculations				
Source: Frachtcontor Junge & Co. GmbH, several evaluations				

HT-P2

Capacities of the Bulk Carrier Fleet Forecast Based on Order Books and Delivery Dates				
	2012	2013	2014	2015
			Planned additional construction	
	m dwt	m dwt	m dwt	m dwt
Capesize	280	294	308	21
Panamax	170	185	193	14
Handymax	147	158	166	18
Handysize	88	88	89	6
Total	685	725	756	59
Source: Frachtcontor Junge & Co. GmbH, own evaluations				

HT-P3



The **capacities of bulk carriers** rose by only about 31 million DWT (4.3%) in 2014 while the dry bulk commodity market grew by 7%. This represents a substantial slowdown in the growth of the fleets, especially in the Panamax and Capesize segments. According to Frachtcontor Junge, no new orders for ships in the Capesize segment were placed during Q1 2015. The fleet in the Panamax segment continues to grow. In total, 40 ships (3.25 million DWT) have been delivered and 30 ships (2.16 million DWT) have been scrapped in 2015. This represents net growth of 10 ships (1.09 million DWT) since January 2015.

### **World coal market: where is it headed?**

The figures for world coal trade in 2014 continue to rise. Growth has slowed significantly, however. Moreover, when broken down into regional segments, the world coal market shows variances in its development. The steel industry in both China and Europe is struggling with major overcapacities. Nor is any increase in the demand for coking coal expected (with the exception of India). When it comes to the demand for steam coal in the Pacific region, the estimates are predominant pessimistic. Growth rates in Asia are expected to be no more than 2% to 4%. But this growth could be offset in whole or in part by further declines in the USA and Europe. There are additional risks in these countries that could lead to shrinkage in world trade. Furthermore, coal used for power generation is facing rising competition from renewable energy sources or new gas-fired power plants that are pushing aside old coal-fired power plants in these countries as well.

### **Steam coal market in 2015: who will prevail, the bulls or the bears?**

All experts familiar with the coal business are in agreement in their appraisals that dynamics will be determined by long-term developments in Asia – to be more precise, in China and India. China will play the more decisive role for the global coal market. China is far and away the largest producer, importer and consumer of hard coal.

The USA, India, Russia and Germany trail far behind when it comes to coal consumption (including lignite). Observers on the world market will closely monitor further development in Asia because this region has a major impact on coal prices on the demand side. Nevertheless, decisions about coal policies or extreme weather conditions can also have far-reaching effects on volumes and price.

The initial figures appear to confirm this downward trend.

1. According to China Coal Resource, China reduced its total coal imports by 49 million tonnes (almost 42%) during the first quarter in 2015 in comparison with the same period of the previous year, including
  - a reduction of about 5 million tonnes (-48%) in anthracite;
  - a reduction of 11 million tonnes (-16%) in coking coal;
  - a reduction of 12 million tonnes (-37%) in lignite; and
  - a reduction of 17 million tonnes (-46%) in steam coal.

2. From January to April 2015, the decline in steam coal imports alone (excluding lignite) was almost one-quarter (nearly 30 million tonnes) in comparison with the same period last year. During the same period, coal output in China fell by a total of 1.15 billion tonnes (6.1%). Moreover, according to the National Energy Administration (NEA), the Chinese government intends to extend the prohibition to burn coal with high ash and sulphur content to all of the suburbs surrounding the urban area Beijing-Tianjin-Hebei and to parts of the delta region of the Pearl River and the Yangtze River pursuant to the so-called "Clean Coal Action Plan 2015–2020". This will also impact the production, consumption and import of hard coal. The only open question concerns how long it will take to put the prohibition into effect.
3. The coal market in the USA is confronted with two challenges: changes in the power generation mix in the direction of greater use of inexpensive shale gas and uncertainties about an aggressive regulatory environment and current environmental regulations from the environmental authority EPA. The shutdown of older, unprofitable coal-fired power plants and their replacement with less expensive gas-fired generation technologies will continue during 2015. Other power plants are facing economic problems because of the high capital costs which they must incur for retrofitting and the expensive technologies to monitor the reduction of emissions necessary to satisfy the regulatory requirements for continued operation. These are also factors which can be expected to result in a decline in coal consumption. The US Energy Information Agency (as of June 2015) also expects a decline in coal consumption of 7% for power generation and a reduction in output of 70 million short tons (63.5 million tonnes) to 927 million short tons (= 841 million tonnes) in 2015.
4. India will presumably maintain or even increase its imports which, according to a report from Reuters, rose by 62 million tonnes (33.5%) over the comparable period of the previous year to 242 million tonnes in fiscal year 2014-2015. An estimate by mjunction, an online dealer, indicates that coal imports 2015/2016 could rise to more than 260 million tonnes.
5. Forecasts by CERA show that other Asian countries such as Malaysia, the Philippines, South Korea, Thailand and Vietnam could each increase imports by between 2 million and 4 million tonnes, compensating for reduced imports in other countries.

### **IEA medium-term coal market report up to 2019 submitted**

In its summary, the IEA determines once again that coal contributed more to primary energy increases than any other energy source in 2013 and was the fuel with the fastest growth rate. In terms of tonnes, the demand for coal rose by 2.4%. This was more than oil and gas and improved coal's position as the second-largest primary energy source, putting it almost on equal terms with oil.

In contrast, the world was a different place in 2014; the oversupply of coal continued and very low coal prices remained dominant. The changes indicate the dynamic forces affecting coal markets today.

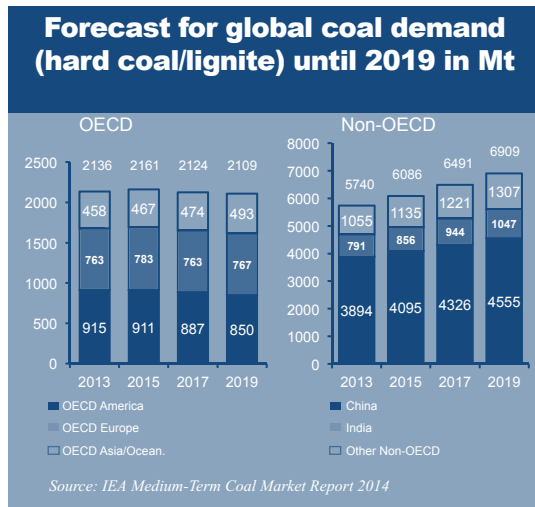


Figure 1

In the opinion of the IEA, the **worldwide demand for coal** will not continue to rise as steadily as it did in the past. Growth in 2013 was 2.4%. The rate of this growth will slow down further, from 2.3% p.a. in the middle-term period from 2012 to 2018 projected in the last report to an annual rate of 2.1% between 2015 and 2019. In absolute figures, however, coal will remain the fastest-growing fossil energy source until 2019. The lion's share of this growth will be found in the non-OECD countries, where growth rates of 3.0% p.a. will be posted – in absolute numbers, from 4,239 million TCE in 2015 to 5,060 million

TCE in 2019. The ASEAN countries alone will have additional demand – in relative numbers – of 8.3% per year. The second-highest growth rate in relative numbers will be seen in Latin America (6.2%). The greatest demand for additional coal volumes, however, is assumed for China (+471 million TCE) and India (+177 million TCE), which also means that in 2019 India's coal consumption will have overtaken that of the United States, making it the second-largest consumer of coal worldwide.

Coal consumption (steam coal and lignite) in the OECD will shrink slightly by 0.7% p.a. from 1,269 million TCE in 2013 to 1,214 million TCE in 2019. Consumption will initially continue to increase slightly until 2015 to 1,276 million TCE. A decline in coal consumption averaging 0.7% annually from 353 million TCE to 339 million TCE in 2019 is expected in OECD Europe. Consumption of lignite and hard coal will vary in its development in the USA. Coal consumption in the USA today has a share of 48% of the total OECD coal consumption. The stricter worldwide requirements under environmental protection laws for the legacy power plants will, in the opinion of the IEA, lead to the shutdown of 45–50 GW in power plant capacities by 2019. The IEA forecasts a decline in steam coal demand of 1.7% annually over the middle-term planning period, from 603 million TCE in 2013 to 543 million TCE in 2019.

The IEA expects development of seaborne coal trade to fall in line with the development of coal consumption as shown below:

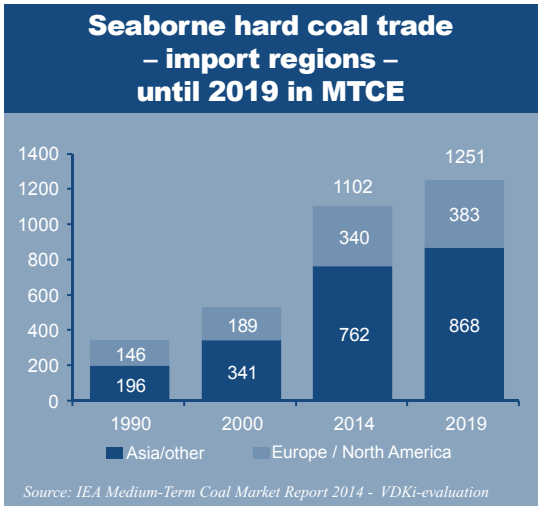


Figure 2

- Total world trade will initially grow by an average of 3.1%, in total by 212 million TCE (including Indonesian lignite and sub-bituminous coal), from 1,039 million TCE in 2013 to 1,251 million TCE in 2019. Most of the growth in volume will be in the increase in steam coal of 164 million TCE, about three-fourths of the worldwide growth in coal. Seaborne world trade for coking coal will rise by 48 million TCE to 301 million TCE by 2019.

- At the end of the forecast period, India will have become the largest importer nation of steam coal (191 million TCE). According to the IEA estimates, India's coal imports will increase from 139 million TCE to 242 million TCE in 2019, overtaking Japan and pulling almost level with China. According to the IEA, China will have reached the high point of net imports in 2017 and subsequently reduce imports. Other South-east Asian countries such as Thailand, Malaysia or the Philippines will also play a more significant role on the seaborne hard coal market as imports rise until 2019.
- The shift in international coal trade to Asia will accelerate. The large export countries such as Australia and Indonesia alone will hold a share estimated at 60% of the worldwide steam coal export. IEA projects annual growth in steam coal exports of 5% until 2019 for Australia, corresponding to 55 million TCE.

According to the IEA, overseas trade with steam coal will continue to develop positively until 2019, posting annual growth rates of 3.2%. The seaborne world trade is forecast to develop from 787 million TCE in 2013 to 950 million TCE in 2019. The share of seaborne steam coal trade in the total steam coal demand will remain relatively low (18.4%) because the coal is largely mined near the areas where it is consumed. Since the IEA sees the demand for steam coal in OECD Europe and North America declining by a total of 83 million TCE by 2019, growth will come solely from Asia and India.

At the end of Q1, the following has been determined for 2015:

## **Demand**

The tendency in the demand for electric energy is currently more in the downward direction on both the Atlantic and Asian markets. There have not been any significant changes in the fundamental data. Even though the global economy has picked up slightly according to an Ifo survey, there are differences from one region to the next. While the economic climate in Europe has improved substantially, the indicator is showing a noticeable decline for North America, even though it will remain comparatively high. The barometer in Asia is falling and will again reach its long-term average value. The decline continues in the Middle East and Latin America, where it fell to the lowest point in 6 years. Forecasts for Russia and Ukraine are the most dismal – a severe recession is expected for both of these countries.

According to estimates from VDKi, seaborne trade in Q1 2015 grew only slightly by 6 million to 8 million tonnes in comparison with the same period of the previous year. Extrapolated for the year, this would result in an increase of about 30 million tonnes. The strongest growth in exports comes in the large exporting countries. We estimate the increase in hard coal exports during Q1 2015 at about 5% for Australia, 48% for Colombia and over 4% for Indonesia, all of these figures in comparison with the same period of the previous year.

Europe still has a significant surplus of supplies. Moreover, the increases in the feed-in of power generated from renewable sources in Europe is reducing the number of full-load hours of operation for power plants. If the weath-

er continues to be windy and sunny, it will most likely not be possible to maintain the high level of 2014. The slightly cooler winter and the ratio between the clean dark spread and clean spark spread, which continues to favour coal-fired power generation, have been a support for coal imports to Europe. As feed-in of power from renewable sources, especially offshore wind farms and solar parks, continues to rise, the demand for coal will presumably decline.

## **Supply**

The Pacific producers – above all Australia and Indonesia – want to increase their supply in some areas. Since 01/01/2015, however, import restrictions on coal with high ash and sulphure content as well as low calorific values have been in effect in China. We can only wait and see how this affects Indonesian export, above all of low-calorific hard coal and lignite. On the other hand, India has recently been procuring more of this low-priced coal and blending it with South African coal of higher calorific values for use in power generation, a step that supports Indonesia's exports.

In the past, Australia invested in the expansion of its steam coal exports, conducted cost-cutting programmes and increased production without adding to its fleet of machinery. These steps, in conjunction with a weaker Australian dollar in comparison with the US dollar, are creating an improved competitive situation.

The extremely low level of the world market price continues and will lead to output being taken off the market, either by shutdowns of mines or curtailment of production, in 2015 in an effort to prevent any further fall in prices.

For some of the mine operators in the USA as well as in Europe or China, a continuation of the low price level in conjunction with high mining costs may prove to be the final blow to their operation and force their closure. Once highly profitable mining companies are being traded as penny stocks on the New York Stock Exchange today.

Colombia was able to increase production by 48% between January and March 2015 because the disruptions occurring at the start of the previous year did not repeat this year. In total, exports rose by 48% in comparison with Q1 2014 to 20.7 million tonnes. Russia will presumably export less because a landslide has covered the railway line between the Kemerovo area and the export ports shipping to north-west Europe. It is not clear at this time how long it will take to clear the line.

### **Prices**

Some market observers believe that the price for steam coal could continue to hover at a level lower than US\$60/tonne for an indefinite time. Despite prices which have not been this low in many years, the IEA projects that expansion of coal mines between now and 2019 will have a magnitude of about 100 million tonnes per year, two-fifths of the expansion in Australia. But Colombia and Russia are also expected to increase capacities.

## **Coking coal market – outlook for volumes and prices remains cloudy**

### **Demand**

Estimates by the World Steel Association from October 2014 indicate that the demand for crude steel will increase worldwide by 2% to 1,594 million tonnes in 2015 in comparison with the same period of the previous period. According to World Steel, however, crude steel production in the first three months of 2015 declined in Asia by 1.1% to about 272 million tonnes in comparison with the same period last year. In comparison with Q1 2014, Q1 2015 saw the EU producing 0.6% less steel, falling to 43.7 million tonnes, and North America's production fell even more drastically by 6.4% to 28.1 million tonnes. Russia's steel production fell by 5.9%. World pig iron production from January to March 2015, extrapolated for the entire year, is about 1% lower than in 2014. The trend indicates that there will be a slight decline over the previous year. In Germany, the first four months of 2015 saw the production of 15.0 million tonnes of crude steel, 2% less than in the comparable period of 2014. Whether it will be possible to compensate for this decline over the remaining 8 months appears doubtful.

Prices for coking coal have fallen virtually across the board because of the ongoing surplus of supplies. In April 2015, the spot prices for HCC FOB Queensland ranged between US\$90 and US\$93/t in comparison with US\$110 to US\$115/t in the same month of 2014. Contracts for prices of about US\$85 per tonne (FOB) are expected for June 2015.

## Supply

In addition to the traditional supply sources, deliveries from new projects in Mozambique and Mongolia could again flood the market in 2015, immediately compensating for any cutbacks in output in Australia and the USA and maintaining the supply surpluses on the market. After years of a “bullish” outlook, the tide seems to have turned irrevocably to a “bearish” one.

# GENERAL GLOBAL ECONOMIC CONDITIONS

The world economy and, along with it, the energy and coal business were uneven in their development in 2014. The ongoing fall of raw material prices, the further economic progress in the world and the continued development of energy policies in the USA, Europe and Asia were of special interest.

## Uneven growth of world production and world trade

The development of economic growth, especially in the OECD countries and in Asia, was uneven. Only a very few countries are still in recession. Gross domestic product in the OECD countries is expected to be 0.4% higher than in 2013 and to total 1.8%. Gross domestic product worldwide increased by 3.3%, 0.3% lower than previously forecast. Worldwide growth of 3.7% (OECD) and 3.5% (IMF) is projected for 2014. The eurozone had recovered from the recession in 2014 and increased GDP from -0.4% to 0.8% in 2014. Just as in 2013, the USA was able to increase GDP by 2.2%. The picture from the Asian countries was uneven as well. China's growth rate fell by 0.4% to 7.3%, that of India rose by 0.7% to 5.4% while the rate in Japan declined from 1.5% in 2013 to 0.4% in 2014. Economic power in Indonesia and South Africa fell from 5.6% to 5.0% and from 2.2% to 1.5%, respectively.

Alteration Rates in % of the World Economy compared to the Previous Year				
	2012	2013	2014	2015 <sup>1)</sup>
OECD	1.3	1.4	1.8	2.3
Euro-Zone	-0.7	-0.4	0.8	1.0
Europe	-0.4	0.1	1.4	1.8
USA	2.3	2.2	2.2	3.1
China	7.7	7.7	7.3	7.1
Japan	1.5	1.5	0.4	0.8
India	4.9	4.7	5.4	6.4
GDP (World)	3.1	3.1	3.3	3.7

<sup>1)</sup> Estimation GDP for the total year

Source: Several evaluations, IMF-World Economic Outlook, April 2015 and OECD, Status: May 2015, Figures rounded

HT-W1

## Energy and coal consumption worldwide rises slightly, but varies from one region to the next

According to information shown in the BP Statistical Review 2014, world energy consumption in 2013 rose by 366 million TCE to 18.2 billion TCE (2.3%) in comparison with 2012. BP Energy Outlook 2035 estimates there will be a further increase to 18.9 billion TCE in 2015.

The Asian-Pacific region, where the increase in 2013 was about 3.4%, continued to be the region with the greatest growth in primary energy. Consumption of the most significant energy source in the world – oil – rose by 46 million TOE to about 4,185 million TOE. The EU 27 countries once again reduced their primary energy consumption slightly (by 0.3%); the USA, in contrast, increased its PEC



by 2.9%. Africa's energy consumption rose by 1.7%, that of China by 4.7% and that of India by 4.1%.

According to information published by BP in its Statistical Review 2013, hard coal consumption in 2013 increased by 147 million TCE to 5.47 billion TCE. Renewable energies again posted the greatest growth of about 16% (55 million TCE).

Primary Energy Consumption in Billion TCE – Most Important Energy Sources –					
	2010	2011	2012	2013	2012/2013 Change in %
Coal *	5.080	5.189	5.320	5.467	2.8
Natural Gas	4.083	4.167	4.266	4.319	1.2
Mineral Oil	5.754	5.836	5.912	5.985	1.2
Nuclear Energy	0.900	0.859	0.800	0.805	0.6
Hydroelectric Power	1.100	1.136	1.191	1.224	2.8
Renewables	0.227	0.278	0.344	0.399	16
<b>Total</b>	<b>17.144</b>	<b>17.465</b>	<b>17.833</b>	<b>18.199</b>	<b>2.1</b>
* Hard Coal and Lignite					
Source: BP, Statistical Review 2014					

HT-W2

Coal (hard coal and lignite) posted a world market share of 30% in 2013. The fast growth observed for many years, however, has slowed. Initial estimates for 2014 indicate an increase in coal consumption of over 2%; it holds second place in the global energy mix. Overall, it must be noted that both world energy consumption and coal consumption as well as the global gross domestic product will be higher in 2014 than in the previous year. The reasons are primarily the accelerated economic growth in Europe

and the USA and in India and other emerging economies; this growth was able to compensate for the slight decline in China's growth (which nevertheless remains strong).

**World Energy Outlook 2014 – IEA energy outlook for worldwide development until 2040**

The 2014 issue of the World Energy Outlook (WEO) from the International Energy Agency (IEA) summarises the latest data and political developments of the past year, uses the material to draw conclusions regarding the global energy markets today and extrapolates the results (taking 2012 as the base year) up to 2040. The WEO has now updated the scenarios introduced in 2012, extending the latest projections concerning energy demand and supply until 2040 (until only 2035 last year).

The basis is the key scenario known as the New Policies Scenario (NPS), including special consideration of the current developments in the energy business and political commitments related to the reduction of greenhouse gases. The additional so-called 450ppm Scenario, which focuses on the objective of limiting global warming to 2° C and contains measures for achieving this objective, differs in WEO 2014 from the 450ppm Scenario of last year. The IEA now believes it is improbable that political actions coordinated globally will have any effect before 2020 because the earliest binding decisions that can be made will be during the COP 21 conference in Paris at the end of 2015, and any such decisions will then have to be implemented.

The political actions include (among others) the so-called Clean Power Plan proposed by the American Environmental Protection Agency (EPA); it sets a target of a 30%

reduction in CO<sub>2</sub> emissions by 2030 (in comparison with 2005). The goal is supposed to be achieved by the introduction of new requirements for coal-fired power plants and increased use of gas-fired and nuclear power plants and of renewable energy sources. Furthermore, the framework adopted by the EU Commission for climate and energy policies until 2030 featuring a reduction target for CO<sub>2</sub> of 40% below the level of 1990 has been integrated. The plan for the prevention and monitoring of air pollution aimed at controlling and reducing coal consumption as a whole adopted by the Chinese government has also been given consideration.

### Major non-political assumptions in the WEO 2014

- **Economic development the primary driver of the demand for energy.** That is why the assumptions for economic growth have a decisive influence on the energy forecasts up to the year 2040, i.e. there is a significant correlation between economic growth and energy demand. The IEA gives as an example that between 1990 and 2012 global primary energy consumption rose annually by 0.6% for each 1% of economic growth. Referring to the International Monetary Fund, the WEO 2014 assumes average worldwide economic growth of 3.4% for the period between 2012 and 2040. The rise in GDP during this period will average 1.7% in Europe and 1.9% in the OECD countries as a group.
- **Demographic trends:** Growth in world population is projected to be an average of 0.9% per year – from estimated 7 billion people in the middle of 2012 to 9 billion people in 2040.
- **Energy prices:** These figures are determined in the

WEO 2014 according to the IEA's own world energy model by applying an iterative process and using as the basis the three WEO scenarios. The results indicate the following development of prices (effective, price base US\$ 2013 and excluding inflation):

- Crude oil import price: rise from US\$106/barrel in 2013 to US\$112/barrel in 2020 and to US\$132/barrel in 2040.
- In the IEA's view, gas prices will rise both in North America (from US\$3.70/MBTU in 2013 to US\$5.50/MBTU in 2020) and in Europe, but will fall slightly in Japan.
- The average OECD steam coal import price will rise from the starting point of US\$86/t in 2013 to US\$101/t by 2020, to US\$108/t by 2030 and to US\$112/t in 2040.
- Developments in CO<sub>2</sub> prices will vary from one scenario and region to another. In the NPS, the IEA forecasts a rise in the CO<sub>2</sub> price in Europe to US\$20/t by 2020, to US\$37/t by 2030 and to US\$50/t by 2040, but in China to only US\$10/t by 2020 and to US\$35/t in 2040.

### Worldwide energy trends according to the NPS until 2040

In the current key scenario, worldwide primary energy consumption will increase annually by an average 1.1% from 19 billion TCE today to more than 26 billion TCE in 2040, a total increase of 37%. Fossil energy sources (oil, coal, gas) will rise by almost 25% to 19.5 billion TCE. In total, fossil energies will still provide a share of 75% (2020: 80%) of the world's primary energy consumption and constitute more than half of gross power generation in 2040. Renewable energies as a whole will grow over-

proportionately (+80%) during the observation period; in 2035, they will constitute a share of 18% of the world's primary energy consumption and of 31% of power generation.

All in all, however, the growth rate of worldwide PEC will weaken – from the previous 2.1% per year until 2012 to 1.3% in the period from 2013 to 2025 and to 1% in the period from 2025 to 2040, essentially a consequence of improved energy efficiency and structural changes in the economy in the direction of production methods making less intensive use of energy. PEC is declining slightly in OECD Europe. Non-OECD countries are the source of 97% of PEC growth; the Asian developing countries alone, led by China, are responsible for 65%.

After 2025, economic growth in China will weaken, and the IEA projects that India will surpass China as the main source of global consumption growth towards the end of the 2020s decade. In 2040 – predicts the IEA – India's energy demands will be almost as great as those of the USA.

Fossil energy sources will continue to dominate the global energy mix while declining from a share of 82% in 2012 to 74% in 2040 (2020: 79%). The most far-reaching developments, depending on scenario, will take place for coal and renewable energies (excluding hydroelectric power) because these energy resources will be most directly affected by environmental and climate policies. The demand for coal will rise by more than half between 2012 and 2040 in the so-called Current Policy Scenario while it will fall by one-third in the 450ppm Scenario and rise by about 15% in the key scenario. The utilisation of renewable energies changes inversely to these developments.

The highest demand is in the 450ppm Scenario (increase by more than 1,000%), the lowest in the Current Policy Scenario (increase of 460%).

While natural gas can increase its share in PEC slightly, the share of coal will fall (from 29% in 2012 to 24% in 2040) as will that of oil (from 31% to 26%).

### **Demand for coal rises further**

The demand for coal, however, will continue to rise in absolute figures. Although the IEA predicts slower growth in comparison with the last decade, averaging 1% per year between 2012 and 2020 and only 0.3% per year until 2030 and 0.2% per year until 2040, coal consumption will increase to a total of 6.4 billion TCE per year by 2040.

Electric power generation will rise worldwide by 78%, an average of 1.5% until 2040, and increase to 40,100 TWh. Only 16% of the growth in power generation will occur in the industrialised countries. While power generation from renewable sources will treble during this period, the generation from fossil energy sources will rise by 44%, that from nuclear energy by 89%.

Viewed worldwide, coal will remain the most substantial energy resource for power generation, even though the IEA estimates that all renewable energy sources together will have the greatest share of power generation ahead of coal by 2040. The share of coal in global power generation will decline from 41% to 31% between 2012 and 2040. During the period, power generation capacities will rise by 89% to just under 11,000 GW. The largest proportion, 52%, will come from coal, while renewable energy sources will have the strongest growth rate, 188%.

**Prospects for the world coal market**

Worldwide coal output will rise by 12% over the base year 2012 to 6.4 billion TCE in 2040; 83% will be steam coal, 13% coking coal and 4% lignite. The production of steam coal will rise accordingly by 19% while that of coking coal will fall by 7%. Of the total coal output, 70% (= 4.4 billion TCE) will come from China, Indonesia and Australia, corresponding to absolute growth of 18%. Coal output in industrialised countries, on the other hand, will decline by 14% to 1.2 billion TCE. The greatest part of the further global increase in consumption will be during the period until 2020; it will be followed by a time of stagnation. Coal demand in all industrialised countries will be on the decline; it will fall by one-third in the United States alone. Developments in emerging countries will be uneven. Growth will slow in China, the world's largest consumer of coal; it will reach its peak value in 2030. India, on the other hand, will undergo an immense increase in demand for coal and will surpass the United States as the second-largest consumer of coal even before 2020. The IEA points out that the rising use of coal worldwide without the employment of highly efficient power plant technology and, in the long term, without the installation of CCS technologies (capture and storage of CO<sub>2</sub>) will not be reconcilable with the achievement of climate protection targets.

During the observation period from 2012 to 2040, global hard coal trade will rise by 40% and the trade quota with respect to world hard coal output will consequently increase from 18% to 23%. China overtook the EU as the most important net importer of hard coal back in 2012, but will itself be surpassed by India in 2025. India's hard coal imports will increase from about 138 million TCE (2012) to 430 million TCE in 2040. On the supply side, 70% of the hard coal exports will enter the market from Austral-

ia and Indonesia. Along with China and India, these two countries will account for more than 70% of global hard coal production. Hard coal output in the United States will decline sharply – by one-third from 708 million TCE in 2012 to 472 million TCE in 2040. The US share in world hard coal output will amount to about 7%.

**Worldwide hard coal output remains stable at high level**

In 2014, world hard coal production changed little, remaining at about 7.2 billion tonnes. From a regional perspective, however, there were substantial differences in comparison with the previous year.

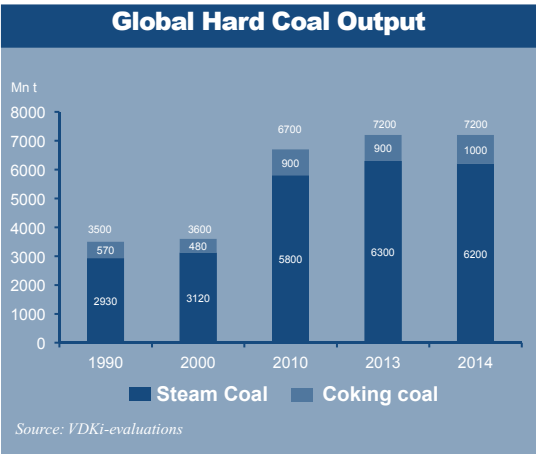


Figure 3

The primary reasons behind this slight decline on the basis of the comparison with the production figures in the Annual Report 2014 include above all (besides the weaker growth in China and the reduction in overcapacities) regulatory interventions with an impact on the export, mining and consumption of hard coal. The rapid downward spiral in prices continued in 2014. At the same time, rising production costs led to high losses for some mining companies. Extensive actions involving closures, conservation and rationalisation in 2014, however, did not result in any fundamental success. In China, more than 1,000 small mines were compelled to shut down for reasons of occupational safety and environmental protection. The focus of worldwide production growth remains on Asia.

#### Hard Coal Production of Important Countries in the Pacific Region in Mn t

Producing countries	2012	2013	2014
China	3,613	3,671	3,598
India <sup>1)</sup>	580	554	643
Australia	366	410	431
Indonesia	386	342	389
Vietnam	45	43	37
<b>Total</b>	<b>4,990</b>	<b>5,020</b>	<b>5,098</b>

<sup>1)</sup> partly own estimation; in India reported years are not calendar years  
Source: Several evaluations without BGR (please see HT-W4)

HT-W3

#### Coal reserves adequate for 100 to 110 years

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

Region	Reserves as of End 2013		Output 2013	
	Billion t	%	Mn t	%
Europe	19	3	117	2
CIS	130	19	478	7
Africa	13	2	267	4
North America	229	33	899	13
Latin America	9	1	90	1
People's Republic of China	121	18	3,533	51
India	82	12	566	8
Indonesia / Vietnam	17	2	425	6
Australia / New Zealand	62	9	471	7
Other	6	1	67	1
<b>Total</b>	<b>688</b>	<b>100</b>	<b>6,913</b>	<b>100</b>

Source: German Federal Institute for Geosciences and Natural Resources, brief study "Re-serves, Resources and Availability of Natural Energy Resources", Dec. 2014

HT-W4

Total coal resources (sum of reserves and resources) increased despite a reduction in global coal reserves, according to information from the German Federal Institute for Geosciences and Natural Resources. Significant changes in hard coal reserves over 2013 (-11.7%) result from new findings and the subsequent re-assessments, above all for hard coal reserves in China and South Africa.

Coal reserves currently have an unchanged statistical reach of about 100 years based on an output of about 7.2 billion tonnes per year (base 2014). Total verified coal

reserves of about 968 billion TCE break down into hard coal (688 billion tonnes) and lignite (280 billion tonnes); the hard coal resources (17,685 billion TCE) make up a share of almost 80% of all non-renewable energy raw materials.

**Hard coal world market stagnates overall, seaborne trade continues to grow**

The world market for hard coal grew by a total of 35 million tonnes (almost 3%) in 2014. World trade in coal developed as shown below:

World Hard Coal Trade					
	2012	2013	2014	Change 2013/2014	
	Mn t	Mn t	Mn t	Mn t	%
Seaborne Trade	1,082	1,142	1,187	45	4
Cross-Border Trade	82	95	85	-10	-11
<b>Total</b>	<b>1,164</b>	<b>1,237</b>	<b>1,272</b>	<b>35</b>	<b>3</b>

Source: VDKi own estimations

HT-W5

Thanks in part to a slight increase in the steel market in Asia, the Middle East, the EU and the USA, seaborne trade experienced an increase in coking coal exports of 30 million tonnes (+10.8%). The steam coal market grew by only 15 million tonnes (+1.7%) to 878 million tonnes while domestic trade decreased by 10 million tonnes to 85 million tonnes.

The slowdown in the growth of the world economy, the increased replacement of coal for power generation with less expensive shale gas in the USA and the further expansion of renewable energies in the OECD countries

and in China, however, led to a significant decline in the growth of the world hard coal market in comparison with previous years.

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

Seaborne World Hard Coal Trade					
	2012	2013	2014	Change 2013/2014	
	Mn t	Mn t	Mn t	Mn t	%
Steam Coal	826	863	878	15	1.7
Coking Coal	256	279	309	30	10.8
<b>Total</b>	<b>1,082</b>	<b>1,142</b>	<b>1,187</b>	<b>45</b>	<b>3.9</b>

Source: VDKi own estimations

HT-W6

The share of world trade in production rose slightly by 0.5% and amounted to 17.7% in 2014.

World Output / Seaborne World Trade			
Hard Coal	2013	2014	Change
	Mn t	Mn t	Mn t
World Output	7,195	7,181	-14
World Trade	1,237	1,272	35
<b>Share of World Trade in Production</b>	<b>17.2%</b>	<b>17.7%</b>	

Source: VDKi own estimations

HT-W7

Seaborne trade volume breaks down into a coking coal market and a steam coal market; the latter breaks down further into the Pacific and Atlantic regional markets, which are characterised by differing supplier structures. The volume exchange between the steam coal sub-mar-

kets changed in comparison with the previous year by -20 million tonnes and in 2014 comprised only about 6% (about 76 million tonnes) of the total steam coal market (previous year: 86 million tonnes). About 17% of the global steam coal production was transported 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. An estimated 30% of worldwide coking coal production, a substantially greater percentage than for steam coal, went to overseas trade in 2014.

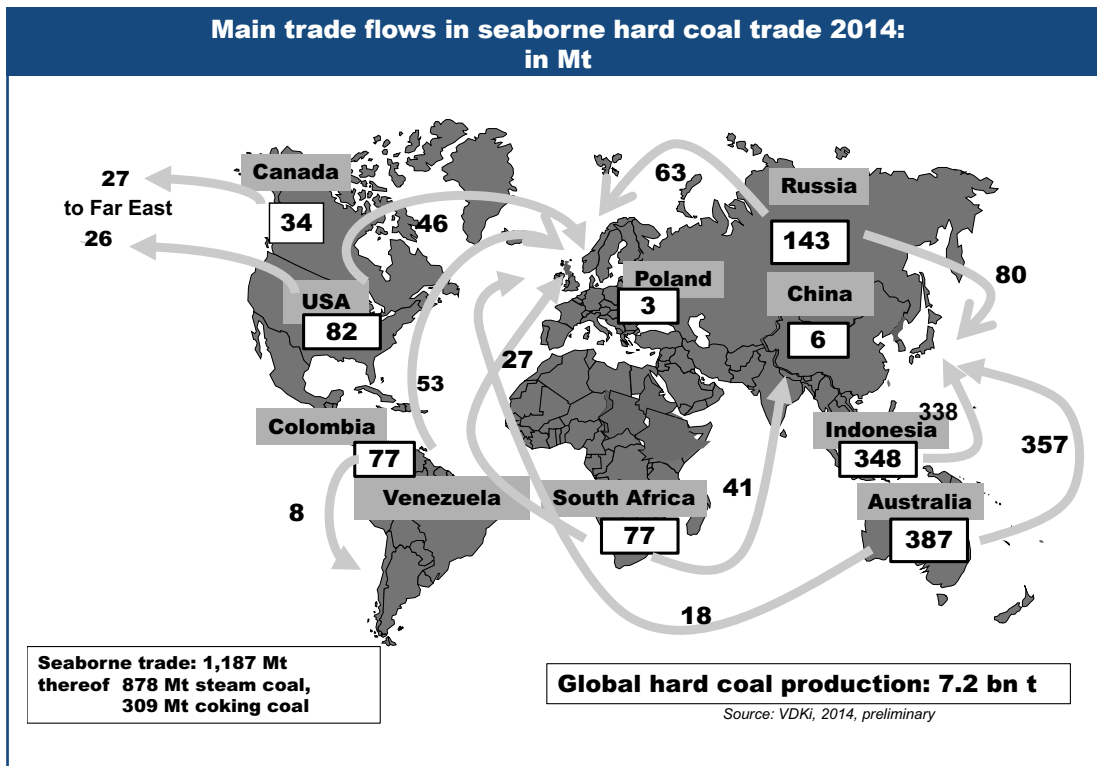


Figure 4

The largest import countries are all found in the South-east Asian region. China is again the largest importer in 2014 (228 million tonnes), surpassing Japan (188 million tonnes) by a substantial margin. India, however, has moved into second place with 215 million tonnes. They are followed by South Korea (131 million tonnes) and Taiwan (67 million tonnes). In the EU, Germany and Great Britain import the largest quantities of coal.

The Largest Hard Coal Importing Countries 2014 in Mn t <sup>1)</sup>			
	Total	Steam Coal	Coking Coal
People's Republic of China <sup>2)</sup>	228	166	62
Japan	188	145	43
EU-28	168	104	64
India	215	178	37
South Korea	131	125	6
Taiwan	67	67	0
Germany	56	44	12
Great Britain	38	32	6
<sup>1)</sup> incl. Anthracite <sup>2)</sup> excl. Lignite			
Source: own estimations, only seaborne trade			

HT-W8

Atlantic steam coal market expanded, Pacific steam coal market with a slight decline

Atlantic region

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

Demand in the Atlantic region in 2014 increased by almost 30 million tonnes (16%) to 216 million tonnes. In contrast, the demand on the Pacific market fell by 14 million tonnes to 662 million tonnes. The market share of the Atlantic market in the total market now amounts once again to almost 25% (previous year 22%).

The Largest Hard Coal Exporting Countries 2014 in Mn t <sup>1)</sup>			
	Total	Steam Coal	Coking Coal
Australia	387	202	185
Indonesia <sup>2)</sup>	315	315	n.i.p.
Russia	143	110	33
USA	88	57	31
Colombia	77	75	2
South Africa	77	75	2
Canada	34	3	31
<sup>1)</sup> only seaborne <sup>2)</sup> without lignite			
Source: VDKi own estimations			

HT-W9



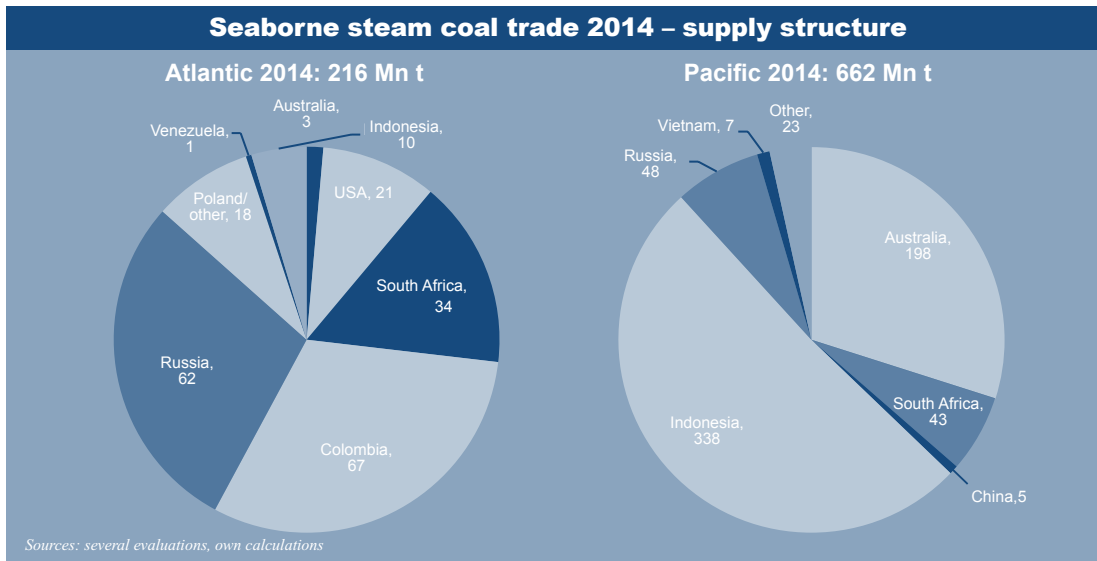


Figure 5

### Pacific region

Special characteristics of the year 2014 in the Pacific region were, on the one hand, the decline in the import of lower-quality coal in China that began in autumn and, on the other hand, the increased need for low-calorific coal coming from India. The demand for steam coal on the world market declined slightly by 14 million tonnes to 662 million tonnes, above all because of the reduced power generation using coal. China in particular reduced its procurements of low-calorific hard coal while India increased its imports by 71 million tonnes. In spite of the unfavourable circumstances, Australia managed to increase its exports to China (+28 million tonnes). Indonesia was not able to increase exports to China any further, but sold additional volumes to India. Russia was also able to increase volumes to Japan, South Korea and Taiwan

through its Far East ports or by overland routes. The market share of the Pacific market in the world market declined slightly and amounts to 75% (previous year: 78%).

In 2014, South Africa in particular supplied an additional 9.5 million tonnes to India and an additional 5 million tonnes to the Atlantic market, contributing a share of about 19% of total supplies to the latter region. Only small quantities were provided to the Atlantic market by the Pacific suppliers (a total of 13 million tonnes), corresponding to 1.4% of the demand. Indonesian exports to the Atlantic region are minimal. Total exchange volume between the two sub-markets came to 76 million tonnes (previous year 96 million tonnes).

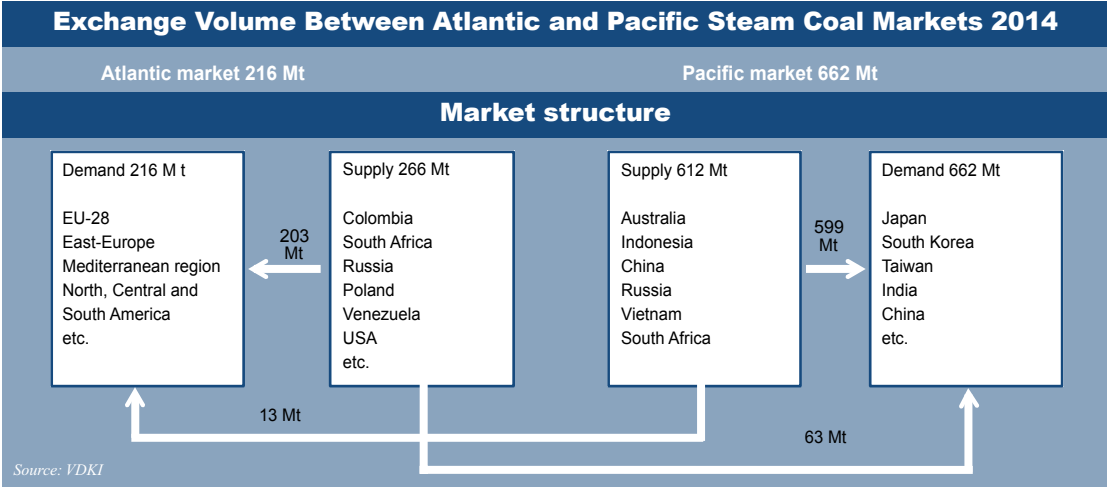


Figure 6

**Steam coal prices continue to fall – no bottoming out in sight**

**Prices**

There was no change in the fundamental data in 2014. A surplus supply, especially coal from the USA, Australia and Indonesia, met with weak worldwide demand. Although the Pacific steam coal market shrank, the abundant (surplus) supply made it impossible to maintain the price level. These developments caused prices FOB Richards Bay to fall steadily until June 2014 from about US\$83/t, ultimately reaching a level of US\$74/t. The situation worsened during the second half of the year; by the end of 2014, the steam coal price FOB South Africa had fallen further to about US\$66/t.

But there were substantial differences in the FOB prices of the Atlantic and Pacific suppliers:

Development of FOB-Prices (Monthly Average) in US\$/t of Important Supplier Countries				
Region	January 2014	June 2014	Decem- ber 2014	April 2015
<b>Atlantic Suppliers:</b>				
Richards Bay	83	74	66	59
Bolivar	72	64	64	59
US East Coast	74	69	63	55
Russia (Baltic)	78	68	66	56
<b>Pacific Suppliers:</b>				
Newcastle	82	71	62	56
Quinhuangdao	115	103	101	81
Kalimantan	75	69	62	59
Russia (Far East)	86	73	68	61

Source: Own evaluation, Basis 6,000 kcal/kg. Prices rounded

There was a range at the end of 2014 from US\$62/t FOB Newcastle to US\$101/t FOB Quinhuangdao and at the beginning of April 2015 from US\$55/t FOB US East Coast to US\$81/t FOB Quinhuangdao.

South Africa, which has customers for a large part of its production in India and the Far East, was able to maintain prices at a higher level than its competitors who were dependent more on the Atlantic market (Colombia, USA or Russia (Baltic)).

Over the course of 2014, the CIF ARA prices (spot) declined from US\$83/t in January to about US\$72/t in June. After prices recovered briefly to a range between US\$75 and US\$77/t, the downward slide began again in December 2014. In April 2015, the average price was US\$60/t. The weakening euro, however, mitigated the price advantage for the euro countries.

The demand for steam coal in the Atlantic region remained weak from January to May 2015, so the further course of price developments for steam coal will be largely dependent on the development of the Pacific region, specifically on the needs of China and India.

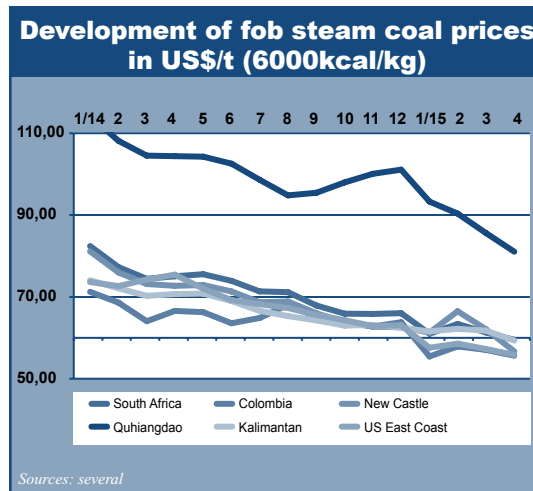


Figure 7

## Coking coal demand varies greatly from region to region

Worldwide crude steel production in 2014 posted a new all-time high at 1,661 million tonnes; in comparison with 2013, however, production increased by only about 19 million tonnes (about 1.2%). The rise came primarily in Asia (+1.4%) and the Middle East (+7.7%). In Europe (EU 28) and North America, production rose slightly as well while it declined in Russia, South America and Australia.

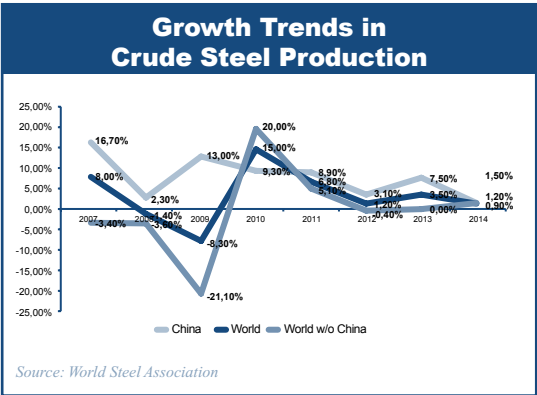


Figure 8

The pig iron production decisive for the consumption of coking coal, PCI coal and coke rose by 13 million tonnes from 1,168 million tonnes in 2013 to 1,181 million tonnes in 2014 (+1.1%)

Crude Steel and Pig Iron Production in the World				
	2012	2013	2014	Change 2013/2014
	Mn t	Mn t	Mn t	Mn t
Crude Steel	1,552	1,642	1,661	19
Pig Iron	1,112	1,168	1,181	13
Share of Pig Iron in Crude Steel	71.6%	71.2%	72.0%	

Source: World Steel Association

HT-W11

In 2014, China was able to increase again its share in the world market for steel production from 48.5% in 2013 to 49.5% in 2014. Its share of world pig iron production in total steel production, however, declined slightly.

Crude Steel and Pig Iron Production in China				
	2012	2013	2014	Change 2013/2014
	Mn t	Mn t	Mn t	Mn t
Crude Steel	716	815	823	+8
Pig Iron	658	709	711	+2
Share of Pig Iron in Crude Steel	91.9%	87.0%	86.0%	

Source: World Steel Association

HT-W12

The world's largest steel producers developed as shown below in 2014:

The 10 Largest Steel Producing Countries in the World			
Country	2012 Mn t	2013 Mn t	2014 <sup>1)</sup> Mn t
China	716,5	815,4	828,7
Japan	107,2	110,6	110,7
USA	88,7	87,0	88,3
Russia	70,4	68,9	70,7
India	77,6	81,3	83,2
South Korea	69,1	66,1	71,0
Germany	42,7	42,6	42,9
Turkey	35,9	34,7	34,0
Brazil	34,5	34,2	33,9
Ukraine	33,0	32,8	27,2
<b>Total the 10 largest</b>	<b>1.275,6</b>	<b>1.373,6</b>	<b>1.390,6</b>
<b>Total World</b>	<b>1.552</b>	<b>1.642</b>	<b>1.662</b>

<sup>1)</sup> Figures provisional

Source: World Steel Association

HT-W13

China, Japan, the USA, Russia, India, South Korea and Germany were able to expand steel production to a certain extent in 2014, while all other countries reduced production; owing to the occupation of areas by the separatists in Ukraine, production in this country alone declined by 5.6 million tonnes (17%).

The low growth in crude steel production absorbed corresponding additional quantities of coking coal from the world market.

Share of Seaborne Coking Coal World Market						
	2012		2013		2014	
	Mn t	%-Share	Mn. t	%-Share	Mn t	%-Share
Australia	145	53	171	61	186	60
USA <sup>1)</sup>	59	23	56	20	53	17
Canada <sup>2)</sup>	30	11	35	13	31	10
Russia	8	6	15	5	33	10
Miscellaneous	14	7	2	1	6	3
<b>Total</b>	<b>256</b>	<b>100</b>	<b>279</b>	<b>100</b>	<b>309</b>	<b>100</b>
<sup>1)</sup> without trade of Canada <sup>2)</sup> without trade of USA						
Source: VDKi own estimations						

HT-W14

There have not been any significant changes in the supplier structure. Australia's market share rose by an absolute figure of 15 million tonnes, but in relative terms declined by 1% to 60%. The USA and Canada, on the other hand, again lost market share to Australia and now hold a share of only 20%. Russia was able to double its market share from 5% to 10%.

## Coke world market

World coke production stagnated at 682 million tonnes. China, far and away the largest coke producer, increased exports (following the revocation of the 40% coke export tax in 2013) by another 3.9 million tonnes to 8.5 million tonnes. China produced 477 million tonnes comprising 70% of worldwide production and increased coke output by 4 million tonnes in 2014. Europe produced 41.5 million tonnes of coke, a little more than in 2013 (41.2 million tonnes). In comparison with production, the world trade market for coke (about 9.5 million tonnes (seaborne)) is relatively small. Only about 2% to 3% of the total production is traded maritime and across the green border. The primary exporters of coke besides China are especially Poland (5.9 million tonnes) and Russia (2.5 million tonnes).

Coke World Market			
	2012	2013	2014 <sup>1)</sup>
	Mn t	Mn t	Mn t
Total World Market	22	17	19
% of World Coke Production	3.4%	2.5%	2.8%
<sup>1)</sup> provisional			
Source: Own calculations			

HT-W15

## Coking coal prices fall further in 2014

The slump in coking coal prices continued in 2014. Prices on the spot market fell from between US\$127 and US\$132/t at the beginning of 2014 to between US\$111 and US\$112/t in the middle of 2014. They later shifted laterally in a range between US\$110 and US\$113/t. The quarterly prices were generally US\$10/t above spot prices.

Pressure on prices continued at the beginning of 2015, and by March 2015 they had declined to between US\$100 and US\$102/t. The decisive factors for this development are the conjunction of decreasing demand because of lower iron and steel production and the surplus supply of coking coal on the market.

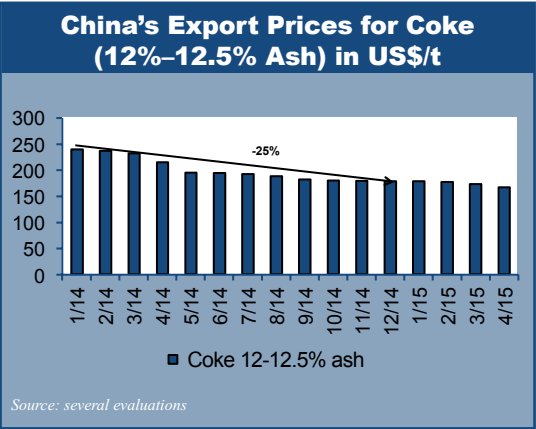


Figure 9

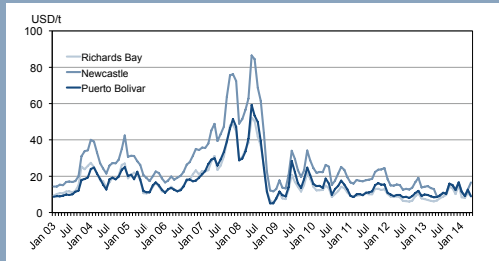
Coke prices FOB China fell concurrently with coking coal prices and amounted to US\$240/t at the beginning of 2014. There is also pressure on quantities because of the declining demand. Prices fluctuated between US\$195 and US\$237/t until the middle of 2014, but then fell steadily during the second half of the year to US\$178/t. As a rule, the CIF ARA prices were previously always lower than the Chinese prices. Since the expiration of the export tax, this situation has reversed on the coke spot market. The prices are now generally around US\$20/t higher. Overall, prices for coke in China fell by 25% over the course of the year.

**Freight rates – no recovery in sight**

The Baltic Dry Index (BDI), which is calculated from the indices of the four ship groups Capesize, Panamax, Supramax and Handysize, lost its slight recovery to 1,206 points from 2013 as an annual average in 2014. At the beginning of the year, it rose to 1,371 points during Q1, but fell immediately in April 2014 to below 1,000 points and remained there with only short interruptions before posting the lowest level since January 2013 in the second half of 2014 (723 points). The average of the BDI for the year was 1,093, 113 points lower than in the previous year.

The reasons behind this ongoing weakness on the freight market are found above all in the ore and coal imports that are shifting more and more to the Pacific. In the Capesize segment, only 15.1 million DWT were newly delivered between January and September 2014. The situation is similar in the Panamax segment in which order books in the first nine months contained 109 ships with a total of 9 million DWT.

### Sea Freight (capesize) for Hard Coal to the ARA ports



Source: Frachtkontor Junge

Figure 10

The fleet and capacity expansion of all bulk carriers is estimated to have risen by about 34 million DWT (4%) to 757 million DWT by the end of 2014. Almost half (15 million DWT capacity) of the newly delivered ships are Capesize ships. The increase of just under 10 million DWT (5%) for Panamax ships is substantially lower.

According to Clarkson Research, net growth (new ships less decommissioning) until November 2014 is estimated at 20 Capesize ships and 103 Panamax ships. Deliveries of new ships are expected to slow in 2015, notes a report from Frachtkontor Junge. In 2013, the Panamax segment fleet increased by 9% and in 2014 by only 5% to 193.4 million DWT (per end of 2014). The fleet of Capesize ships increased only by 5% in 2013 and 2014 to 308.1 million DWT.

The bunker prices (heavy oil, IFO 380), which rise and fall with the oil prices, have fallen to a price level of about US\$300/t since the middle of 2014. Overall, freight rates

will most likely remain moderate because of the continuing surplus in the availability of cargo volume.

### Exchange rate for US dollar

The euro-US dollar exchange rate, a major component of the international energy and raw material business, lost substantial strength in 2014. Between January 2014 and February 2015, the US dollar gained almost 22% over the euro.

The euro exchange rate fell even further, especially during the first months of 2015, to about US\$1.10.

# EUROPEAN UNION

## The economic recovery in Europe is slow

With only a few exceptions, the national economies in the European Union have returned to a path of growth. Some of the crisis countries of the eurozone are still posting negative growth rates, but they have significantly improved in comparison with 2013. While the growth rate in the eurozone rose from -0.5% to +0.9%, the GDP in the EU 28 increased from 0% to a plus of 1.3%. Still, developments differ widely from one EU country to another.

Economic Growth EU-28 in Per Cent <sup>1)</sup>			
Member States	2012	2013	2014
Countries Euro Zone (EU-18) <sup>2)</sup>	-0.7	-0.5	0.9
EU-28	-0.4	0	1.3
<sup>1)</sup> until 31/12/2012 EU-27 <sup>2)</sup> until 31/12/2012 EU-17			
Source: Eurostat, Status: 27/05/2015			

HT-EU1

The EU leaders in GDP growth rate in terms of relative percentage change from 2013 are Ireland (4.8%), Poland (3.4%) and Lithuania (2.9%). Germany has a growth rate of 1.6% following growth of 0.1% in 2013. In contrast, the growth rates for Cyprus of -2.3% and for Croatia and Italy, each at -0.4%, are still negative.

According to the EU Commission's projections in spring, short-term factors are giving wings to the economic up-swing in the EU; otherwise, it would be only a slight increase. These short-term factors include the relatively

low oil prices, the steady growth of the world economy, the devaluation of the euro in relation to the US dollar and the economic policies in the EU, which are described as encouraging for growth.

As a consequence, the Commission expects GDP growth of 1.8% in the EU and 1.5% in the eurozone for 2015.

In Q1 2015, the EU determined GDP for the EU 28 of 1.4% and of 1.0% for the eurozone in comparison with the same quarter of the previous year. In comparison with the United States, where the GDP rose by 3.0% in Q1 2015 in comparison with the same quarter of the previous year, the rates of increase in the EU remain modest.

Information from Eurostat indicates that inflation in the EU averaged around 0.6% in 2014. It even fell to -0.5% in January 2015. Extrapolated over the entire year, the EU Commission expects an inflation rate of virtually zero. But the rate varies among the EU member states. Great Britain and Austria each has a "high" inflation rate of 1.5%, while Bulgaria has the lowest rate of -1.6% (deflation). On the average for the year, inflation in Germany was 0.8%. The inflation rate in the euro zone is expected to be 0.1% in 2015.



## EU energy consumption declining

The reserved economic growth also led to a decline in primary energy consumption in many EU countries. According to BP Statistical Review 2014, it amounted to 2.4 billion TCE in the EU 28 in 2013. The EU Commission estimates energy consumption of 2.37 billion TCE for 2013, which would correspond to a decline of about 25 million TCE from 2012. The breakdown among the various fossil energy sources did not undergo any major changes. The share of renewable energy sources in the primary energy consumption (including hydroelectric power) rose to 12% in 2013. Despite the expansion of

renewable energies, conventional energies, including nuclear energy, still dominate and provide about 88% of the energy supply in the EU 28. Coal, gas and oil contribute a share of 76%. Comparable or slightly increasing consumption could be expected for 2014 because of the modest growth in the EU economy, increases in energy efficiency and the further expansion of renewable energies; there is still, after all, a certain correlation between economic growth and primary energy consumption in the economy. The share provided by coal has not increased and remains at 17%.

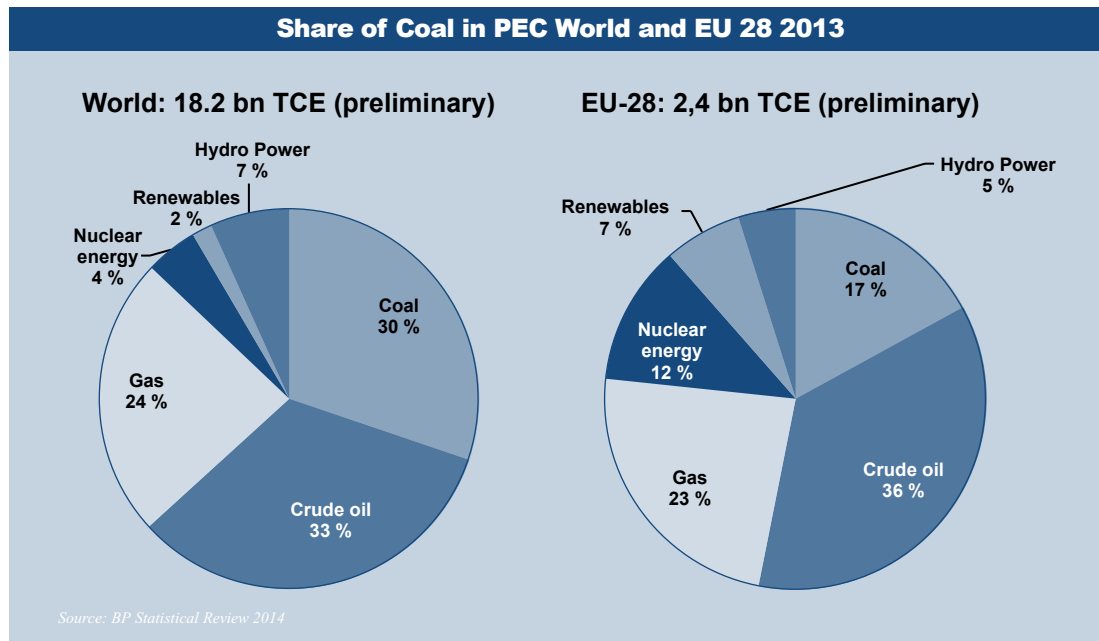


Figure 11

**Hard coal market (EU 28) continues its decline**

There were – almost without exception – reductions in the output of European hard coal production in 2014:

Germany	as in 2013	7.8 mn t total
Great Britain	- 1.3 mn t to	11.5 mn t total
Poland	- 4.0 mn t to	72.5 mn t total
Spain	- 0.5 mn t to	3.9 mn t total
Czech Republic	+ 0.1 mn t to	8.7 mn t total
Romania	- 0.3 mn t to	1.5 mn t total
Bulgaria	- 2.1 mn t to	0 mn t

The bottom line showed a decline in output in the EU 28 of about 7 million tonnes to 108 million tonnes.

Hard Coal Output in the EU			
	2012	2013	2014
	Mn t	Mn t	Mn t
	(t=t)	(t=t)	(t=t)
Germany	12	8	8
Spain	6	4	4
Great Britain	17	13	12
Poland	78	77	73
Czech Republik	11	9	9
Romania	2	2	2
Bulgaria	n.i.p.	2	0
<b>Total</b>	<b>126</b>	<b>115</b>	<b>108</b>
<sup>1)</sup> until 31/12/2012 EU-27 <sup>2)</sup> until 31/12/2012 EU-17			
Source: EURACOAL			

*HT-EU2*

Poland's output of 72.5 million tonnes continues to lead the list of countries producing hard coal.

Additional reductions in output are to be expected in the coming years in view of the deadline for the elimination of state subsidies (2018) required by the EU in Germany, Poland and Spain. The closure of the last coal mines in Great Britain may be imminent, in part because of the low level of the world market prices.

Hard Coal and Lignite Volume in the EU			
	2012	2013	2014
	Mn t	Mn t	Mn t
	(t=t)	(t=t)	(t=t)
EU-27 Hard Coal Output	128	115	108
EU-27 Coal Imports/ Cross-Border Trade	214	214	205
EU-27 Coke Imports/ Cross-Border Trade	6	7	5
<b>Hard Coal Volume</b>	<b>348</b>	<b>336</b>	<b>318</b>
EU-28 Lignite	433	407	401
<b>Total Coal Volume</b>	<b>781</b>	<b>743</b>	<b>719</b>
Source: EURACOAL, Coke Market Report, Issue 05/15			

*HT-EU3*

The slight improvement in the economy and the related increase in pig iron and crude steel production in the mills (+1.8% and +1.5%, respectively) also changed sales of coking coal (+26 million tonnes) in the EU 28. The greater utilisation of steam coal for power generation in Germany and Spain was able to offset the decline in utilisation in other European countries only partly. In total, hard coal imports, including domestic trade, declined by 9 million tonnes in comparison with 2013. Lignite production and consumption also declined slightly, whereby this was partly caused by gains in efficiency from the operational

startup of new lignite-fired power plants in Germany with high degrees of efficiency and the shutdown at the same time of older power plants with low degrees of efficiency. Total lignite production fell by 6 million tonnes.

The structure of the hard coal imports changed once again in 2014. South Africa was able to increase exports to the EU by 36% (+5.2 million tonnes) and Australia by 5% (+0.8 million tonnes). On the other hand, exports from the USA declined by 15% (-6.8 million tonnes), from Colombia by 4% (-1.7 million tonnes) and from Russia by 0.7% (-0.4 million tonnes). A total of 205 million tonnes of imported hard coal represented a decrease by 9 million tonnes (4%) in the past year.

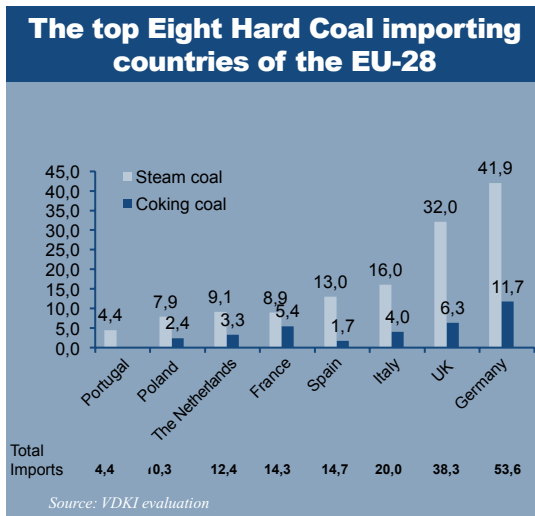


Figure 12

The primary energy source mix for power generation in the EU 27/28 has changed in recent years. According

to Eurelectric (Electricity Industry Trends and Figures), the share of renewable energies in power generation changed from 24% in 2012 to 27% in 2013 while the share of fossil energy sources declined from 48% to 44% during the same period. Of the renewables, wind and photovoltaics achieved a share of 29% and 9%, respectively, while nuclear energy, despite the shutdown of nuclear power plants in Germany, was able to maintain its share of 27%.

New wind farms were constructed in 2014 as shown below, based on information from the EWEA (The European Wind Energy Association):

- 11,791 MW of wind farm capacities were new installations in the EU 28 (2013: 11,353 MW); this corresponds to an increase of almost 5% in comparison with 2013.
- Wind farms made up a total of almost 44% of all of the newly installed power capacities in 2014, an increase of 12% over the previous year.
- All of the power generation capacities together decreased by 2 GW net (27 GW new construction less 29 GW shutdowns) to about 910 GW. Wind power now has a share of almost 14% (129 GW) of the total installed power generation capacities.

The distribution of the newly constructed wind farm capacities among the EU countries varies widely, as can be seen in the chart below.

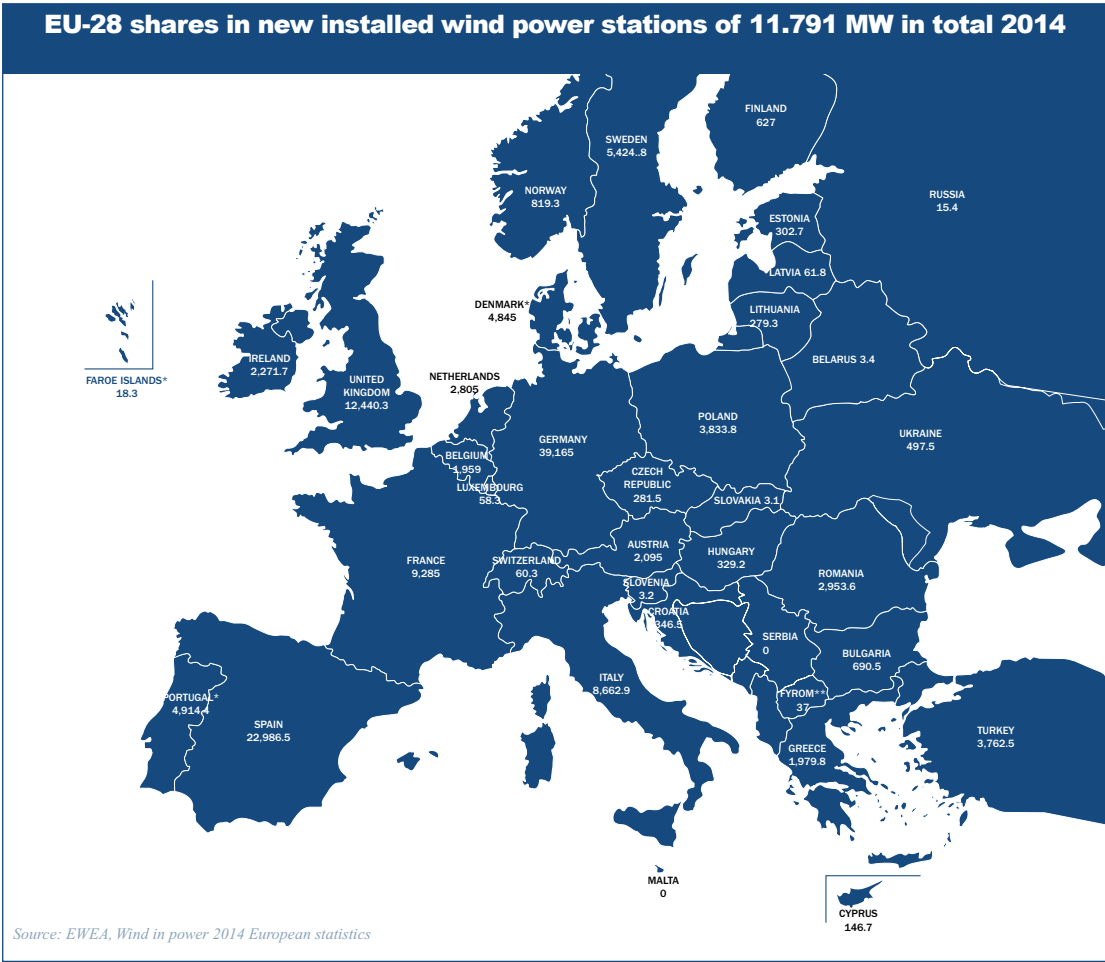


Figure 13

Germany continues to be the country with the highest share (30.4%) of installed wind farm capacities (39.2 GW) in the EU 28, followed by Spain (23 GW), the United Kingdom (12.4 GW) and France (9.3 GW). Germany and the United Kingdom had the lion's share of all new constructions of wind farms (almost 60%) in 2014. Spain and Italy, on the other hand, have significantly reduced the rate of new construction.

### **Growth of offshore wind farms slowing again**

The total installed capacity of 4,993 MW in offshore wind farms in 2012 was increased to a total of 6,560 MW by the new installation of 1,567 MW in 2013. The target installation for the end of 2012 was 5,829 MW. According to EWEA, only 1,483 MW were newly connected to the grid in 2014, a decline of 5.3% in comparison with 2013. The total installed offshore output at the end of 2014 amounted to 8,043 MW.

### **EU energy policy: European climate and energy package adopted**

Following the issue by the EU Commission (COM) in 2013 of the green book, "A Framework for Climate and Energy Policies Until 2030", including related proposals for energy and climate policies until 2030 (see VDKi Annual Report 2014, pp. 35 et seqq.), the EU Council adopted the final version of the framework for climate and energy policies until 2030 in its meeting on 23-24 October 2014.

<http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/de/pdf>

In taking this action, the EU was able to present its contribution to the agreed schedule for the conclusion of a global climate convention by Q1 2015 as agreed by the UNFCCC parties in Warsaw. At the same time, the Council called on all countries to propose ambitious goals and strategies in advance of the 21st Conference of the parties in Paris. The European Council intends to review continuously all of the aspects of the framework and issue further strategic guidelines as necessary, especially with regard to sectors that do not fall under the emission trading system (ETS), the association and energy efficiency. Specifically, the Council agreed on the following targets:

#### **1. Target for reduction of greenhouse gases – 40%**

The European Council approved the binding commitment of the EU to reduce greenhouse gas emissions within the EU by a minimum of 40% in comparison with 1990 by 2030. The following measures were adopted for this purpose:

- The target is to be achieved by the collective efforts of the EU at as low cost as possible, whereby the sectors covered by the ETS must achieve a reduction of 43% and the sectors not covered by the ETS must achieve a reduction of 30% in comparison with 2005.
- A reformed ETS that is functioning smoothly, including an instrument for stabilisation of the market in harmony with the Commission's proposal, is expected to serve as the most important European instrument for the achievement of this target; the annual factor by which the upper threshold for the maxi-

mum permissible emissions will be reduced has been increased from 1.74% to 2.2% for the period from 2021 on.

- The system of cost-free allocation of emission rights will not be rescinded; existing measures will remain in effect after 2020 as well and serve to ward off the risk of a shift of CO<sub>2</sub> emissions in response to climate policies as long as comparable efforts are not being made in other leading economic countries. This step is aimed at providing reasonable support to sectors at risk of losing their international competitiveness. The benchmarks for cost-free allocations will be regularly reviewed in accordance with technological advances in the related industrial sectors. Both direct and indirect CO<sub>2</sub> costs will be taken into consideration in harmony with EU rules for government subsidies as a means of ensuring conditions of fair competition. International competitiveness is to be maintained by avoiding any unreasonable CO<sub>2</sub> costs for the most efficient operations in these sectors that would prompt shifts in CO<sub>2</sub> emissions. Future allocations should be adjusted more closely to the changing production level in various sectors. At the same time, the innovation incentives for industry are to be retained in their full scope and administrative costs are not to be increased. The interest in assuring affordable energy prices and avoiding windfall profits will be taken into account.
- In this context, member states with a per capita GDP lower than 60% of the EU average can decide to continue to grant cost-free certificates to the energy sector until 2030. The highest volume issued cost-free after 2020 should not amount to more than 40% of the allocated certificates allocated for auction to the member states exercising this option. The current methods, including transparency, should be improved to ensure that the funds for promotion of real investments for the modernisation of the energy sector are used, whereby distortions on the single energy market are to be avoided.
- The current NER300 facility is also to be renewed – for CO<sub>2</sub> capture and storage as well as for renewable energy sources – whereby its scope of application will be expanded to innovations low in CO<sub>2</sub> in industrial sectors and its original allocation will be increased to 400 million certificates (NER400). Investment projects in all member states, including projects of smaller scope, should be eligible for subsidisation.
- A new reserve of 2% of the EU ETS certificates is to be created to counteract the especially high additional investment requirements in member states with lower income (per capita GDP less than 60% of the EU average). It should have the following features (among others):
  - The earnings from the reserves should be used for the improvement of energy efficiency and modernisation of the energy systems of these member states so that their citizens receive cleaner, safer and affordable energy.
  - There will be complete transparency about the use of the funds.
  - Certificates from the reserves should be auctioned in accordance with the same principles and methods as other certificates.

- In the interest of solidarity, growth and association, 10% of the EU ETS certificates to be auctioned by the member states will be allocated to the countries whose per capita GDP (in 2013) does not exceed 90% of the EU average.
- The remaining certificates are to be allocated on the basis of tested emissions to all member states, but without reducing the share of certificates for the auction.

## 2. Sectors that do not fall under the ETS

- The method for setting the national emission reduction targets for sectors that do not fall under the ETS – applying all of the elements as described in the burden-sharing decision for 2020 – are to be retained until 2030, whereby the efforts will be allocated on the basis of the relative per capita GDP. All of the member states are expected to contribute to the general reduction of emissions in the EU by 2030, whereby the targets in any one area are to be set in a range between 0% and -40% in comparison with 2005.
- The ratios of the targets for the member states with a per capita GDP above the EU average should be adjusted so that cost effectiveness is reflected in a fair and balanced manner.
- Greenhouse gas emissions and the risks related to the dependency on fossil fuels are to be reduced in the transport sector. The European Council has therefore asked the Commission to continue to examine instruments and actions for a comprehensive and technology-neutral concept after 2020 as well

which will promote emissions reduction and energy efficiency in the transport sector, electric transport means and renewable energy sources in the transport sector. The Council has also issued a reminder that applicable legal statutes authorise the member states to decide to include the transport sector in the emission trading system.

## 3. Share of renewable energy sources to amount at least to 27% by 2030

- An EU target of 27% as a minimum for the share of renewable energy sources in energy consumption in the EU has been set for 2030. This target is supposed to be binding at the EU level. It is to be met by contributions of the member states guided by the necessity of working together to achieve the EU target without hindering the member states in the setting of their own, more ambitious national targets and to support their achievement through measures in harmony with the rules for state aid, whereby the extent of their integration in the single energy market will also be given appropriate consideration. The feed-in of increasingly large amounts of energy from fluctuating renewable sources demands a more strongly interconnected energy single market and appropriate reserve capacities, whereby the coordination should take place as necessary at the regional level.

#### **4. Increase in energy efficiency by 27% by 2030**

- An indicative target of 27% as a minimum is to be set at the EU level for improvement of energy efficiency over the future energy consumption predicted on the basis of current criteria by 2030. The target is to be achieved in a cost-effective manner, and it should give full consideration to the effectiveness of the EU ETS in terms of a contribution to the achievement of the general climate targets. This is to be reviewed with an eye on an EU level of 30% by 2020. These targets are to be achieved while respecting in full the freedom of the member states to determine their energy mix individually. No nationally binding targets have been derived from these targets. The individual member states are free to set their own, even higher national targets.

#### **5. Creation of a fully functional and interconnected single energy market**

- The European Council emphasises that a fully functional and interconnected single energy market is of fundamental importance. Referring to the conclusions of March 2014 regarding the completion of the single energy market, the European Council emphasises once again that every effort must be exerted so that this target can be achieved as a top priority. One top-priority task for the time after 2020, in the opinion of the Council, will still be to secure adequate connection of member states to the European gas and power grids and to ensure a synchronous association of the member states within the Continental European grids as is provided in the European strategy for energy supply security.

#### **6. Energy supply security**

- Referring to its conclusions of June 2014, the European Council has adopted additional actions aimed at reducing the EU's energy dependency and increasing its energy supply security with respect to both electric power and natural gas. Moderation of energy demand by improvements in energy efficiency is also expected to contribute to the realisation of this target. The Council welcomes the Commission's report on immediate measures aimed at strengthening the EU's resilience in the event of major supply disruptions in the coming winter. This report provided a complete picture of the stability of the energy system in Europe (conduct of stress tests). In this context, the European Council welcomes the contributions of all member states, the most important players in the energy sector and of neighbouring countries and partners. Furthermore, the European Council recognises that the energy supply security of the EU can be improved by the use of domestic sources and recourse to safe and sustainable technologies with low CO<sub>2</sub> emissions.

The European Council wants to examine the issue of energy supply security again in 2015 and assess the progress that has been made.

The new CO<sub>2</sub> reduction target is very demanding if one considers that a total of 30 years were available for the first 20% between 1990 and 2020 while the next reduction in emissions of 20% by 2030 is supposed to be achieved in a mere 10 years. The reduction target is even more demanding for the emission trading sector: -43% in comparison with 2005.



## Energy union

At the beginning of 2015, the EU Commission presented plans for a European energy union based on the strategic framework of the Commission and featuring five dimensions closely connected with one another: energy supply security, solidarity and trust; single energy market; energy efficiency as a contribution to reduction of energy demand; reduction of CO<sub>2</sub> emissions from economic activities; research, innovation and competitiveness. The energy union has the following specific objective:

- Energy dependency is to be reduced and investors are to be given planning security by the EU's efforts to develop new sources, especially natural gas sources. Coal as a domestic energy source found in abundance in Europe is not mentioned specifically. The Council wants to improve "the utilisation of domestic sources", however, and coal is one of these sources.
- A strategy for the import of more liquid natural gas (LNG) and for increasing energy efficiency is to be prepared with the aim of making the energy system "fit for a society low in carbon".
- Energy subsidies are to be examined closely; the subsidisation systems and regulations in the individual EU countries are to be revised and harmonised with one another.
- The Commission intends to ensure that planning hurdles for transmission lines are removed and that compliance with the TEN-E regulation requiring approval or rejection of infrastructure projects within

a maximum period of 3.5 years is achieved so that the EU can reach its goal of enabling every member state to transfer a minimum of 10% of its nationally generated power to neighbouring countries by 2020.

- The Commission intends to seek the alignment of the subsidisation system (for renewable energy, for example).
- The increase in energy efficiency and a throttling of energy consumption are to be supported by financing aid.

## Strategy for a secure European energy supply

Prosperity and security of the European Union depend on a stable and adequate supply of energy. Temporary supply disruptions in the delivery of natural gas, however, show how vulnerable Europe is to interruptions, above all with respect to primary energy supply dependent on transmission lines.

The following factors and figures clearly illustrate Europe's dependency on energy imports:

- The EU currently imports 53% of the energy it consumes. The dependency on energy imports exists for crude oil (almost 90%), natural gas (66%) and, to a lesser extent, solid fuels (42%) and nuclear fuels (40%).
- The security of the energy supply is an important matter for every member state, although some are at greater risk than others. This is especially the case for regions which are not as tightly integrat-

ed and interconnected such as the Baltic area and Eastern Europe.

- The most urgent problem related to the security of the energy supply is the high level of dependency on a single third-country supplier. This is the case for natural gas in particular, but is also true of electric power:
  - Six member states procure their entire supply of natural gas exclusively from Russia; three of them use natural gas to cover more than one-quarter of their total energy demands. In 2013, 39% of the EU natural gas imports were in the form of deliveries from Russia; 27% of the natural gas consumption in the EU was covered by Russia. Russia exported 71% of its natural gas to Europe, whereby the largest quantities were sent to Germany and Italy.
  - Regarding electric power, operation and balancing of the power grid in three member states (Estonia, Latvia and Lithuania) are dependent on a third-country operator.
- EU energy imports cost more than €1 billion a day (about €400 billion in 2013), and they comprise more than one-fifth of all imports to the EU. The EU imports crude oil and petroleum products with a value in excess of €300 billion; one-third comes from Russia.
- The security of the EU's energy supply must be viewed against the backdrop of the growing demand worldwide for energy; it will presumably rise by 27% by 2030 and can be expected to result in major changes in the energy supply and the energy trade flows.

The Commission has consequently developed a strategy for secure European energy supply (COM/2014 330 final of 28/05/2014) that fosters resilience against energy supply disruptions in the short term and reduces dependency on certain fuels, energy suppliers and supply channels in the long term.

According to statements from the EU Commission, the strategy is based on eight key pillars that in conjunction with one another will promote closer collaboration advantageous to all member states while taking into account national energy policy decisions and that are based on the principle of solidarity:

1. Immediate actions so that the EU can more effectively handle a greater disruption in supply in winter 2014/2015;
2. Reinforcement of emergency/solidarity mechanisms, including the coordination of risk assessments and emergency plans and the protection of strategic infrastructures;
3. Dampening of demand for energy;
4. Establishment of a well-functioning and completely integrated single market;
5. Increase in energy production in the European Union;
6. Evolvement of energy technologies;
7. Diversification of supplies from third countries and the related infrastructure;
8. Better coordination of national energy policies and a unified stance in external energy policies.

From the perspective of coal, the Commission's ideas for increasing energy production in the EU should be emphasised in particular; during the last two decades, energy production in the EU, despite the build-out of energy production from renewable sources, has steadily declined (by 15% in the period between 2001 and 2012 alone). In the Commission's opinion, however, this trend can be slowed by the sustainable production of competitive fossil fuels along with other measures.

During the past two decades, however, mining as well as the consumption of hard coal in the EU have declined. In a number of member states, hard coal and lignite continue to comprise a substantial share of power generation, and their share for the entire EU is about 27%. Currently about 40% of the demand for solid fuels in the EU is covered by imports, whereby their procurement is achieved on a well-functioning and diversified world market that provides a secure basis for imports to the Union. Owing to their CO<sub>2</sub> emissions, hard coal and lignite have a long-term future in the EU (according to the Commission) only if the technology of CO<sub>2</sub> capture and storage (CCS) is implemented. CCS technology can also be used to improve natural gas and oil recycling even further – a potential that would otherwise not be exploited. In view of the rather limited use of CCS technology as of this time, additional efforts are to be made in research, development and implementation so that this technology can be utilised extensively.

## **Reform of the EU emission trading system**

The so-called emission trading is the most important climate protection instrument of the EU. Industry and power plants, the largest producers of CO<sub>2</sub>, are allocated a certain number of rights that is reduced over the course of the years. Operations using environmentally friendly production can sell surplus certificates on the exchange to companies that are in need of additional rights.

The economic slump, however, has caused the CO<sub>2</sub> price to fall below the level expected by politicians. This was the primary factor prompting the EU Commission's reform efforts. So-called back-loading was adopted at the beginning of 2014 (see Annual Report 2014) and postponed the auction of as many as 900 million certificates to a later time. The emission trading was reformed once again at the beginning of 2015, and it has now been decided that the rights that had already been withdrawn (900 million tonnes CO<sub>2</sub>) would not be returned to the market from 2019 as originally planned, but would be placed in a reserve (so-called market stabilisation reserve).

## GERMANY

### Council of Economic Experts on energy policies: low expectations confirmed

In its annual assessment 2014/2015, the Council of Economic Experts (SVR) had some blunt words to say about the energy turnaround. The accelerated energy turnaround is attempting to bring about a full-scale restructuring of the entire system for the supply of energy. The focus is on the generation of electric power. At least 80% of the generated electric power is supposed to come from renewable energies by 2050. Electric power generation – notes the SVR – from most renewable energy sources has not been and is still not competitive, and this situation will presumably remain unchanged in the future.

From this perspective, there is a fundamental need to ask what function the expansion of specific power generation capacities that (in this magnitude and in Germany) are not competitive is supposed to have if the sole goal is **global climate protection**. The preferred instrument that can also meet the climate protection targets is the European market for CO<sub>2</sub> emission certificates (EU ETS), which ultimately must be raised to a global level. The necessary generation capacities would then be built at the locations where renewable energy sources represent the most lucrative investment decision in the sense of preventing emissions. A separate subsidisation of renewable energies increases the costs of climate protection and is therefore inefficient.

In any case, the targets defined on the national level cannot be achieved unless the capacity expansion for renewables is subsidised for a long time to come. Ultimately,

the energy turnaround is inherently a planned economy project, and all of the support systems set up to achieve this target are first and foremost one thing: **subsidisation systems**. The primary subsidy instrument for this purpose is the Renewable Energies Act (EEG) that has been in effect since 2000.

The regulation applicable to the facilities subsidised by the EEG provides that the power produced by these plants will have priority for the feed-in and will be compensated specifically to the technology. Over the course of time, however, the technology-specific feed-in compensation for new installations declines (“degression”), but the amount in force at the time of each operational startup is guaranteed for over 20 years. This eliminates the fundamental risks of prices and sales for investors, risks that otherwise any investor on any market would be facing. In other words, there is no competition on the generation side, but on the side of the plant builders. Because of the technology-specific price control, the **combination** of technology and location that is **most efficient** is not the one that is chosen, but rather the combination that promises the highest returns within the framework of the statutory compensation structure.

There are future (at most for the next 20 years) **payment obligations** of about €300 billion (in 2014 prices) for the facilities which have already been installed under the provisions of the EEG, whereby the subsidy share amounts to about €192 billion (Öko-Institut, 2014). During the past five years in particular, the total costs of the EEG have risen drastically because politicians have been much too slow in responding to the rapid fall in the costs for the systems, especially for photovoltaics, with an adaptation of the rates paid for feed-in of power.

The total costs of the annual EEG subsidisation – paid feed-in rates less the earnings from the marketing of the power – are charged to power consumers within the framework of the **EEG levy**. Since the end of 2010, this levy has risen from 2.047 eurocents/kWh to the current level of 6.24 eurocents/kWh. The increasing total costs of the EEG have repeatedly led to revisions of the EEG, but have failed to slow down the cost dynamics.

The latest reform of the EEG entered into force on 1 August 2014 and, as appropriate to the targets that were set in advance, is even designated as EEG 2.0. The primary objective is to “secure the affordability of the energy turnaround for citizens and economy and to limit the burdens placed on the system as a whole.” Owing to the large number of interest groups who profit from the EEG, however, it was not difficult to foresee at an early stage that there would **not be any profound reform of the law**. These expectations were not disappointed.

The reform introduces elements of volume management into the current systematic structure of the EEG, and they are basically satisfactory means for limiting costs to some degree in the future. This will by no means have the impact, however, that would have resulted from a complete revision of the Act, e.g. from the implementation of a **quota model** as demonstrated in Sweden. On the contrary, some potential to reduce costs in the current system was simply tossed aside; for instance, the subsidisation of photovoltaics was expanded in scope, and the future monthly reduction of the subsidy rates was cut back from 1% to 0.5%.

Even though the EEG levy will fall by 0.07 eurocents/kWh to 6.17 eurocents/kWh in 2015, this is not a direct effect of

the EEG reform; the levy for 2014 contained a **catch-up element** of about 0.6 eurocents/kWh that would be used to cover any deficit. The year produced a surplus rather than a deficit, however, because the feed-in was lower than predicted because of weather conditions.

The future build-out of renewable energies, even under the latest EEG reform, will not be driven forward with the lowest possible subsidies, which would make it cost-efficient. The EEG would have to be written as **technology-neutral** for this to happen; there would be an opportunity for this when the auctions, which are planned in any case, are introduced.

One positive aspect is that the politicians are at this point not giving in to demands to implement a capacity market, but are attempting to determine the future **power market design** for a power market with a steadily rising share of renewable energies. Care must be taken during the process, however, to secure the capacity expansion and maintenance of conventional (reserve) power plants and simultaneously to enable the non-subsidised build-up of power generation capacities from renewable sources, according to the SVR.

At the beginning of 2015, the German government presented its annual economic report for 2015 entitled “Investing in the Future of Germany and Europe”; it describes the government's overall economic projections for 2015 and compares the actual development of the projections in 2014.

Selected Key Data for Overall Economic Development in Germany <sup>1)</sup>			
	2013	2014	2015 Outlook
Change from Previous Year in %			
Gross Domestic Product (price-adjusted)	0.1	1.6	1.8
Labour Force (domestically) in Million	42.3	42.7	42.8
Unemployment in % <sup>2)</sup>	6.9	6.7	6.5
Usage of GDP Price-adjusted			
Private Households and Non-profit Private Organisations	2.1	2.1	2.7
Equipment	-2.4	4.3	3.8
Buildings	-0.1	3.4	1.8
Domestic Demand	0.7	1.3	1.8
Exports	1.6	3.9	5.1
Imports	3.1	3.4	5.5
Trade Balance (GDP Growth Contribution) <sup>3)</sup>	-0.5	0.4	0.1
<sup>1)</sup> 2013 and 2014 results updated, 2015 provisional results			
<sup>2)</sup> In relation to total labour force			
<sup>3)</sup> Contribution to growth rate of GDP in percent			
Source: Forecast from the Annual Assessment 2014/2015 of the German Council of Economic Experts assessing the general economic conditions, Status: 11/2014, updated March 2015. BMWi Annual Economic Report 2015 - Investing in the Future of Germany and of Europe			

HT-D1

The German government expects the German economy, regardless of the geo-political turmoil of the past year, to return to a course of growth during 2015 and the GDP to grow by 1.8% in comparison with 2014. This projection for the year is based on the following assumptions:

- Growth in world economy, based on forecasts by international organisations and adjusted for prices, comes to 3.75%.

- For technical purposes, the averages of the oil price and exchange rates over the last 6 weeks before preparation of the forecast were assumed as constants for the forecast period, i.e. the oil price was measured at US\$59 per barrel of Brent (previous year: US\$108/barrel) and the exchange rate was measured at US\$1.22 to €1.00 (previous year: US\$1.36 to €1.00).
- All of the economic and fiscal policies measures adopted as of the conclusion of the annual economic report were incorporated into the forecasts.

The German government once again devoted a major section of the annual economic report to energy policies and the energy turnaround (“leading the energy turnaround to ecological and economic success”). It describes the stages of the energy turnaround achieved in 2014 and the measures that have been initiated for its realisation. During the realisation of the energy turnaround, the German government seeks to reconcile affordability, supply security and environmental compatibility with one another.

One important driver for the restructuring of the energy supply in Germany is an ambitious programme of climate protection. The energy turnaround must become a success economically, not only ecologically. If this is to be achieved, it will be necessary to pay more attention to the cost efficiency of the instruments and the system as a whole, to planning and investment security for all players, to affordability, to acceptance among the general public and a closer meshing of the various building blocks. Moreover, the energy turnaround must be embedded more firmly in European and international policies. The additional key projects of this legislative period have been bundled in a 10-point energy agenda. The scheduling and contents of the measures have

been coordinated with one another in such a way that the energy turnaround can move ahead according to plan and efficiently.

### **Lower energy demand in 2014 because of mild weather conditions**

According to provisional calculations of the Arbeitsgemeinschaft Energiebilanzen (AGEB), primary energy consumption in Germany decreased by 4.7% in 2014, corresponding to a decline of 22.0 million TCE to 446.2 million TCE. The primary energy consumption in Germany in 2014 reached the lowest level since the reunification of the country. A major cause for the significant decline in energy consumption came from the far milder weather conditions than in 2013. If weather conditions were not taken into account, energy consumption (according to AGEB calculations) would have been about 1.0% below the level of the previous year. The improvement in the economy (GDP +1.6%), on the other hand, led to only minor effects increasing consumption.

Production in manufacturing and processing industries turned in noticeable growth of 1.4% and 1.9%, respectively. Development according to industry breaks down as shown below:

- Metal production +1.8%
- Machine construction +0.8%
- Motor vehicle construction +4.1%
- Construction industry +3.0%
- Basic chemicals -6.9%
- Processing industry in total +1.9%

The mild weather conditions affected the various energy sources (with the exception of renewable energies) and reduced consumption more or less equally. Above all, weather

affects the consumption of natural gas and petroleum, which provide a large share of the heating market (and are dependent on outside temperatures).

The most important energy source in 2014 continued to be oil (35.0% share). It was followed by natural gas, consumption of which declined by 13%; its share of PEC shrank to 20.5% in 2014. Hard coal reduced its contribution by 8.0% in comparison with 2013 and holds a share of 12.6% (previous year: 13.0%) of the energy mix. Lignite, on the other hand, increased its share slightly to 12.0%. Nuclear energy increased its share of consumption from 7.5% to 8.1%. Renewable energy sources increased their contribution to primary energy consumption from 10.5% (2013) to 11.1% (2014). Other energy sources contributed 1.7% to coverage of energy demand.

On the other hand, the effects of the economy tended to increase consumption. The GDP, adjusted for prices, rose overall by 1.6% in comparison with the previous year; production in manufacturing rose by 1.4%. Declines were recorded in only a few economic sectors. This was especially true of energy-intensive operations such as basic chemicals (-6.9%) or quarrying and mining (-2.3%).

Energy Productivity			
	2013	2014	Difference in %
Gross Domestic Product (€bn)	2,681	2,725	1.6
Primary Energy Consumption in Petajoules (Adjusted for Tempera- ture and Inventories)	13,736	13,478	-1.9
Energy Productivity (in €/GJ) (Adjusted for Temperature)	195.5	201	2.8
Source: AGEB, provisional information, figures updated for 2013			

HT-D2

Just like primary energy consumption, gross electricity consumption fell; in 2014, the mark of just under 580 billion kWh in 2014 was 3.5% lower than in the previous year. This was the lowest value since 2000. In comparison with gross power consumption, gross power generation in 2014 declined a little less (about 3%). All of the substitute fuels with the exception of renewable energies participated in the decline. All renewable energy sources taken together produced growth in generation of 5.4% to a total just under 161 billion kWh and a share in generation of 26.2% and became for the first time (in terms of numbers) the largest energy source for power generation, outdistancing lignite.

**Share of hard coal in PEC declines by 7.9% according to provisional estimates – nevertheless, third-largest supply contributor to the energy mix**

According to provisional calculations of the AGEB for 2014, hard coal consumption fell by 7.9% to 56.2 million TCE (corresponding to 1,647 PJ), a decrease of 4.8 million TCE. Hard coal therefore maintained its position

as the third-largest supply contributor to the energy mix, posting a share of 12.6% of the primary energy consumption in 2014, following oil and natural gas as in the past, but ahead of the contributions made by lignite and renewable energies.

While the **consumption of coking coal and coke** in Germany's steel industry increased slightly in 2014 by 1.1% to 17.8 million TCE, the use of steam coal, which comprises more than two-thirds of the total consumption of hard coal in Germany, fell by 11.7% to 36.9 million TCE. There was a slight decrease from 1.6 million TCE to 1.5 million TCE on the heating market as a consequence of the temperatures. The reduction by 11.7% in power generation using hard coal, despite the favourable price situation in comparison with other energy sources, is in view of an overall decline in German primary energy and power consumption first and foremost a consequence of the growing use of renewable energies. According to information from the AGEB, hard coal imports declined correspondingly by 3.2% to 45.7 million TCE; calculations of the VDKi show a decline to 50.2 million TCE.

The demand for **lignite** fell by 3.6% to 53.6 million TCE. It covered 12% of the total domestic primary energy demand.

**Renewable energies** contributed 49.6 million TCE to the energy balance, despite an increase in installed output of almost 10% to 93.2 GW, this is only a small rise of 0.5%. Of the renewable energy sources for power generation, there were increases in comparison with 2013 in photovoltaics (+13%) and biomass (biogas and biomethane, +5.6%). But onshore and offshore wind farms also grew (+8.2%). Less electricity (-10.9%) was generated by hy-



droelectric plants, on the other hand, because of weather conditions. Just as before, biogenic materials (biomass, biogenic waste, biogenic fuels) dominate the structure of the contribution made by renewable energy sources to PEC in Germany, holding a share of almost 68% in 2014. Wind energy was in second place and had a share of 14% of domestic renewable energy demand. Power generation from photovoltaics rose again. It increased its contribution by 12.6% last year (previous year: 13.7%) to 34.9 billion kWh and now holds a share of 22% (previous year: 20.3%) of power generation from renewable energy sources. In total, the share of renewable energies in gross electricity consumption rose to 27.8% from installed output of 38,236 MW in 2014.

The approximately 1,453 PJ or just under 50 million TCE from renewable energy sources were utilised as shown below:

- About 578 PJ (40%), 19.8 million TCE, in power generation
- About 471 PJ (32%), 16.1 million TCE, in heating
- About 113 PJ (8%), 3.9 million TCE, in fuel production

### Power generation falls by 3% to 614 billion kWh

Gross electric power generation in Germany fell by about 19.2 TWh (3.0%) from around 633 TWh in 2013 to 614 TWh in 2014. As a yearly average, power generation in Germany between 1990 and 2013 rose by only 0.5%. German gross electricity consumption, as in 2013, declined again by another 21 TWh to 578.5 TWh.

## Primary Energy Consumption in Germany 2013 and 2014

Energy Source	2013		2014		Change			Share in %	
	2013	2014	2013	2014	2013/2014			2013	2014
	Petajoule (PJ)		Mn TCE		PJ	Mn TCE	%		
Mineral Oil	4,639	4,577	158.3	156.2	-62	-2.1	-1.3	33.8	35.0
Natural Gas	3,059	2,674	104.4	91.2	-385	-13.2	-12.6	22.3	20.5
Hard Coal	1,788	1,647	61.0	56.2	-141	-4.8	-7.9	13.0	12.6
Lignite	1,630	1,572	55.6	53.6	-58	-2.0	-3.6	11.9	12.0
Nuclear Energy	1,061	1,059	36.2	36.2	-2	-0.1	-0.1	7.8	8.1
Renewable Energies	1,445	1,453	49.3	49.6	8	0.3	0.5	10.5	11.1
Electricity Exchange Balance	-122	-128	-4.2	-4.4	-6	-0.2	-	-0.9	-1.0
Miscellaneous	222	222	7.6	7.6	0	0.0	-0.2	1.6	1.7
Total	13,723	13,077	468.2	446.2	-646	-22.0	-4.7	100.0	100.0

Source: AGEB, Energy Consumption in Germany for the year 2014 – Annual Report

HT-D3

The Energy Mix in Gross Power Generation				
Energy Source	2012	2013	2014	Difference 2013/2014
	TWh	TWh	TWh	%
Lignite	160.7	160.9	155.8	-3.2
Nuclear Energy	99.5	97.3	97.1	-0.2
Hard Coal	116.4	121.7	109.0	-10.4
Natural Gas	76.4	67.5	58.3	-13.7
Mineral Oil	7.6	7.2	6.0	-6.6
Renewable Energies	143.5	152.4	160.6	5.4
Miscellaneous	25.7	26.2	27.2	4.0
<b>Total</b>	<b>629.8</b>	<b>633.2</b>	<b>614.0</b>	<b>-3.0</b>

Source: AGEb

HT-D4

The cross-border electric power trading volume (total of imports and exports) came to just under 114 TWh (20%) of the gross power generation in 2014, a record mark. Exports rose strongly by 2.2 TWh (3%) and posted a new high mark of 74.4 TWh. By far the greatest part of this increase is found in power flows in the direction of the Netherlands. The European merit order has forced gas-fired power plants out of the market and caused procurements of electric power from coal-fired power plants on the German market to grow. As a consequence, the use of natural gas as a fuel for power generation declined significantly (-13.7%) in 2014. Power production from nuclear power plants of 97.1 billion kWh was almost as high as in the previous year (97.3 billion kWh), a share of 15.8% in gross power generation. The share of power generated in CHPs in net power generation in Germany is estimated by the BDEW at 94.4 billion kWh (16.3%) in 2014.

The installed output of wind energy onshore and offshore rose by 6,182 MW to just under 40.5 GW in 2014, 1,437

MW in offshore wind farms. Production posted a total plus of 8.2% to 56.0 TWh, of which a plus of 30% to just under 1.3 TWh came from offshore wind farms

Power Generation from Renewable Energy Sources			
Energy Source	2012	2013	2014
	TWh	TWh	TWh
Hydroelectric Power	21.8	23.0	20.5
Wind Power	50.7	51.7	56.0
Biomass*	39.7	39.1	40.9
Waste**	5.0	5.9	6.5
Photovoltaics	26.4	31.0	34.9
Geothermal Energy	8.7	9.6	---
<b>Total</b>	<b>152.3</b>	<b>160.3</b>	<b>158.8</b>

\* As of 2013: Biogas, biomethane and biogenic solid fuels and sewage sludge  
\*\* Renewable share, incl. landfill gas

Source: AGEb, BDEW

HT-D5

Photovoltaics, the most highly subsidised energy source per kWh, grew by 12.6% to 34.9 TWh and did not increase as much as in previous years. Despite the high sums in the billions which are paid for the feed-in of this power, its **share in gross power generation is 6% and its share in primary energy consumption is only 1%.**

**Hard coal market 2014: hard coal imports reach an all-time high**

Total hard coal consumption was unable to maintain the record high of 2013. The primary energy consumption of hard coal fell by 4.8 million TCE (7.9%) from 61.0 million TCE in 2013 to 56.2 million TCE in 2014. The official sta-

tistics are currently under review, however, to determine whether consumption from power plants that had recently gone online for the first time was included in full. This could possibly lead to changes.

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

Coverage of Hard Coal Consumption in Germany				
	2012	2013	2014	2013/2014 Change
	Mn TCE	Mn TCE	Mn TCE	Mn TCE
Import Coal	46.8	52.4	48.4	-4.0
Domestic Production	11.5	7.8	7.8	0
<b>Total</b>	<b>58.3</b>	<b>60.2</b>	<b>56.2</b>	<b>-4.0</b>

Source: AGEBA

HT-D6

Domestic production was the same as the previous year's production of 7.8 million TCE. The scheduled adaptation and phase-out process in compliance with coal policy requirements, however, will continue as planned in a socially acceptable scope until the end of 2018.

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

Total Hard Coal Sales in Germany			
Utilisation	2012	2013	2014
	Mn t	Mn t	Mn t
Power Plants	45.4	48.8	43.1
Steel Industry	15.8	17.6	17.8
Heating Market	1.8	1.9	1.8
<b>Total</b>	<b>63.0</b>	<b>68.3</b>	<b>62.7</b>

Source: AGEBA

HT-D7

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

**Imports of 56.2 million tonnes in 2014 contributed almost 90% to the high-quality supplies for the German market.** Moreover, 8.7 million tonnes of coke were produced in Germany, an increase of about 0.4 million tonnes over 2014, a result of the operational startup of a second battery at the Huckingen coking plant.

Imported coal covered

- 85% of power plant demand;
- 100% of steel mill demand;
- 83% of heating market demand.

Imports break down according to quality as shown here:

Imports According to Quality in Mn t (t=t)			
Products	2012 Mn t	2013 Mn t	2014 Mn t
Steam Coal <sup>1)</sup>	35.3	39.9	41.9
Anthracite	---	---	---
Coking Coal	9.6	10.2	11.8
Coke	3.0	2.7	2.5
<b>Total</b>	<b>47.9</b>	<b>52.8</b>	<b>56.2</b>
<sup>1)</sup> as of 2012 incl. Anthracite			
Source: VDKi own calculations			

HT-D8

It must be pointed out here that the import figures in 2014 differ from the consumption figures due to inventory movements. This was also the case in the previous years.

Dominant sources for imports of all quality classifications of hard coal:

- Russia 13.7 million tonnes (about 25%)
- USA 11.0 million tonnes (about 20%)
- Colombia 7.3 million tonnes (about 13%)
- South Africa 5.1 million tonnes (about 9%)
- Poland 4.3 million tonnes (about 8%)

**Russia remains the largest supplier of steam coal**, followed by the USA and Colombia. South Africa supplied substantially more tonnage while supply from Colombia fell by almost 3 million tonnes.

The most important suppliers for coking coal:

- Australia 5.3 million tonnes (about 45% market share)
- USA 3.4 million tonnes (about 29% market share)
- Canada 1.5 million tonnes (about 13% market share)
- Russia 1.2 million tonnes (about 10% market share)

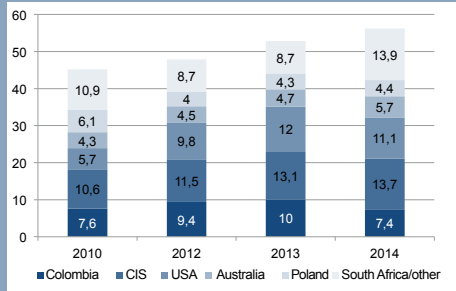
Overall, the supply structure for all qualities is broadly diversified, and imports come primarily from politically stable countries. Logistics in Germany's seaports and in the ARA ports important for German imports did not suffer any disruptions and were able to handle the additional volumes without any problems

Important coal handling ports in Europe for the German market	
	2014 Mn t
Rotterdam	30.4
Amsterdam	19.5
Antwerp	1.5
Zeeland Seaports	n.i.p.
Hamburg	5.9
Bremen and Bremerhaven	1.6
Wilhelmshaven	3.1
Nordenham	1.3
<b>Total</b>	<b>63,3</b>
Source: German Federal Office of Statistic, Statistic of freight traffic 2014	

HT-D9

Never before had so much coal been transhipped at the Rhenus Bulk Terminal Wilhelmshaven in Wilhelmshaven as in July 2014 (about half a million tonnes of coal).

### German Hard Coal Imports (including coke) by origin in Mt



Source: VDKi, several evaluations

Figure 14

The more than 56 million tonnes of import coal entered Germany via the following transport routes:

### Transport Routes of Import Coal in Germany

Transport Routes	2012	2013	2014
	Mn t	Mn t	Mn t
German Ports	13.8	14.0	14.3
Rail	9.7	11.1	15.9
Inland waterway vessels from ARA Ports	24.4	27.7	26.0
<b>Total</b>	<b>47.9</b>	<b>52.8</b>	<b>56.2</b>

Source: Own calculations

HT-D10

### Energy prices: steam coal offers price advantages over natural gas for electric power generation

The prices for major fuels in competition with steam coal fell because of the decline in the oil price, but the coal prices fell substantially as well during 2014. Price developments for HFO and natural gas moved in different directions. This is what happened during the year:

### Energy Price Development 2014

	01/01/14	01/07/14	31/12/14
	€/TCE	€/TCE	€/TCE
Heavy Fuel Oil (HFO)	323	324	193
Natural Gas to Power Plants	264	230	253
Import Coal Price CIF ARA (Spot Market)	70.16	62.06	68.63

Source: Statistik der Kohlenwirtschaft e.V.

HT-D11

HFO followed the trend of crude oil prices and their substantial decline, especially in Q4 2014. The gas price did not follow the oil price and remained virtually at the 2013 level (€264/TCE) in December 2014 (€253/TCE).

In all of the market situations, import coal enjoyed a great competitive advantage in 2014, which was reduced with respect to natural gas towards the middle of 2014 because of the greater decline in gas prices, but grew again towards the end of the year because of the rise in gas prices.

Energy Price Development as a Yearly Average				
	2012	2013	2014	2013/2014 Change
	€/TCE			%
Heavy Fuel Oil (HFO)	394	349	309	-12,9
Natural Gas / Power Plants <sup>1)</sup>	264	265	244	-8,6
Cross-Border Price / Imported Coal	98	79	73	-8,2

<sup>1)</sup> Annual mean value BAFA price

Source: Statistik der Kohlenwirtschaft e.V.

HT-D12

The price advantages of import coal over HFO and natural gas were reduced slightly because of the overproportional fall in the price of oil in comparison with previous years:

Price Advantages of Import Coal			
	2012	2013	2014
	€/TCE	€/TCE	€/TCE
Import Coal / HFO	296	265	236
Import Coal / Natural Gas	166	180	171

Source: Statistik der Kohlenwirtschaft e.V.

HT-D13

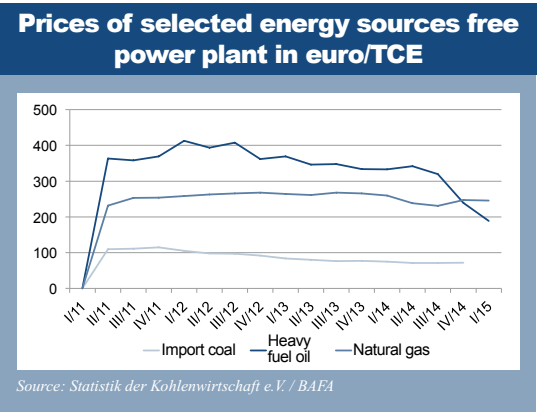


Figure 15

Prices for coking coal today are determined primarily by the spot market prices on a monthly basis. This is why only the cross-border prices for all types of coking coal from third countries are shown here.

Third Countries Cross-Border Prices of Coking Coal in €/t <sup>1)</sup>	
2010	175.00
2011	188.00
2012	188.00
2013	127.00
2014	104.00

<sup>1)</sup> Average values for all metallurgical coal types

Source: VDKi own evaluation

HT-D14

The German cross-border price comprises not only the hard coking coal price, but the prices for semi-soft coking coal and PCI qualities as well. There is a price range be-

tween US\$10 and US\$20/t for these qualities. Just as is the case for steam coal, the exchange rate of the euro to the US dollar plays a significant role. In 2014, the average price for metallurgical coal fell by 22% in comparison with the previous year to €104/t. As a consequence of the weak demand for steel, especially in China, and a surplus of coking coal, prices worldwide plummeted to a price level that had not been experienced for many years. The price for HCC FOB Australia in January 2014 ranged from US\$127 to US\$132/t, then fell to US\$111 to US\$113/t as of June 2014, where it remained until the end of 2014. It began to slump again at the beginning of 2015. The price fell from US\$107 to US\$109/t in January 2015 to US\$90 to US\$93/t in April 2015.

The coke prices free German border developed as shown below:

Coke Price Development (Cross-Border Prices)	
	Third-country Imports
	€/t
2012	259
2013	205
2014	194
Change 2013/2014	-11

Source: VDKi own calculations

HT-D15

Coke prices fell by €11/t as an average for the year, approximately the same extent as coking coal, but not as strongly as in 2013. Expectations for 2015 are for quantities to remain approximately the same and for prices to fall slightly.

**Tendencies in coal price development in 2014/2015: quantity and price pressure continues**

Prices for coal CIF ARA fell more or less continuously during the first seven months of 2014 and moved in a range of US\$73 to US\$83/t, about US\$5/t below the prices of the previous year. In August 2014, prices recovered noticeably from US\$73/t to US\$77/t, but fell again until November 2014 to US\$74/t before declining by another US\$3/t to US\$71/t in December 2014. There are still significant surpluses available on the market, and events which would stimulate demand are lacking, especially from China. This tendency continued during the first months of 2015. Prices collapsed to US\$59/t in January 2015 and fluctuated between US\$59 and US\$62/t during Q1 2015.

Then, too, the exchange rate for the US dollar with respect to the euro continued to strengthen, more or less driving prices upward in the eurozone.

Based on the spot market prices for steam coal in Q1 2015, the BAFA price will most likely reach an estimated price level of between €70 and €73/TCE over the course of the year.

Coking coal prices will surely remain under pressure in 2015 as well because of weak stimulus from the steel market. In April 2015, spot prices for hard coking coal were in the vicinity of US\$90 to US\$93/t FOB Australia; the quarterly contract price came to about US\$110/t. Should the steel economy, especially in Asia, begin to improve again, the spot prices could recover in Q3 2015.

**Steel production in 2014 solid despite the challenging environment**

According to information from the Steel Federation, the steel industry achieved solid development in 2014. Crude steel production expanded slightly by 1% to 42.95 million tonnes, a figure in line with expectations. Utilisation of capacities in Germany reached 86% and remained under the long-term average of 89%. Utilisation of capacities in the EU in 2014 came to 78%, the sixth year in succession in which this figure has remained under 80%. Pig iron production also rose slightly by 2.75% from 27.2 million tonnes in 2013 to 27.95 million tonnes in 2014. Steel production is subject to significantly keener competition on international markets. Estimates by the Steel Federation indicate that global steel exports last year increased by about 9% in comparison with 2013 and reached a new record of more than 440 million tonnes. The Steel Federation expects continuing recovery of both the steel and volume economy as well as of steel demand in Germany by 1% to 2% in 2015.

Pig Iron Production				
	2012	2013	2014	Difference 2013/2014
	Mn t	Mn t	Mn t	%
Crude Steel	42.7	42.6	42.95	0.8
Pig Iron	27	27.2	27.95	2.75

Source: Stahl-online

HT-D16

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

Consumption by the Steel Industry			
Energy Source	2012	2013	2014
Coke (dry kg per t / pig iron)	337.5	331.6	334.1
Blasting coal (kg per t / pig iron)	146.5	158.9	158.2
Sintering fuels (kg per t / pig iron)	48.6	47.8	46.0
Oil (kg per t / pig iron)	8.8	8.7	7.8

Source: VDKi own calculations

HT-D17

**EU emission trading:  
withdrawn CO<sub>2</sub> emission rights  
will not be released**

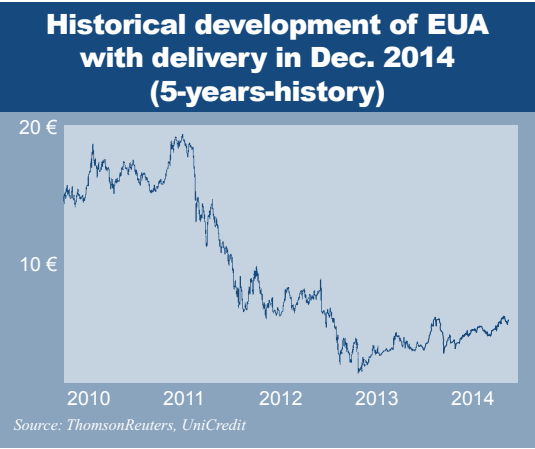


Figure 16

The EU is driving the reform of trade with carbon dioxide rights forward. The previously withdrawn rights (cf. Annual Report 2014) for emissions of 900 million tonnes of



CO<sub>2</sub> will not, as originally planned, be put back on the market from 2019, but will be placed instead in a reserve. This reserve is a second reform step that is currently the subject of debate in the EU Commission, Parliament and member states. The Commission originally wanted to create the reserve (to which additional rights are supposed to be allocated) from 2021. Germany wants this to happen much sooner – from 2017, if possible. The realisation of a market stability reserve for the CO<sub>2</sub> emission rights trading could be decided by summer 2015. The EP Committee on the Environment directing the process voted at the end of February 2015 for a reduction of the CO<sub>2</sub> certificates per 31/12/2018 as a measure to eliminate the surplus of pollution rights on the market and generate higher CO<sub>2</sub> prices. The CO<sub>2</sub> price is now no longer a product of supply and demand alone, but contains an additional component dictated by policy.

The chart below illustrates price expectations per 04/2015 for the years from 2015 to 2018:

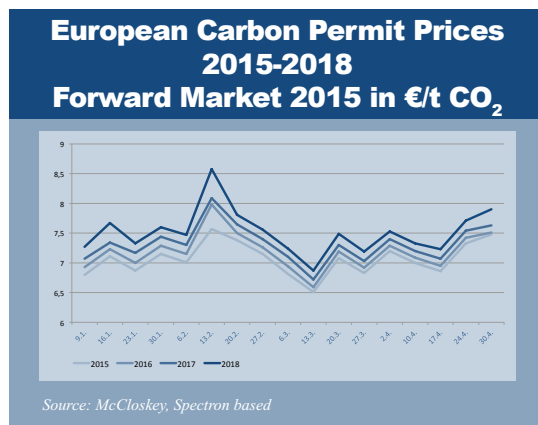


Figure 17

### CO<sub>2</sub> emissions decline to lowest value since 2010 – reduction of 27% compared to 1990

According to information from the German Federal Environmental Agency, greenhouse gas emissions in Germany in 2014 declined again in comparison with the previous year for the first time in three years. Figures show that emissions fell by more than 41 million tonnes CO<sub>2</sub> equivalents (4.3%) to 912 million tonnes. This represents a reduction by 27% in comparison with the international reference year 1990.

Greenhouse gas emissions in Germany have been reduced by a substantial amount since 1990. Total emissions (excluding carbon dioxide emissions from agricultural use, changes in agricultural use and forestry) converted into carbon dioxide (CO<sub>2</sub>) equivalents declined as of 2013 by about 297 million tonnes (23.7%). Total emissions of 953 million tonnes were reported for 2013, about 5.5 million tonnes more than in the previous year 2012, but about 14 million tonnes less than in 2011.

There has been an especially significant decline for natural gas and hard coal. The use of natural gas led to 12.9%, the use of hard coal to 8.2% lower carbon dioxide emissions; the carbon dioxide emissions from the use of lignite, the fuel with the highest emissions level, declined, on the other hand, underproportionately by only 2.2%. The share of renewable energies in gross electricity consumption rose by 2.4% to 27.8% in 2014. Renewable energies have mainly substituted for the fossil fuels natural gas and hard coal (which produce lower emission levels) while lignite-fired power plants have remained virtually constant at a high emissions level.

In comparison with various sectors, the energy industry (general power and heating supply) contributed a decline of just under 6% to the reduction of greenhouse gases. In contrast, emissions from transport rose by more than 3%.

The data for the short-term forecast for 2014 are derived from a system of model extrapolations and trend projections using the detailed calculations for 2013 published by the UBA [Federal Environment Agency] in January. Initial general information released for 2014 from official statistics, the Arbeitsgemeinschaft Energiebilanzen and

industrial associations was also used. Moreover, it must be noted that the new calculation requirements for the second commitment period of the Kyoto Protocol (including IPCC Guidelines 2006) must be applied from 2014. As a consequence, the direct comparability with data previously published by the UBA is limited.

Graphs and tables showing emissions trends can be viewed by going to <http://www.umweltbundesamt.de/dokument/presse-information-142105>.

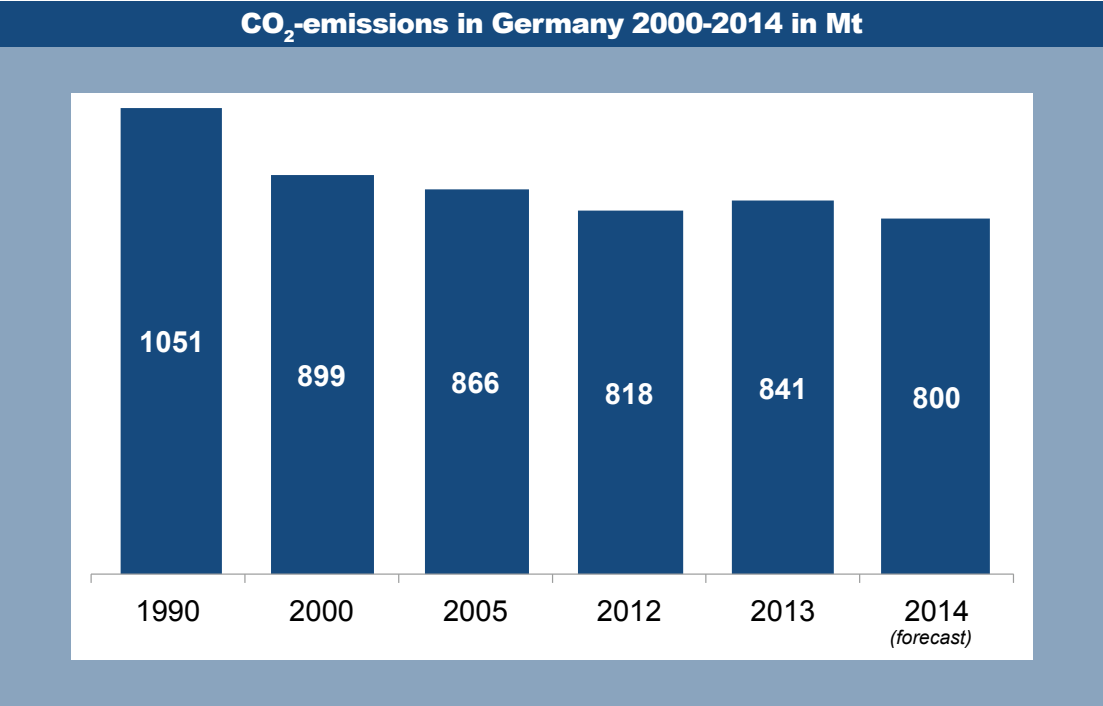


Figure 18

## Action Programme Climate Protection 2020 adopted

The German government has set itself the goal of reducing greenhouse gas (GHG) emissions in Germany by a minimum of 40% in comparison with 1990 as of the year 2020. This translates into a reduction from about 1,250 million tonnes of CO<sub>2</sub> equivalents in 1990 to a target value of no more than 750 million tonnes of CO<sub>2</sub> equivalents in 2020. GHG emissions in 2013 amounted to 953 million tonnes, a reduction of 23.8% in comparison with 1990.

The benchmark paper from the German Federal Ministry of the Environment (BMUB) points to the increase in hard coal-fired power generation and the net rise of more than 7% in power exports as the reasons for the rise over 2012 and determines on this basis a need for action so that the gap of 7% in comparison with the projection of the BMUB for the national reduction target of up to 40% in 2020 can be closed; in other words, an additional approximately 85 million tonnes of CO<sub>2</sub> equivalents must be eliminated. Additional potential for reduction is deemed exploitable above all in the energy sector, industry, private households and transport.

Since the BMUB sees the energy industry as the sector with the highest GHG emissions and the greatest potential for reduction, this sector is expected to make the decisive contribution to closing the gap. The following are named as the most important fields of action in this sector:

- Major reforms of emission trading at EU level well before 2020
- Setting key data in energy management within the context of the energy turnaround

Among other points, this includes for the BMUB a development path for conventional power plants that is in harmony with the climate policy targets of the German government. The "Action Programme Climate Protection 2020" is aimed at describing the measures required to close the gap for all sectors. Additional savings of 22 million tonnes of CO<sub>2</sub> equivalents from fossil fuel-fired power plants are among the elements at the heart of the climate package adopted by the German government in December 2014. At the end of 2014, Federal Economics Minister Gabriel proposed concrete regulations such as the legal obligation for the operators of fossil fuel-fired power plants to reduce emissions by a minimum of 22 million tonnes of CO<sub>2</sub> within 5 years. The German government's proposals, however, are the subject of severe criticism by the energy sector and academia and have been rejected.

## Reductions in coal-fired power generation at best break-even

The director of the Institute of Energy Economics at the University of Cologne, Marc Oliver Bettzüge, has criticised the German government's proposal for the achievement of the CO<sub>2</sub> reduction target of 40% that it has set for itself and that, ultimately, is wholly arbitrary. Besides the misgivings related to European and constitutional law, the planned special reduction in the German power sector looks to Bettzüge "like an act of political folly. Its effect on GHG emissions is already clear, namely: zero." The foundation for his opinion is the European emission trading system to which German power sector has been subject since 2005 – and consequently to an upper threshold for CO<sub>2</sub> set by European law. A measure in Germany is completely incapable of lowering the total emissions in Europe, so there would not be any effects for climate policy. Even the head economist

of the Potsdam Institute for Climate Impact Research, Ottmar Edenhofer, called it a “bad idea” in the *Handelsblatt* of 01/12/2014. The “problem is that a German withdrawal from the use of coal would reduce emissions in Germany, but not in Europe.” Ultimately, Germany would import more power generated using coal.

### **BDI warns of the consequences from the closure of coal-fired power plants**

The Federation of German Industries (BDI), in reference to a commissioned assessment, warns of loss of jobs and a rise in prices if the government orders the closure of coal-fired power plants to achieve its climate targets.

The subsequent costs of a mandatory shutdown of 10 gigawatts of output from lignite- and hard coal-fired power plants would be extremely high, destroy tens of thousands of jobs, lead to the import of power generated using coal from other countries and would not help the climate, according to the final conclusions of the assessors from the Hamburg World Economy Institute (HWWI) and the energy consultants at r2b energy consulting GmbH. Large volumes of the carbon dioxide no longer emitted in Germany would simply be blown into the atmosphere at other locations if compulsory closure reduced the emission of carbon dioxide in Germany.

The assessors conclude that the exchange price for power would increase by about one-fifth between now and 2020 and the costs of electricity for energy-intensive industries would rise by 15%. They calculate a loss in value creation of over €70 billion for the decade after 2020. As many as 74,000 jobs would be at risk from direct and indirect effects. More low-priced power generated using hard coal

would be imported to secure supplies in Germany. Power plants in Poland would benefit. On the other hand, the price increase on the power exchange in Germany would not be sufficient to enable profitable operation of gas-fired power plants. Markus Kerber, BDI Director General, remarked in this context that the study clearly documents that “the closure of power plants has a direct negative impact on the competitiveness of the German industry without benefiting the climate.” Electricity prices would rise and tens of thousands of jobs would be affected, not only in the power generation industry.

### **Climate summit in Lima results in no more than a minimal consensus**

Representatives from 195 countries meeting in Lima, the capital of Peru, spent two weeks debating the key points for a world climate convention that is supposed to be adopted in Paris at the end of 2015 so that it can enter into force in 2020. According to a report in the *Handelsblatt*, however, most of the issues remain unresolved. The decision of the Lima Climate Conference provides for all countries to present their own climate protection contributions by March 2015. These targets are supposed to be transparent, comparable and auditable. But the governments were inclined to sidestep the fundamental question of how these climate protection offers could be reviewed to determine ambition and fairness even in Lima. Alone the wording that the countries should orient their engagement in the future more closely to their individual economic opportunities led to a hardening of the positions among developing, emerging and industrialised countries. Emerging countries like India demanded that wealthy countries provide financial support to the poorer countries.

## First progress report on the “Energy Turnaround”

The monitoring process “Energy of the Future” has three essential tasks: overview, assessment and outlook. The monitoring process is a constant companion to the development of the energy turnaround.

1. **Overview:** The monitoring process has the task of providing an overview based on facts of the progress made in the realisation of the energy turnaround. To achieve this, the great diversity of energy information and statistics that is available must be condensed into a manageable number of selected key figures (indicators) and prepared in understandable form.
2. **Assessment:** The monitoring process entails a continuous appraisal of whether the targets from the energy concept can be achieved and what impact the measures are having. If the failure to achieve targets is foreseeable, measures will be proposed to reach the goals.
3. **Outlook:** For the first time, the progress report not only issues analyses of the present status of the energy turnaround as part of the monitoring process, but also briefly describes the developments of the next few years. The preparation of a forecast of future developments in the energy sector was entrusted to an academic consortium for this purpose. This forecast and other papers are used to describe (with the highest possible degree of probability) developments that will occur and to determine recommendations for action.

**The progress report is based on data from energy statistics.** Unless otherwise indicated, data up to 30 September

2014 have been included. They are available to the general public on the internet sites of the German Federal Ministry for Economics and Energy and of the German Federal Network Agency concerning the monitoring process for the “Energy Turnaround”.

**The monitoring process is guided by scientific advisers.** An impartial commission comprising four recognised energy experts serves as an advising body to the German government. The members of the commission are Dr Andreas Löschel (chair), Dr Georg Erdmann, Dr Frithjof Staiss and Dr Hans-Joachim Ziesing.

## Goals of the energy concept

**The German government initiated the energy turnaround as the path to a secure, economic and environmentally compatible future in energy supply.** The German government's energy concept and the resolutions adopted by the German Bundestag [Parliament] provide the compass for the programme to follow.

**The triangle of energy policy goals remains the guiding principle for energy policies.** During the realisation of the energy turnaround, the German government intend to reconcile affordability, supply security and environmental compatibility with one another and to secure Germany's economic competitiveness.

**The energy concept features more than 20 quantitative target values.** They are presented in varying degrees of detail and located at different levels of the structure. The goals range from political statements (e.g. discontinuation of the use of nuclear energy by 2022) to target values for energy supply overall (e.g. reduction of primary energy consumption) to specific targets for various sectors.

**The progress report classifies the goals.** The German government create a target architecture based on the recommendation of the commission of experts. This target architecture addresses potential conflicts among the goals and provides planning security. Simultaneously, it gives due consideration to the varying importance of the goals.

**The target architecture distinguishes among various goal and management levels.** It clarifies the interaction among the numerous specific targets and distinguishes among the various target levels. The aforementioned guiding criteria for the optimisation of the goals at the action level open up opportunities for flexible and low-cost solutions for the achievement of the top-level goals.

### **Statement of position on the first progress report from the German government for the reporting period 2013**

“Government experts tear the energy turnaround apart,” read the headline over the comments from the expert commission on the progress report in “Die Welt” on 03/12/2014. Criticism was directed especially at the German government’s new action plans on the subjects of climate protection and energy efficiency. “Too vague and inadequate to achieve the goals; this summarises the criticism of the government’s action programme from the group of professors,” was how “Die Welt” summed up the report.

Referring to the failure to meet the target of greenhouse gas emissions conceded in the progress report unless additional measures are initiated, the commission noted that the deviations from the targets are partly a consequence of the failure to put into force the compensation

measures for the additional CO<sub>2</sub> emissions at the same time as the decision to phase-out nuclear power in 2011.

### **Utilisation of model-based analyses in the monitoring process**

The German government rely on model-based studies (energy reference projection 2014, the current measures scenario (2012) from the climate protection scenario 2050 and a linear trend projection) used to calculate the development of the energy sector to the year 2020 and beyond for the progress report 2014. Conclusions about the achievement of the targets of the energy turnaround are drawn from this material. In the commission’s view, a scenario that does not include additional measures should be calculated along with a scenario for probable development so that a broad framework for required action can be determined. The commission criticised the failure of the progress report in the present situation to analyse extensively the causes for the deviations from the targets. The government seek to put the blame solely on others by referring to a number of exogenous developments disadvantageous for the energy turnaround (e.g. coal prices, CO<sub>2</sub> prices). The commission would have wanted the government to refer as well to endogenous developments (e.g. rebound effects, lags in the expansion of the transmission grid, impact of discontinuation of nuclear power etc.) that are responsible for the recognisable failures to achieve targets. The commission recommends making use of appropriate means to review and/or quantify respectively the influence of the exogenous in comparison with the endogenous effects.

### Target Achievement in the Reference Development until 2020

	2011	2012	2013	2020	2030	2040	2050
<b>Greenhouse gas emissions</b>							
Greenhouse gas emissions (compared to 1990)	-26.40%	-24.70%	-22.60%	-40%	-55%	-70%	-80% up to - 95%
Reference forecast				-36%	-43%	-54%	-65%
Current scenario of measures (2012)				-35%	-45%	-52%	-56%
Linear continuation				-30%	-	-	-
<b>Renewable energies</b>							
Share in gross electricity consumption	20.40%	23.50%	25.30%	at least 35%	at least 50%	at least 65%	at least 80%
Reference forecast				41%	52%	54%	64%
Current scenario of measures (2012)				37%	54%	61%	65%
Share in gross final energy consumption	11.50%	12.40%	12.00%	18%	30%	45%	60%
Reference forecast				22%	29%	33%	39%
Current scenario of measures (2012)				18%	22%	26%	28%
<b>Efficiency</b>							
Primary energy consumption (compared to 2008)	-5.40%	-4.30%	-4.00%	-20%	-	-	-50%
Reference forecast				-18%	-27%	-35%	-42%
Current scenario of measures (2012)				-10%	-	-	-29%
Linear continuation				-9%	-	-	-
Energy productivity EEV p.a.	1.7%	1.1%	0.26%				2.1%
	(2008- 2011)	(2008-2012)	(2008-2013)				(2008-2050)
Reference forecast				1.9%			1.9%
				(2008- 2020)			(2008- 2050)
Current scenario of measures (2012)				1.20%	1.40%	1.40%	1.40%
Linear continuation				0.25%	-	-	-
Gross electricity consumption (compared to 2008)	-1.80%	-1.90%	-3.30%	-10%	-	-	-25%
Reference forecast				-7%	-10%	-12%	-10%
Current scenario of measures (2012)				-2%	-	-	0%
Linear continuation				-7%	-	-	-
<b>Transport sector</b>							
Final energy consumption (compared to 2005)	-0.70%	-0.60%	1%	-10%	-	-	-40%
Reference forecast				-7%	-	-	-26%
Current scenario of measures (2012)				-9%	-	-	-29%
Linear continuation				2%	-	-	-

Source: Expert Commission on Monitoring process "Energy of the future", Statement on first progress report of the Federal Government for the year 2013, Summary, November 2014

## Energy consumption and energy efficiency

In the opinion of the expert commission, energy efficiency is not valued at the level expressly designated for it in the coalition agreement in 2013. The tendencies in the area of energy efficiency so far lead in most cases to expectations for a failure in varying degrees to achieve the targets. The commission believes that this is especially true regarding the goal of a reduction in primary energy consumption of 20% by 2020 or for the sought increase in final energy productivity at an average annual rate of 2.1%. The German government also expects a significant shortcoming in the achievement of targets when they state that the PEC in 2020 will have declined only by 7.2% to 10.1% and not by 20% in comparison with 2008.

## Renewable energies

The commission considers the current instruments to be basically suitable for achieving the targets. But they must be tailored to needs and in alignment with targets.

## Power plants and grids

The commission is gratified to see the government accepting its proposal and using the output balance at the point in time of the peak load for the year as a key criterion for power supply security. The commission criticises, however, that the various calculation methods lead to differences in the coverage rates and sees the need for a discussion about the appropriate methods. The current power transmission capacities are not sufficient to cover the supply gap that is becoming apparent. If there is no success in overcoming the current lag in grid expansion, there could be a threat in extreme cases – in the commission's opinion – of the nuclear power plants in southern

Germany being allocated to the strategic grid reserve even though this would be in contradiction to the current legal situation.

## Energy prices and energy costs

The expert commission remains convinced that the aggregated end consumer expenditures for energy are a good indicator of general affordability. This proposed indicator of the aggregated end consumer expenditures for power rose – because of the rise of the grid charges and the EEG costs – from 2.5% in 2013 to 2.6% of the gross domestic product in 2014.

Besides general affordability, differences in the prices for the various energy forms must also be considered. A simple comparison of energy prices is an oversimplification, however. The actual energy costs of the companies must also be taken into account. The expert commission recommends here the comparison of the indicator “energy unit costs” internationally as well.

## Social impact of the energy turnaround

The social impact of the energy turnaround is a key element for its success or failure. The expert commission restricts its comments to issues of social acceptance and recommends an appropriately precise definition of the term “acceptance” with respect to the energy turnaround and, on this basis, the assessment of the situation. In this sense, the acceptance of the energy turnaround should not be viewed solely on the basis of survey results, but should also include studies of actual actions.



## Costs for renewable energies rise again in the middle term

### EEG levy falls marginally by 1.1% to 6.17 eurocents per kWh in 2015

Pursuant to Section 60 EEG, the utility companies are required to pay an EEG levy to the transmission system operators (TSOs) for every kilowatt-hour of electricity delivered to end consumers. These payments cover the difference between revenues and expenses of the TSOs incurred by implementation of the EEG. The EEG levy in 2014 was 6.24 eurocents/kWh. The EEG levy for non-privileged end consumers was set at 6.170 eurocents/kWh for 2015.

The TSOs announced an estimate for the amount of the EEG levy in 2016 at the end of 2014. According to this, the EEG levy in 2016 would fall in a range from 5.658 to 7.274 eurocents/kWh; a figure of 6.50 eurocents/kWh was given for the so-called trend scenario (in comparison: it was set at 6.17 eurocents/kWh in 2015).

In accordance with the relevant statutory provisions (AusglMechV [Equalisation Scheme Ordinance]), the TSOs announced a middle-term forecast regarding the expected EEG feed-quantities and compensation payments ([www.netztransparenz.de](http://www.netztransparenz.de)). The middle-term forecast is based on various assumptions regarding EEG generation and end consumption. Three scenarios were prepared for each of the two variables (one maximum, one minimum and one trend scenario). According to each of these scenarios, the expected EEG compensation payments (fixed compensation and market premiums) would develop as follows: between €21.7 billion and €26.5 billion for 2016

and between €24.1 billion and €31.1 billion for 2019. An EEG levy was estimated on this basis, ranging for 2016 between 5.658 eurocents/kWh and 7.274 eurocents/kWh. The 2016 levy for the trend scenario amounts to 6.502 eurocents/kWh.

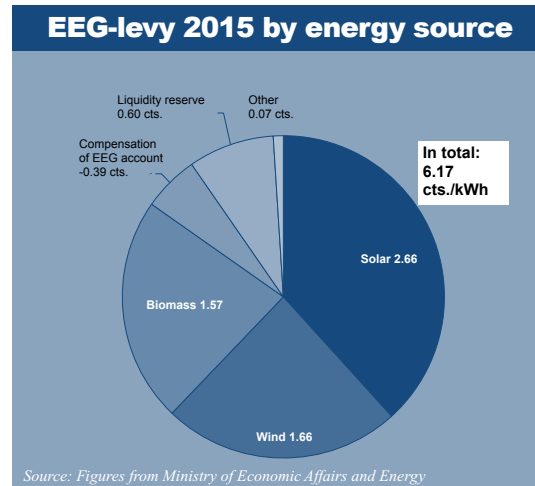


Figure 19

## **Green power subsidisation: Commission approves EEG 2012 and 2014**

Following an intensive review, the European Commission decided on 25/04/2014 that state aid fostering renewable energies granted in accordance with the German Renewable Energies Act (EEG) in 2012 is in conformity with the EU regulations regarding state aid.

The European Commission also approved in large measure the exemptions from the EEG levy for energy-intensive companies pursuant to the EEG 2012. A small part of the exemptions, however was above the permitted threshold. The recipients must repay this part for the years 2013 and 2014.

In its decision, the Commission came to the following conclusions:

- The EEG 2012 provides measures for government aid. Germany introduced the EEG levy for the purpose of fostering the generation of electric power from renewable energy sources with these government funds. It established rules to be applied by private business operations in collecting and administering the levy. By providing partial exemptions for energy-intensive companies, the government also determined who should pay the levy and, in particular, what power consumers would pay less than others. Furthermore, government authorities are integrated into the monitoring of the system and the approval of the partial exemptions.
- The Commission confirmed that the subsidisation of renewable energies within the scope of the EEG 2012 was in harmony with the environmental protec-

tion guidelines of 2008, especially because only the additional costs incurred by the generation of renewable energy in excess of the market price for electricity were compensated. The subsidisation took the form of feed-in rates and premiums for the producers of green electricity.

- The partial exemptions for energy-intensive companies on the basis of the EEG 2012 were by and large in conformity with the new environmental protection and energy guidelines which have been in effect since 1 July 2014. The guidelines permit the partial exemption of energy-intensive companies from measures implemented to finance the subsidisation of renewable energies. They provide that member states may grant this type of partial exemptions to some energy-intensive industries in the EU which are subject to especially keen international competition.

The EEG as last revised in 2014 entered into effect on 1 August 2014. The European Commission approved the Act in July 2014 after reviewing it on the basis of the new environmental protection and energy guidelines.

## **Disputed energy turnaround: Berlin files legal actions against the EU Commission**

The German government have gone on a confrontation course with the EU Commission. Because Brussels continues to classify the Renewable Energies Act (EEG) as government aid, Berlin wants to obtain final clarity – before the European Court of Justice (CJEU).

The ongoing conflict between Berlin and Brussels regarding the Renewable Energies Act (EEG) is headed into the next round. Berlin has filed legal action against the EU Commission before the European Court of Justice (CJEU). By filing this action, the German government wants to obtain clarity regarding “the fundamental legal question” of whether the EEG is to be classified as state aid.

Germany and the EU Commission have been battling each other for years over the answer to precisely this question: Brussels has repeatedly criticised the green power rebate, i.e. the extensive exemptions for industrial companies with high electricity consumption from payment of the EEG levy. This dispute was essentially resolved by a decision on 25 November 2014.

### Discussion on the acceptance of coal in terms of the energy turnaround

A study on the acceptance of coal as a raw material caught between the opposing poles of supply security and climate protection has been prepared within the framework of the cooperative project German Centre for Energy Resources Freiberg (DER) and with the support of the German Federal Ministry for Education and Research. It comes to some astonishing conclusions: **“The negative image of coal in media reports does not reflect the differentiation in the assessment of the advantages and disadvantages by the German population,”** notes a press release issued by the TU Bergakademie Freiberg. It is surprising for the study’s authors as well to see “how little the majority of German citizens (despite living in the age of the energy turnaround) actually know about German energy and raw material supplies and the use of coal.” Citizens are nevertheless aware: “Despite the

flood of information, more than 70% believe that they are poorly informed about coal and the use of coal.”

The Freiberg academics hope to offer some food for thought and to contribute to a more objective approach to the debate as well as lay a foundation for better decisions about the future with the potential to achieve a consensus.

In the authors’ opinion, these are the most important results and findings:

- What the German population knows about fundamental facts and the foundations on which decisions about energy supply and the use of coal are based is extraordinarily inadequate or even erroneous, and this lack of knowledge is evident through all social classes.
- When it comes to the use of coal in Germany, 70% of the German population believes it is poorly informed.
- The level of knowledge regarding alternative material use of coal is extremely low. It can therefore be assumed that the acceptance or rejection of the use of coal is related solely to its use as an energy source. This is particularly true of earlier studies as well.
- A differentiated analysis of the relevant assessment anchors for an acceptance decision according to economic, ecological and social influencing factors reveals that ecological concerns (key word: climate change) have a major negative influence and social issues (key word: securing jobs) have a major positive influence. Almost 60% of the respondents do not

have any concerns about potential harm to health. None of the other criteria stand out in any way.

- Although no clear rejection of coal as an energy source in Germany can be determined, it is clear that this acceptance is subject to a condition: a large majority of the German population (against the backdrop of the identified knowledge deficits) wishes to see Germany discontinue the use of coal within a time period of 10 to 20 years and also believes that this is possible. Only just under one quarter of the German citizens agree with the wording selected for the coalition agreement of “not in the foreseeable future”.
- The more the respondents are personally affected (proximity to opencast pits/power plants), the greater the tendency to include all of the influencing factors in the assessment and thus the higher the acceptance of the use of coal. This is not solely a matter of job dependency, but comes from more extensive knowledge about coal and energy supplies.
- In our opinion, attempts to change attitudes towards the use of coal by means of short-term affective messages and emotions do not have the intended effect. It is obvious that neither the desired effect of attracting attention nor the needs of the German population for credible, objective information about the advantages and disadvantages of the use of coal are covered.

The study is available online at the following link:

<http://energierohstoffzentrum.com/assets/Uploads/Media/Studien/Studie-Kohle-Akzeptanzdiskussion-Auflage-2.pdf>



## COUNTRY REPORTS

### AUSTRALIA

#### General

The year 2014, just like 2013, was a roller-coaster ride for Australia's coal industry. All in all, the country is in good economic condition. The weak global growth in consumption in combination with the growing supply of coal, however, has led to constant pressure forcing coal prices downward. Economic growth of 3.1% (2013: 2.7%) and an inflation rate of 3.0% have been assumed for 2014 by the Ministry of Industry (Resources and Energy Quarterly, March 2015). The primary reason for this positive economic development can be found in the demand for raw materials, above all coal, iron ore and industrial metals. The climate tax of A\$25 per tonne CO<sub>2</sub>, just introduced in 2012, has already been revoked. This and other political decisions have made coal mining fundamentally more attractive again for new investments in the expansion of production capacities or the opening of new coal mines. The world market prices and their steady decline since the middle of 2012 along with a relatively strong Australian dollar, however, have brought about further cost-cutting programmes and the elimination of a large number of jobs, especially among the subcontractors in coal mining.

Australia maintained its position as one of the largest producers of raw materials in 2014 thanks to its energy raw materials and produces almost 6% of the world's hard coal. An initial burden for the Australian coal exporting business was China's decision to levy a duty of 3% on im-

ports of coking coal and a duty of 6% on steam coal from 15/10/2014. Relief came only from the free trade agreement between China and Australia or actually, to be more precise, from the signing of a letter of intent to conclude the free trade agreement in 2015 and to revoke the duty on coal without delay. Coal is the second-largest export product to China (following iron ore) and has an estimated export value of about A\$9 billion annually; based on the export figures from 2013, the Australian coal industry will be relieved of costs estimated at A\$170 million for coking coal and about A\$100 million for steam coal from this decision alone.

According to estimates from the Australian "Office of the Chief Economist" ([www.industry.gov.au](http://www.industry.gov.au)), the devaluation of the Australian dollar with respect to the US dollar that began at the end of 2014 will continue in 2015 and the average exchange rate will be US\$0.84/A\$1.00 in comparison with US\$0.92/A\$1.00 in 2013. This would result in further relief for coal mining.

The exchange rate, however, can compensate only a part of the decline in revenues from the falling world market coal prices on the cost side. The "Office of the Chief Economist" reports that the spot prices for coking coal fell by US\$20/t during the first three months of 2014, but remained stable for the remainder of the year. The Australian Coal Report shows that spot prices for HCC quality to Europe fell from US\$131/t in January 2014 to US\$109.70/t in the middle of 2014, but had recovered to US\$113.30/t as of the end of the year. The prices for semi-soft coking coal took a slightly different path; this could be because the semi-soft coking coal was sold as HCC quality because of the low prices and this led to high demand for semi-soft coking coal. The prices for

semi-soft coking coal to India, for instance, fell from about US\$117/t in January 2014 to US\$95/t in August 2014, but then recovered and increased steadily to US\$114/t in December 2014.

This price level, triggered by a surplus supply of coking coal and declining demand from the steel industry in both Asia and Europe caused by economic and structural factors, has resulted in a situation for some coking coal mines in which they are no longer able to break even in their operations. The average production costs for steam coal in Australia were described in a report at about US\$90/t; costs for coking coal were shown at US\$150/t. There are reports that production capacities estimated at 25 million tonnes per year (corresponding to about 2% of world output) were shut down over the course of 2014, especially in the USA and Australia. Further closures are expected to follow in 2015. The Queensland Resource Council (QRC) estimates that currently 25% of the coal produced in Australia is mined at a loss on an FOB basis affecting expenses. This includes 30 million tonnes per year (50%) of the steam coal produced in Queensland and 21 million tonnes (14%) of the coking coal production totalling 150 million tonnes per year.

The new Australian government have continued their revisions of energy and climate policies. Following the revocation of the CO<sub>2</sub> tax, the government issued a white book regarding the establishment of an emission reduction fund which is intended to reduce Australia's climate gases more simply, more cost-effectively and more practically. The target is to reduce Australia's CO<sub>2</sub> emissions by 5% in comparison with 2000 to 421 million tonnes of CO<sub>2</sub> by 2020.

## Production

New South Wales (NSW) and Queensland (QLD) are the sources of virtually all of Australia's hard coal. Most of the coking coal comes from QLD, while steam coal comes primarily from NSW. Almost 80% of the output comes from opencast pits, 20% from underground mines. According to BREE, coal production increased to 431 million tonnes, corresponding to an increase by 19 million tonnes (just under 5%).

Production in Australia's export provinces in 2014 increased on the whole, despite the closure of mines with the highest production costs, thanks in part to the lack of any losses resulting from unusual weather conditions, but above all to the increase in production in the remaining mines. The increased production made it possible to reduce the specific costs for each produced tonne of coal. Production in Queensland and New South Wales rose by 20 million tonnes from 402 million tonnes to 422 million tonnes, thereof 198 million tonnes in NSW and 224 million tonnes in Queensland.

Smaller quantities of hard coal were mined in West Australia (6.4 million tonnes), South Australia (2.5 million tonnes) and Tasmania (0.4 million tonnes) in addition to the output from Queensland and New South Wales, but this production was consumed exclusively on the domestic market. Hard coal production totalled 431 million tonnes, thereof 245 million tonnes steam coal (+5 million tonnes) and 186 million tonnes coking coal (+15 million tonnes).

Smaller quantities of lignite as well as hard coal are mined in Victoria.

Usable Production of the Major Production States of Australia			
	2012	2013	2014
	Mn t	Mn t	Mn t
New South Wales (NSW)	176	190	198
Queensland (QLD)	182	212	224
<b>Total NSW/QLD</b>	<b>358</b>	<b>402</b>	<b>422</b>
Western Australia / Tasmania	8	10	9
<b>Total</b>	<b>366</b>	<b>412</b>	<b>431</b>
<i>Source: Several evaluations</i>			

LB-TI

The steady decline in world market prices has also been felt in the activities for the exploration of new coal deposits. Low world market prices for coal mean that mining companies, despite the increase in production and exports, must deal with declining funds for exploration activities; according to BREE, these activities have declined by 27% to about US\$400 million.

In its publication on “Resources and Energy Major Projects” of October 2014, BREE identified the following projects in the coal sector:

- Only 39 projects (previous year 50 projects) are still in a stage of feasibility study, i.e. the further development of these projects has been announced publicly. Their maximum investment costs are A\$54 billion. Of these projects, 26 of them are in Queensland, but in terms of value they make up about 90% (A\$49 billion) of the planned expenditures. Projects on the “green meadow” in the Galilee Basin make up the majority, both in the terms of the number of projects and of total investments.

- Nine projects with an investment volume of A\$5.5 billion have obtained all of the required permits and are in the stage of construction or construction preparation. The Eagle Downs Mine Project has the highest investment volume (A\$1.3 billion) among the coal projects and is scheduled for completion in 2017. Five of the projects in the last group are located in New South Wales, four of them in Queensland. No coal projects were completed between March and October 2014.

Infrastructure

The increase in production, and above all in export, demonstrated that the investments in the infrastructure were initially the right step to take. The falling coal prices, however, have caused some coal port projects to be cancelled or postponed, including among others the Indgeon Point Terminal in the port at Hay Point with a planned capacity of 180 million tonnes per year.

Focus is currently on the new transport routes that are to be built from the Galilee Basin to Abbot Point Coal Terminal. The Indian company Adani Mining has concluded a contract with the Korean company Posco for the construction of a rail line with a length of 388 km from the Carmichael Mine to the Abbot Coal Terminal. The construction company Aurizon has concluded a contract with GVK Hancock for the construction of a railway line from GVK’s Alpha and Kevin’s Corner mines to Abbot Point. These two railway projects are supposed to have an initial capacity of 60 million tonnes per year.

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



all of the Australian ports have been expanded in recent years, and in 2013 and 2014 the coal volumes shown below were transshipped:

<b>Exports of the Largest Coal Loading Ports</b>		
<b>Coal Loading Ports</b>	<b>2013</b>	<b>2014</b>
	Mn t	Mn t
Abbot Point	21.1	26.5
Dalrymple Bay	65.3	69.6
Hay Point	38.3	43.0
Gladstone	62.7	68.4
Brisbane	8.7	7.1
<b>Total Queensland</b>	<b>196.1</b>	<b>214.6</b>
PWCS	109.2	112.4
Port Kembla	11.8	13.7
NCIG	41.3	46.3
<b>Total New South Wales</b>	<b>162.3</b>	<b>172.4</b>
<b>Total</b>	<b>358.4</b>	<b>387.0</b>

*Source: Australian Coal Report*

LB-T2

Almost 20 million tonnes more coal were loaded onto ships in Queensland in 2014, an increase of 10%. In New South Wales, it was above all the expansion of the NCIG Terminal which contributed to an increase in transshipment of about 15% to 46.3 million tonnes. In total, about 29 million more tonnes of coal were loaded in Australia in the past year.

## Export

All in all, Australia was able to increase its exports in 2014 contrary to the general trend, posting monthly record figures for transshipments. Despite falling coal prices, export volume rose by 29 million tonnes to 387 million tonnes.

The development of hard coking coal exports in selected regions is shown below:

<b>Export Development in Selected Regions "Hard Coking Coal"</b>			
	<b>2013</b>	<b>2014</b>	<b>Difference 2013/2014</b>
	Mn t	Mn t	Mn t
China	27.0	31.9	+ 4.9
Europe	15.1	15.9	+ 0.8
India	25.1	30.4	+ 5.3
Japan	20.6	21.9	+ 1.3
South Korea	7.9	8.6	+ 0.7
<b>Total</b>	<b>95.7</b>	<b>108.7</b>	<b>+ 13.0</b>

*Source: BREE, Resource and Energy Quarterly, March 2015*

LB-T3

In total, exports of coking coal (including semi-soft coking coal and PCI coal) rose by just under 9% in comparison with 2013 to 185 million tonnes. The largest importers of Australian coking coal are China, India, Japan, the EU and South Korea. China's import of coking coal was 18% higher and India imported 21% more than in the previous year.

According to McCloskey, there have been some changes in the details of Australia's exports to China in 2014 in comparison with 2013:

Development of Australia's Exports to China		
	2013	2014
	Mn t	Mn t
Hard Coking Coal	27.0	31.9
Semi-soft Coking Coal (PCI)	18.4	14.3
Steam Coal	42.7	47.1
<b>Total</b>	<b>88.1</b>	<b>93.3</b>
Source: McCloskey		

LB-T4

Hard Coal Exports by Quality		
Coal Grade	2013	2014
	Mn t	Mn t
Coking Coal (HCC)	105	120
Semi-soft Coking Coal	65	65
Steam Coal	188	202
<b>Total</b>	<b>358</b>	<b>387</b>
Source: McCloskey		

LB-T5

Australia was able to increase its exports of steam coal by 16 million tonnes (8%). Japan increased its steam coal imports from Australia by 7.3 million tonnes to 82.3 million tonnes. Sales to South Korea rose in total by 2.8 million tonnes to 32.4 million tonnes.

Australia's key figures are shown here:

Key Figures Australia			
	2012	2013	2014
	Mn t	Mn t	Mn t
Hard Coal Output	366	410	431
<b>Hard Coal Exports</b>	<b>316</b>	<b>358</b>	<b>387</b>
• Steam Coal	171	188	202
• Coking Coal	145	170	185
<b>Imports Germany</b>	<b>4.5</b>	<b>4.7</b>	<b>5.7</b>
• Steam Coal (incl. Anthracite)	0.3	0.1	0.4
• Coking Coal	4.2	4.6	5.3
<b>Export Rate in %</b>	<b>86</b>	<b>87</b>	<b>90</b>
Source: Own estimations			

LB-T6

# INDONESIA

## General

Falling prices for raw materials such as palm oil, natural gas and coal have created difficulties for Indonesia's economy because it is highly dependent on exports. Economic growth slowed for the fourth year in succession to 5% in 2014. The election of the new President Widodo and his announcements of political reform have sparked hopes that the economic growth in the world's fourth-largest country will pick up again and reach the target level of 7%. The government wants to provide some aid to the mining industry that is suffering from the fall in world market prices for coal. The energy minister wants to reduce the royalties for underground mines, which were only just increased in 2014, by 2% below the usual level for IUP (Izin Usaha Pertambangan) of 10% to 13.5%.

The previous government's plans to limit the volume of national coal production have been dropped for the moment in the interest of securing revenues for the state. Moreover, there are obligations issued by the Ministry for Energy and Mineral Resources (MEMR) to the coal companies to produce certain amounts of coal for the domestic market. The requirement of 110 million tonnes for 2015 has been reduced to 92 million tonnes for 2015 because of delays in the construction of new power plants; only 74 million tonnes of the requirement of 95.5 million tonnes for 2014 were utilised. Subsequently, the upper threshold for production was also raised from 421 million tonnes for 2014 to 458 million tonnes. The newly appointed Energy Minister Said announced that in future only one government agency instead of the previous 16 agencies will be responsible for the issue of mining permits under mining

law. There has also been a proposal to reduce the number of permits from the previous 101 to 71. All of these actions could trigger new stimulus for investments by mining companies and simultaneously reduce corruption.

## Production

It is apparently not possible to put an end to differing production figures, even from official sources, in Indonesia. Production targets and actual annual production are often confused. The royalties also play an important role for production figures.

The Indonesian Coal Mining Association (ICMA) estimated output volume of 480 million to 500 million tonnes per year for 2014 in a preliminary report. The Ministry, on the other hand, presumed a target volume of 435 million tonnes p.a. The Directorate-General for Minerals and Coal (DGMC) expected output of 458 million tonnes. The figures published for 2014, 461 million tonnes, indicated even at this early point that the targets would again be exceeded, as happened in the previous years. The Australian Office of the Chief Economist estimates in its report in March 2015 that exports fell by 4.1% in comparison with 2013 to 406 million tonnes. It is also estimated that there are between 10 million and 40 million tonnes of illegally produced volume. It is unknown in which statistics these quantities appear. McCloskey uses a volume of 461 million tonnes as indicative production figures for 2014. This corresponds almost exactly to the 458 million tonnes announced by the DGMC for 2014. It must be considered, however, that these figures include lignite production, which is not disclosed separately. Based on export figures for lignite of 52 million tonnes to China alone and the consumption of lignite in power plants of an estimated 20 million tonnes, our calculations indicate hard coal pro-

duction totalling 389 million tonnes in 2014, an increase over the Annual Report 2014 of 47 million tonnes in comparison with 2013. Production breaks down roughly into 1/3 high-quality hard coal and 2/3 low-calorific hard coal (sub-bituminous) and lignite.

The Largest Hard Coal Producers in Indonesia				
Company	Output	Output <sup>2)</sup>	Exports	Exports
	2013	2014	2013	2014
	Mn t	Mn t	Mn t	Mn t
Bumi Resources	80.0	100.0	60.2	46.7
Adaro	52.3	56.0	43.1	44.5
Kideco	37.2	40.0	26.9	29.2
Banpu	29.4	29.0	18.2	21.6
Berau Coal PT	23.9	24.0	19.8	21
Bayan Resources	14.0	10.0	9.3	9
Bukit Asam	17.5	16.0	9.6	7
<b>Total <sup>1)</sup></b>	<b>254.3</b>	<b>275.0</b>	<b>187.1</b>	<b>179.0</b>
<sup>1)</sup> Excluding additional purchases, provisional, partly estimated, incl. Lignite				
<sup>2)</sup> Official information as estimation				
Source: Business reports, company reports, ICR				

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Of the total output of 389 million tonnes, 315 million tonnes were exported and 74 million tonnes were used for domestic consumption last year. The stockpiling in Indonesia is unknown, but is presumably very high. The Indonesian mining industry estimates a further increase in production, including lignite, to between 460 million and 500 million tonnes p.a. for 2015. The government also want to raise the level of production for 2015 to 460 million tonnes p.a., of which 368 million tonnes p.a. will be exported and 92 million tonnes p.a. will be used in domestic consumption. This indicates that the mining

companies could raise their production even further. This is counter-indicated by the decline in worldwide demand, especially from China, and the low world market price level. The low price of oil speaks in its favour as the fuel comprises a large share of production costs of as much as 30% because diesel engines run most of the machinery used in coal mining in Indonesia. Only a very few companies have announced curtailments in production as of this point.

The production in Sumatra, which comprises only a small part of the total Indonesian production, is above all required for domestic consumption because the deposits are located close to the power consumption centre in densely populated Java. Owing to Indonesia's economic development, the demand for electric power is also growing, although not as rapidly as originally planned. Total generation output amounts to 47 GW. According to the power procurement planning of the government-owned electric utility PLN, new output of 31.5 GW has been scheduled for the Java-Bali grid in the period between now and 2022. The 5-GW Gilacap power plant consisting of five 1,000-MW coal-fired blocks is supposed to be constructed in Central Java with the aid of Chinese companies. The state-owned electric power provider PLN is still behind schedule in constructing new power plants. The demand for coal for the state-owned power provider was therefore lower than planned in 2014, which is why the obligation of the mining companies to make a certain volume available to the domestic market (DMO = Domestic Market Obligation) was not fully utilised in 2014. Only 74 million tonnes instead of 95.5 million tonnes were used. The volume for 2015 has been reduced to 92 million tonnes.

## Infrastructure

Transshipment capacities are available on Sumatra, but not for large ships. The continuing rise in production is approaching the limits of what the existing infrastructure can handle. This has prompted a series of projects intended to create transport capacities for as much as 70 million tonnes a year. The leader here is the railway, which is driving forward the expansion of the railway line for coal in South Sumatra and has procured an additional 600 carriages. The railway line currently has a transport capacity of 17.9 million tonnes p.a.; this is supposed to increase to 22 million tonnes p.a. in 2015 after completion of the line. This expansion goes hand in hand with the expansion of the Taharan port at Bukit Asam in Lampung Province in southern Sumatra. After its completion, the port's export capacity will have grown from the current 13 million tonnes p.a. to 25 million tonnes p.a. In addition, a coal transport road for lorry transports to the port in Lematang with a length of 106 km is being built by the company Titan Mining.

## Export

According to our calculations, exports in 2014 amounted to about 315 million tonnes, a decrease of 20 million tonnes in comparison with 2013. Indonesia thus maintained its leading world market position as the Number 1 among steam coal exporters in 2014, but exports no longer increased. According to McCloskey Indonesian coal exports to China of about 100 million tonnes (including lignite) were about 30 million tonnes less than in 2013. The focus of Indonesian exports is on the Pacific market. Volumes to the European and American countries remained almost unchanged at a low level in 2014.

Exports have been hampered by the introduction of an export licence system. Every mining company that wants to export coal has been required to obtain a registered trading licence since 01/10/2014. To obtain this licence, the royalties must have been paid and the company must be in possession of a letter of recommendation from the Minister for Energy and Mineral Resources certifying the mining company's compliance with legal provisions (among other requirements). Officially, the Indonesian government introduced the system to stop illegal coal production and illegal coal exports. The licensing system was introduced on a fast track and as a consequence only 51 of the 147 coal mining companies that applied for a licence received a positive response on 01/10/2014. The others had to exercise patience and were not allowed to export any coal until they obtained the licence.

Exports will also suffer in the future from the decision by the Chinese government requiring the testing of coal for trace elements and setting certain limits that must not be exceeded. The fact that the coal will be tested for trace elements is of lesser relevance; the main point is that the testing is supposed to be conducted exclusively by the Chinese customs and border authorities, and the entire cargo can be refused in the event of non-compliance with the threshold values.

To this extent, we can only wait and see whether Indonesia's coal exports will continue to grow in future even if the world market price level on the one hand and the Indonesian government and production costs on the other permit this growth. Indonesia's geographical location in proximity to the largest consumer centres China, Japan, South Korea and India is a fundamental advantage

for export because of the lower freight costs and shorter travel times to these countries.

Coal Exports According to Markets			
	2012	2013	2014 <sup>1)</sup>
	Mn t	Mn t	Mn t
Pacific	292.9	415.3	398.7
Europe	11	7.5	8.0
USA	0.1	1.2	1.3
<b>Total</b>	<b>304.0</b>	<b>424.0</b>	<b>408.0</b>

<sup>1)</sup> Estimated, incl. Lignite  
Source: Prepared figures by McCloskey

LB-T8

The largest individual buyers are found in Asia and include above all India, Taiwan, South Korea and Japan as well as China.

The Largest Buyers of Indonesian Coal			
	2012	2013	2014 <sup>1)</sup>
	Mn t	Mn t	Mn t
India	94.6	116.8	134.4
China	81.4	102.5	62.2
Japan	35	37.7	35.6
South Korea	37.8	36.0	35.6
Taiwan	28.6	28.0	26.9

<sup>1)</sup> Provisional, partly estimated  
Source: McCloskey, without lignite

LB-T9

Export to the Asian market will remain dominant, and the focus for Indonesian exports will continue to be Kalimantan.

Key Figures Indonesia			
	2012	2013	2014
	Mn t	Mn t	Mn t
Hard Coal Output	386	342	389
Steam Coal Exports	304	335	315
Imports Germany	0	0	0
Export Rate in %	79	98	81

Source: Own calculations

LB-T10

## RUSSIA/UKRAINE

### General

Russian mining was in better financial condition in 2014. The substantial devaluation of the ruble enabled Russian coal mining companies to offer their production at lower prices on the world market. This has created substantial financial advantages for the coal exporters. There are reports that prime costs on a dollar basis have declined by 50%, accompanied simultaneously by a rise in revenues from coal exports in rubles of 30%. Analysts assume that the cost advantages from the ruble devaluation will remain effective for about one year. The companies must take advantage of this period to reduce their prime costs on the ruble basis as well, e.g. through rationalisation and modernisation of mining technologies. Mining technology from Germany, on the other hand, has become more expensive because of the devaluation of the ruble, making it difficult to secure new delivery orders. According to German Trade & Invest, German exports of mining technology to Russia declined in value from €349.1 million in 2012 to €264.4 million in 2013 and even further to €160.3 million in 2014. A reversal of this trend for German manufacturers is not in sight for 2015, either, in view of the current political and economic situation in Russia. This shows that the threats of sanctions from the EU and the USA are taken seriously in Russia. Efforts to become autonomous and a turning to Asian partners have suddenly taken on a high priority. We will have to wait and see whether a sustained paradigm shift among the supplier countries for investment goods on the energy market becomes apparent. The reverse side of the coin from the ruble devaluation is an enormous inflation rate. Russia's inflation rate in 2014 came to 11.4% in comparison with the previous year.

**Ukraine** and its mining industry have suffered tremendously from the conflict with the pro-Russia separatists. Production of 65 million tonnes in 2014 represented a decline by 18 million tonnes p.a. (22%). The country has been hard hit economically and found itself in an energy crisis as well because shortages in supplies of Ukrainian anthracite to combined heat and power plants occurred. Combined heat and power plants previously supplied 40% of Ukraine's electricity. Faced with a lack of genuine options, there was no choice but to procure anthracite or electric power from Russia. About 1 million tonnes of coal were imported from South Africa. In view of continuous demand for 4 to 5 million tonnes a month in the winter months, however, this is only a small contribution; what is more, the quality of the supplies was presumably no better than semi-anthracite. The situation is only likely to worsen as long as the crisis continues. The International Monetary Fund (IMF) has issued a memorandum on the economic and financial policies in Ukraine recommending the introduction of a new system for taxation of the mining industry. The Ukrainian government have agreed to this proposal. It foresees a tax system for the Ukrainian raw material industry based on international best practice and includes a review of the current amount of the royalties.

### Production

Russia is one of the leading coal producing and exporting countries. Russia's secure 190 billion tonnes of coal mean that it has the world's second-largest coal deposits. The Russian government have revamped their strategy for the coal industry covering the period until 2030 so that these Russian resources can be developed. According to this programme, Russian coal production will be increased to just under 500 million tonnes p.a. until 2030. Additional coal-fired power plants with output of 26 GW

are scheduled for construction so that the future demand for electric power can be satisfied to a greater extent from coal deposits. But coal will not only be used domestically. Russia would like to become a major coal exporter in the future. An increase in Russian export volume, however, will require in particular improvements in the infrastructure.

Coal Production in Russia			
	2012	2013 <sup>2)</sup>	2014 <sup>2)</sup>
	Mn t	Mn t	Mn t
Coking Coal <sup>1)</sup>	74		
Steam Coal	279		
Total	353	347	356
<sup>1)</sup> Incl. Anthracite			
<sup>2)</sup> A division in coking coal and steam coal was not possible			
Source: Several			

LB-T11

Coal production in Russia rose only slightly by 9 million tonnes in comparison with the previous year to about 356 million tonnes. Domestic demand for coal declined because of the falling demand for power generation, private households and utility companies of 12 million tonnes from about 181 million tonnes in 2013 to about 169 million tonnes.

The focus of Russian hard coal mining is on the Kemerovo area where 57% of the country's total output is produced. A group of mines located here, 63 in total, are technically obsolete, however, and they are scheduled for closure by 2018. The largest company in Russia, the Siberian Coal Energy Co. (SUEK), produced 98.9 million tonnes, 2.5% more than in 2013, and exported 7.5%

more coal, 45.6 million tonnes in total. OAO Kuzbassrazrezugol produced about 1.5 million tonnes less in 2014. Owing to initiated production curtailments and stockpile reductions, Mechel produced 22.6 million tonnes (about 18%) less than in 2013. In contrast, further investments were made in the Elga coal complex and its coal deposits of 2.2 billion tonnes. Plans foresee output of 11.7 million tonnes of coal annually from this mine when operating at full capacity from 2017 on; output will be transported to the Far East ports over the railway line of 321 km built by Mechel and connected to the Baikal-Amur railway line. Total investments have been given at US\$2.5 billion. Since high-quality coking coal is supposed to be produced in Elga, the coking plant located near the coal mine would be in a position to convert 2.7 million tonnes of coking coal into coke.

The most important Russian producers developed as shown below:

The Largest Russian Coal Producers		
Producers	2013 *	2014 *
	in Mn t	in Mn t
SUEK	96.5	98.9
OAO Kuzbassrazrezugol	43.9	42.5
Siberian Business Union (SBU)	24.5	25.0
Yuzhkuzbassugol	12.5	10.8
Vostsibugol	15.7	16.0
Raspadskaya	7.8	10.2
Mechel	27.5	22.6
Total	228.4	226.0
* Partly estimated or projected		
Source: Several, business reports of companies		

LB-T12



Russia's largest opencast pit for coal in the Republic of Khakassia in southern Siberia was officially opened at the beginning of 2015. The company Razrez Arshanovsky is the owner of the mine, which is supposed to produce 10 million tonnes annually when operating at full capacity. A railway line with a loading station is now in planning. Russia can increase its production and exports only if the existing capacity bottlenecks in the transport of the coal to the seaports are eliminated. The capacities of the railway and port infrastructure are especially inadequate in Russia's Far East. The Russian Ministry of Energy would like to invest five trillion rubles in the expansion of the infrastructure; most of the funds for this purpose are supposed to come from private sources. The Russian railway company transported 315.4 million tonnes of coal in 2014, an increase of 1.5% over 2013.

## Infrastructure

Coal Export Ports of Russia			
	2012	2013	2014 <sup>1)</sup>
	Mn t	Mn t	Mn t
<b>Baltic Sea Ports and North Russia</b>			
Murmansk	11.7	14.8	15.5
Vysotsk	3.3	5.3	5.9
Riga	14.9	16.5	16.6
Ventspils	7.0	6.6	5.7
Tallinn (Muuga)	0	0	0
St. Petersburg	0	0	0
Ust-Luga	15.3	16.2	17.6
Miscellaneous	1.7	2.3	2.0
<b>Total</b>	<b>53.9</b>	<b>61.7</b>	<b>63.3</b>
<b>South Russia and Ukraine</b>			
Mariupol (Ukraine)	1.3	0.9	0.4
Tuapse (Russia)	2.8	3.0	3.2
Yuzhny (Ukraine)	0.3	0.4	0.4
Miscellaneous	7.9	7.6	7.9
<b>Total</b>	<b>12.3</b>	<b>11.9</b>	<b>11.9</b>
<b>Russia Far East</b>			
Vostochny	21.3	22.6	27.7
Vanino	1.1	19.6	24.7
Miscellaneous	16.2	13.3	15.8
<b>Total</b>	<b>38.6</b>	<b>55.5</b>	<b>68.2</b>
<b>Total</b>	<b>104.8</b>	<b>129.1</b>	<b>143.4</b>
<i>1) Partly estimated</i>			
<i>Source: Argus Media</i>			

LB-T13

Export

In response to the rise in demand from abroad on the one hand and the decline in domestic demand on the other, Russia exported about 14 million tonnes more in seaborne trade than in the previous year, a total of 143.4 million tonnes. In addition, another approximately 23 million tonnes were traded in domestic traffic with former CIS states and China. Total exports came to just under 166 million tonnes.

Key Figures Russia			
	2012	2013	2014
	Mn t	Mn t	Mn t
<b>Coal Output</b>	353	347	356
<b>Hard Coal Exports <sup>1)</sup></b>	117	130.8	143.4
• Steam Coal	109	116	
• Coking Coal	8	14.8	
<b>Imports Germany</b>	11.6	13.1	13.7
• Steam Coal	10.5	12	12.3
• Coking Coal	0.8	0.9	1.2
• Coke	0.3	0.2	0.2
<b>Export Rate in %</b>	33	37	40
<i>1) Seaborne only</i>			
<i>Source: Own calculations</i>			

LB-T14

In Germany, total imports from Russia increased by 0.6 million tonnes to 13.7 million tonnes, making Russia the most important coal supplier for Germany once again.

USA

General

2014 was a year of crisis for the American coal industry. The companies producing coking coal in particular are struggling with the low world market prices and their own high production costs. The consequence will be a process of consolidation and shrinkage. Companies will have to cooperate, merge and trim the fat from their organisational structures if they are to continue profitable production. In 2014 alone, 12 American and Canadian mining companies announced production curtailments and mine closures with a magnitude of about 20 million tonnes p.a. The number of workers in coal mining declined significantly. Some companies have already filed for Chapter 11 bankruptcy.

The situation is not much better for the companies producing steam coal. Power consumption in the USA is no longer rising at the rates of previous years thanks to increased energy efficiency in electric and electronic devices, the ongoing replacement of coal-fired power plants with power plants fired with low-cost shale gas and the plan initiated by President Obama to reduce emissions in the energy sector nationwide to 30% below the level of 2005 by 2030. This could force coal-fired power plants (almost exclusively) to cease operations and would be a major blow to the coal-producing and coal-consuming industry.

The US Chamber of Commerce fears that coal-fired power plants with an output of 114 GW might close over the next 16 years and that the electricity prices for consumers could rise by US\$17 billion annually despite the

low price of shale gas. The American Environmental Protection Agency (EPA) itself estimates that power generation using coal will decline by 20% to 22% between now and 2020. According to information from the US Energy Information Administration (EIA), American power generating companies expect shutdowns totalling 16 GW in power generation capacities, 12.9 GW (81%) of this amount in coal-fired power plants, for 2015. New construction is supposed to total 20 GW – 9.8 GW from wind power, 6.3 GW using gas, 2.2 GW from photovoltaics and 1.1 GW from nuclear power, but no coal-fired power plants.

A study by Wood Mackenzie concludes that, in view of current prices, the production of 162 million short tons (about 17%) of current American coal output is unprofitable. There are still variances from one region to the next; 72% of the coal production in the central Appalachians and 47% of production in the southern Appalachians is unprofitable. Coking coal makes up the lion's share. Consequently, closures or output curtailments among the companies producing steam coal of the same magnitude as for coking coal have not been observed. Possible reasons for this are that domestic demand for coal rose because colder weather conditions in some areas and the consequent greater demand for natural gas caused an increase in gas prices as well, making coal-fired power generation more attractive again, or that supplies to power plants were based on long-term contracts with higher prices or that there was an advantage from transport costs because of the proximity to the power plant.

## Production

Coal remained the largest primary energy source used for power generation in 2014 as well. Owing to weaker worldwide demand and the continuing fall in steam coal

prices, however, export slumped, resulting in turn in pressure on production. According to provisional announcements, however, production was increased by 12 million tonnes over 2013 to about 904 million tonnes. Coal had a 19% share in the energy mix in 2014. The share of coal in power generation increased from 37% in 2013 to 39% in 2014. In the reference case in its Energy Outlook 2015–2040, the EIA assumes that production will grow annually until 2040 by 0.5% in comparison with 2015 and that the share of coal in power generation will rise by 0.3% annually; the share of renewable energies will grow by 1.9% p.a. The strong US dollar is a factor working against this forecast as it effectively reduces production costs denominated in US dollars for non-American coal producers in comparison with their local currency.

Moreover, it is also assumed that natural gas prices will continue to be very low, and this could result in increased use of natural gas for power generation to the detriment of coal.

We must wait and see how great the additional burden on coal-fired power plants resulting from the draft for the limitation of CO<sub>2</sub> emissions from newly constructed coal-fired and gas-fired power plants proposed by the Environmental Protection Agency (EPA) at the request of President Barack Obama will be in view of the upcoming presidential elections. The Republicans have shown little liking for this policy.

Break of Output of the USA			
	2012	2013	2014
	Mn t	Mn t	Mn t
Appalachian	266	246	245
Interior	163	166	170
Western	493	480	489
<b>Total</b>	<b>922</b>	<b>892</b>	<b>904</b>
Source: EIA			

LB-T15

Infrastructure

The decline in exports meant that the infrastructure capacities of railways and ports were used even less fully than in 2013. However, developments differ from one port to another. Extrapolated for the year from figures from the first three quarters, exports have fallen to no more than about 40 million short tons, a decline of 12% in comparison with the same period in 2013 (45 million short tons). Shipments from Norfolk Southern's Lambert Point, extrapolated for the year, fell from about 19 million tonnes to about 16 million tonnes. Dominion Terminal Associates (DTA) exports declined from about 14 million short tons to 12 million short tons in 2014. Shipments in 2014 declined by 4 million tonnes to 10.6 million tonnes at Kinder Morgans Pier IX as well.

The last two years and the dismal prospects for 2015 have led to the cancellation of several infrastructure projects. According to the Institute for Energy Economics and Financial Analysis, capacities of 234 million short tons and exports with a magnitude of about 80 million short tons indicate that there is no need for new coal ports. At this time, only the Millennium Bulk Terminal Project in Washington State (planned annual capacity of 44 million tonnes) and the Gateway Pacific Terminal Project, also in

Washington State and near the Canadian border (annual capacity of 53 million tonnes), are still under construction; volumes passing through these ports will be earmarked for Asia. These projects are the targets of strong opposition and legal actions by environmental protection organisations, however.

Export / Import

Exports USA 2014			
	Coking Coal	Steam Coal	Total
	Mn t	Mn t	Mn t
Seaborne	53.3	28.9	82.2
Overland (Canada)	3.9	1.9	5.8
<b>Total</b>	<b>57.2</b>	<b>30.8</b>	<b>88.0</b>
Source: McCloskey			

LB-T16

Seaborne exports of about 82 million tonnes focused on Europe (about 44 million tonnes), Brazil and Korea (over 7 million tonnes each). Germany was once again the largest customer in Europe, but it decreased its imports by just under 1 million tonnes to 11 million tonnes of coking coal and steam coal. Imports to the USA rose by 2 million tonnes.

Import-Export Balance USA (Seaborne)						
	2009	2010	2011	2012	2013	2014
	Mn t	Mn t	Mn t	Mn t	Mn t	Mn t
Export (seaborne)	44	64	91	107	100	82
Import (seaborne)	19	16	11	7	7	9
<b>Balance</b>	<b>25</b>	<b>48</b>	<b>80</b>	<b>100</b>	<b>93</b>	<b>73</b>
Source: McCloskey						

LB-T17

### Key Figures USA

	2012	2013	2014
	Mn t	Mn t	Mn t
<b>Hard Coal Output</b>	<b>922</b>	<b>892</b>	<b>904</b>
<b>Hard Coal Exports (seaborne)</b>	<b>114</b>	<b>106</b>	<b>82</b>
• Steam Coal	50	58	29
• Coking Coal	59	56	53
<b>Hard Coal Imports</b>	<b>8</b>	<b>8</b>	<b>10</b>
<b>Imports Germany</b>	<b>9.8</b>	<b>12</b>	<b>11</b>
• Steam Coal	7.1	9	8
• Coking Coal	2.7	3	3
<b>Exports Rate in %</b>	<b>12</b>	<b>12</b>	<b>10</b>

Source: Several and own calculations

LB-T18

## COLOMBIA

### General

According to information from Germany Trade & Invest published at the end of 2014, Colombia continues to be one of the most dynamic countries in Latin America. Although the construction industry and rising consumption are driving growth, however, industry and the raw material sector are lagging behind expectations. The loss of value in the peso should reduce imports, and a planned tax reform will presumably increase corporate levies significantly, causing companies to cut back on investments.

Colombia's economy grew by 5.4% in the first half of 2014, faster than any other country in Latin America, and increased by 4.8% in comparison with the previous year. After President Santos was re-elected in June 2014, a peace agreement with the FARC guerrillas moved within

reach. The economy would profit from such an agreement in the long term. GDP of 4.3% is forecast for 2015. The decline in the prices of raw materials had a visibly negative impact on growth.

There was a corresponding fall in government revenues, above all a consequence of the level of the world market price. Wanting to be in close alignment with the market, the Colombian government decided to make use of the Argus price assessments for the calculation of the royalties for coking coal as well. The royalties for steam coal are calculated on the basis of the API 2 index issued by Argus/IHS McCloskey.

The IG BCE joined with the Friedrich-Ebert Stiftung in Colombia and the EnBW AG in Bogotá to organise a conference on the subject of human rights and sustainable mining operations in Colombia. For the first time, companies, trade unions and government sat down together at a table to discuss conditions in Colombian mining operations. The goal of the conference was to initiate a process that would lead to sustained improvements in conditions. According to Michael Vassiliadis, president of the IG BCE, some success has already been determined at the political level. For instance, at the insistence of the trade unions, clear commitments have been made to the implementation of international standards in the free trade agreement between the EU and Colombia. The IG BCE is also supporting the efforts of German companies and politicians to ensure fair working conditions in Colombian coal production for the European market.

Production

Colombia's coal sector was affected by heavy rainfall in autumn 2014, but the production losses that resulted were limited. On the contrary, the long-lasting drought conditions in Q3 2014 were one reason for limitations in operations aimed at reducing dust pollution and evading possible conflicts with the environmental agencies at an early stage. Nor did any strikes lasting a longer period of time occur. Cerrejón, for instance, concluded agreements with the trade unions for pay increases corresponding to the rise in consumer prices plus 2% at the beginning of 2015; this was the equivalent of an increase of 5.6% and is identical with the results achieved by the Fenoco Railway with the trade unions in December 2014.

Hard coal production in Colombia rose by about 3.6% to 88.6 million tonnes p.a. in 2014. The Colombian Ministry for Energy and Mining expects total production of about 100 million tonnes for 2015. Cerrejón alone, the largest producer, produced 33.7 million tonnes (previous year 32.6 million tonnes), 3.4% more than the year before.

Output in Cesar Department, where the mines belonging to Drummond, Glencore and Goldman Sachs are located, rose in the first nine months by 15.5% to 47.3 million tonnes. The production target in Drummond's mines El Descanso and Pribbenow was raised to 24 million tonnes for 2014. Production in La Guajira Department (Cerrejón and Caypa mines) came to 34.4 million tonnes; the joint production from the departments Boyacá, Cundiamarca, Santander and Norte de Santander came to 6.9 million tonnes.

Steam Coal Exports by Companies			
Exporter	2012	2013	2014
	Mn t	Mn t	Mn t
Cerrejon	32.8	33.7	34.2
Drummond	25.6	20.0	23.2
Glencore	14.3	16.4	18.3
Goldman Sachs (CNR)	5.2	2.8	0.033
Other (incl. central Colombia)	1.9	0.7	1.4
<b>Total</b>	<b>79.8</b>	<b>73.6</b>	<b>77.1</b>
<i>Source: Own evaluation</i>			

LB-T19

Infrastructure

There was substantial expansion in the infrastructure for transport and export of coal in 2014. Within a very short period of time, export capacity increased from 92 million tonnes p.a. to 135 million tonnes p.a.

The second shiploader in Cerrejón's loading port Puerto Bolivar began operation in September 2014. When the full loading capacity of the two loading machines that operate simultaneously is reached, Puerto Bolivar's loading capacity will have increased from 32 million tonnes p.a. to 40 million tonnes p.a. Additional refitting could increase capacity to 60 million tonnes per year if this is justified by the international price level and the demand for coal.

Puerto Drummond currently has a capacity of 30 million tonnes p.a. This capacity will be 60 million tonnes per year when maximum operation is achieved. Colombia National Resources (CNR), a subsidiary of Goldman Sachs, will ship its coal via Puerto Drummond in future. An agreement to this effect has been signed. Prodeco

opened its new port Puerto Nuevo (near Santa Marta) with transshipment capacity of 21 million tonnes p.a. in the middle of 2013. Part of this capacity is also available to third parties, but no contracts for its utilisation have been signed.

Carbosan, a coal port near Santa Marta with a capacity of 7 million tonnes per year, had throughput of 2 million tonnes per year in 2014 (well below its capacity) because Glencore began shipping coal from the La Jagua Mine from its new port. The structural problem for this port is that the coal must be transported from the mines to the port by lorry.

Puerto Brisa is a new coal port for Capesize ships located near the city Dibulla in Guajira Department and to the south-west of Puerto Bolivar. Operational startup with initial capacity of 3 million tonnes p.a. was planned for the end of 2014. Capacity could be increased to 30 million tonnes per year during a second phase.

Coking coal and coke from central Colombia are largely exported through smaller ports. Expansion work in these ports could increase export capacity by another 3–4 million tonnes p.a.

The decisive problem in Colombia, however (with the exception of Drummond, Cerrejón and Glencore), is the lack of transport infrastructure from central Colombia to the export ports.

The situation has prompted the Colombian government to award a contract of US\$1.3 billion for improvement of the navigability of Colombia's longest waterway, the Magdalena River. The upgrading of the river, which will take

13 years, is aimed at reducing transport costs from central Colombia by 30%.

When the Colombian central railway system with a length of 875 km is completed, coal transport from central Colombia to the export ports will be another alternative.

Two railway lines, one between La Dorada and Chiriguana and the other between Bogotá and Belencito, have been overhauled. When they finally go into operation, they could meet the Fenoco line in Chiriguana. It could then be possible to transport coal, especially coking coal, from the country's interior to the ports in the north, reducing the transport costs by 40% in comparison with transport by lorry.

## Export

Colombia was able to increase exports in 2014 in comparison with the same period of the previous year. Although an increase by 3.5 million tonnes to 77.1 million tonnes of hard coal reinforced Colombia's status as the fourth-largest seaborne export country for coal, the expectations were significantly higher. A monthly all-time high, however, was posted at 7.87 million tonnes in September 2014.

Colombian steam coal goes primarily to the Atlantic market. Of the total exports of steam coal (74.9 million tonnes), 71% went to European countries, including Turkey, Israel and Morocco, and the rest went to North and South America. No volumes were exported to Asia in 2014.

Exports to Europe increased slightly by 0.4 million tonnes. Exports to Germany, on the other hand, declined significantly by 2.4 million tonnes to about 7.4 million tonnes. Exports to the USA posted a plus of 25% to 5.6 million tonnes, a major increase over 2013. The greatest decline was in exports to Asia, which fell to 0 million tonnes.

Steam Coal Exports <sup>1)</sup> – Structure of Colombia			
	2012	2013	2014
	Mn t	Mn t	Mn t
<b>America</b>	<b>17.0</b>	<b>20.0</b>	<b>21.9</b>
North America (USA + Canada)	6.2	6.1	7.1
South and Central America	10.8	13.9	14.8
<b>Asia</b>	<b>4.2</b>	<b>1.0</b>	<b>0.0</b>
<b>Europe</b>	<b>58.6</b>	<b>52.6</b>	<b>53.0</b>
Mediterranean Region	24.8	20.7	22.9
North-West Europe	33.8	31.9	30.1
<b>Total</b>	<b>79.8</b>	<b>73.6</b>	<b>74.9</b>
<sup>1)</sup> Coking coal and coke are not included in the export figures Source: MCR, own calculations			

LB-T20

Key Figures Colombia			
	2012	2013	2014
	Mn t	Mn t	Mn t
<b>Hard Coal Output</b>	<b>89.2</b>	<b>85.5</b>	<b>88.6</b>
<b>Hard Coal Exports</b>	<b>81.0</b>	<b>74.7</b>	<b>77.1</b>
• Steam Coal	79.8	73.6	74.9
• Coking Coal	1.2	1.1	2.2
<b>Imports Germany</b>	<b>9.4</b>	<b>9.8</b>	<b>7.4</b>
<b>Export Rate in %</b>	<b>91</b>	<b>87</b>	<b>86</b>
Source: Several evaluations			

LB-T21

# REPUBLIC OF SOUTH AFRICA

## General

According to the publication of the Canadian Fraser Institute regarding the annual worldwide survey of mining companies, South Africa has fallen out of the list of the 10 best mining investment regions in Africa. The report assesses 122 countries worldwide for geological incentives and the scope of government policies related to the promotion of investments and exploration. South Africa is now only the 11th-most attractive African investment target in the resources sector following the Republic of Congo. There are many varied reasons for this development, but they include the following:

- Economic growth for 2014 was the lowest in South Africa for 5 years.
- The large number of strikes, including a five-month strike in the platinum mines, cost about 1.5% of economic growth.
- Frequent load shedding and wide-area power failures have negatively affected industry's trust.
- The high level of political-union organisation among the workforce and the inadequate labour laws.

This ranking result contradicts to some degree the significance of coal in South Africa. South Africa has 70% of all coal found on the African continent. Four-fifths of its electricity are generated in coal-fired power plants, and it can clearly be seen even now that this will not change for many years because there are no acceptable alternatives.



South Africa belongs to the “Top Ten Producers” in the world and is a leading coal-exporting nation. About 90% of all of the coal burned in Africa comes from South Africa. Other African countries such as Botswana or Mozambique have rich coal deposits as well, but the infrastructure in these countries has not been developed extensively enough and additional investments in these countries are required (see Mozambique below).

The regulatory environment is and will remain uncertain. Statements made by the Minister of Mining about the future role of coal have been unsettling. The background is the much-discussed revision of the Minerals and Petroleum Resources Development Act from the year 2004 that has been adopted, but not yet signed by the president. The new act splits natural gas and oil apart from other mining activities, and the Chamber of Mining was successful in warding off government intervention in coal price developments during negotiations. Recently, however, the Minister of Mining has been quoted to indicate that coal is evidently a candidate for classification as strategically significant. Moreover, the Minister wants to reopen the parliamentary debate on the act (which has not been enacted) and possibly move to influence the pricing of coal by the companies after all. There are suspicions that the government’s plan here is to have the coal industry sell coal at significant price discounts to the South African coal-consuming industry as a means of stimulating the economy. Eskom in particular would profit from such a move, especially because some of the long-term contracts are expiring and their renewal is being offered only at higher prices owing to increased costs. The development could have a disastrous effect on exports and will have to be watched closely.

Another in a series of confusing decisions is the intention of the governmental Department of Mineral Resources (DMR) to accelerate the development of a state-owned mining corporation (SOMCO) for the purpose of supplying the state-owned power utility Eskom with significant quantities of coal. The existing state-owned company African Exploration and Mining Finance Company (AEM-FC) is to be renamed SOMCO and the other governmental coal mining activities are to be transferred to this company. In the opinion of the private coal mining industry in South Africa, however, this will allow the state to play the roles of both a player and a referee in the competition with the private coal industry.

There is at least good news about occupational safety. Although official figures have not yet been released, reports indicate that fatal accidents in South African mines declined overall in 2013.

## Production

In view of the developments described under the section “General”, it will come as no surprise that South Africa’s coal production increased only slightly. South African production appears to have risen only by a little less than 2% to 261 million tonnes, thereof 257 million tonnes steam coal, 3.5 million tonnes anthracite and almost no coking coal. Still, there are questions as to how long the demand of the state utility company Eskom can be secured using low-cost coal. Eskom estimates its own shortfall in coal requirements between 2019 and 2040 at 1.8 billion tonnes of the total consumption of 4 billion tonnes, a situation prompting the company to look for ways to diversify its procurement sources. At the moment, Eskom’s coal requirements are covered by 4 companies. Heavy rainfall at the beginning of March in Mpumalanga and Limpopo

Provinces led to supply bottlenecks for the Eskom coal-fired power plant Kendal, for instance, and the plant had to be shut down as a consequence.

In addition, future production costs could be raised by a further overproportional increase in bulk goods freight costs by the state-owned transport and logistics company Transnet and by an increase in electricity prices. The latter were raised by 12.69 % in 2014, and according to government plans are not supposed to increase by more than 12% p.a. over the next 4 years. Transnet wants to conclude take-or-pay contracts with the most important coal-exporting companies. A contract of this type with a volume of about US\$2 billion has already been concluded with BHP Billiton. Transnet intends to conclude contracts like this with its other 28 customers.

The domestic markets in South America consumed the following quantities in 2014:

Consumption of the Domestic Markets			
	2012	2013	2014
	Mn t	Mn t	Mn t
Power Generation	132	120	117
Synthetic Fuels (Sasol)	45	39	40
Industry / Metallurgical Industry	20	18	12
<b>Total</b>	<b>197</b>	<b>177</b>	<b>169</b>
Source: IHS Energy SAR			

LB-T22

While Glencore has announced that it will curtail production from the Optimum Mine by 10 million tonnes p.a. for cost reasons, there are also new projects.

Coal is supposed to start coming out of the Boikarabelo Mine owned by the company Resource Generation in December 2015. Output from the deposits in Limpopo Province is initially supposed to be 6 million tonnes p.a.; this will be increased to a capacity of 25 million tonnes per year. The state-owned mining company AEMFC wants to open two new mines that are expected to supply coal to the Eskom power plants from 2017. Furthermore, Anglo American is planning the New Largo Project in Mpumalanga Province. This new mine that has not been opened yet, in compliance with the Black Economic Empowerment regulations (BEE), is supposed to supply coal to the Eskom power plant Kusile, a new construction with output totalling 4,800 MW.

Anglo Thermal Coal is currently testing a new application. A mixture of fungi and coal is being produced under the name "Fungcoal" in a bioconversion facility; the mixture would enable the recultivation of mines over one vegetation period that would last 60 years if left to natural processes.

Infrastructure South Africa

Development of the infrastructure continues to be overshadowed by fundamental differences of opinion between the state-owned railway operator Transnet and Richards Bay Coal Terminal (RBCT), the largest port for coal exports, and its shareholders. True, Transnet's thoughts about building its own export coal port next to the existing one have been dismissed, but on the other hand, the negotiations about the transport contract for coal in the form of a take-or-pay contract have still not led to an agreement.

The negotiations for transports from Waterberg Basin, on the other hand, are progressing. Contracts for 10 million

tonnes per year have been concluded as of now. This quantity is supposed to be transported from the newly opened mines from 2016.

Exports Through South African Ports			
	2012	2013	2014
	Min t	Mn t	Mn t
RBCT	68.3	70.9	71.9
Durban	2.4	0.8	0.8
Maputo/Mozambique	4	1.2	1.2
<b>Total</b>	<b>74.7</b>	<b>72.9</b>	<b>73.9</b>

Source: IHS South African Coal Report No. 2218

LB-T23

In 2014, 71.9 million tonnes of coal were exported via RBCT, an increase of 1 million tonnes over the previous year; the facility has a capacity of 91 million tonnes p.a.

## Export

Exports increased slightly by 1 million tonnes in 2014 and totalled just under 77 million tonnes.

Structure of the Seaborne Exports in 2014				
	Total Europe <sup>1)</sup>		Asia	Misc.
	Mn t	Mn t	Mn t	Mn t
Steam Coal	74.8	28.7	41.0	5.1
Anthracite	2.0	0.3	0.3	0.4
<b>Total</b>	<b>76.8</b>	<b>29.0</b>	<b>41.3</b>	<b>5.5</b>

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

Source: IHS South African Coal Report No. 2218

LB-T24

The structure of exports continued to shift towards India. India imported 30 million tonnes of steam coal, about 10 million tonnes more than in 2013, while China reduced its imports from 13.5 million tonnes to 3.3 million tonnes. Taiwan procured only 1.4 million tonnes (previous year: 5.8 million tonnes) and Pakistan purchased 3.4 million tonnes (previous year: 2.3 million tonnes). In view of India's high need for steam coal in the future, the exports to this country will presumably continue to rise.

Europe, including the Mediterranean region (Turkey, Israel and UAE) remained second to India as the most important market (29 million tonnes). Its market share rose from 28% in 2013 to 39% in 2014. The largest European consumers were Germany, Spain, Italy, the UK, Turkey and Israel.

Key Figures Republic of South Africa			
	2012	2013	2014
	Mn t	Mn t	Mn t
Hard Coal Output	260.0	256.3	260.5
<b>Hard Coal Exports <sup>1)</sup></b>	<b>76.2</b>	<b>72.8</b>	<b>76.8</b>
• Steam Coal	75.4	72.2	74.8
• Coking Coal	0.8	0.6	2.0
<b>Imports Germany</b>	<b>2.0</b>	<b>2.5</b>	<b>5.1</b>
• Steam Coal	2.0	2.5	5.1
• Coking Coal	0	0	0
<b>Export Rate in %</b>	<b>29.3</b>	<b>28.4</b>	<b>29.5</b>

<sup>1)</sup> Seaborne only

Source: VDKi

LB-T25

## MOZAMBIQUE

### General

In view of its coal reserves and deposits, Mozambique could be one of the largest coal producers and exporters. Following initial euphoria in 2014, however, a sense of realism and disenchantment has set in, and some companies have paid a high financial price. As a consequence of past experience, world market prices and the latest warning from the International Monetary Fund that the decline in coal prices poses a risk for Mozambique's development, there are virtually no new projects. Vale, Beacon Hills, Jindal and Minas de Revuboe are the only operations that are producing and exporting. Rio Tinto has sold its Benga Mine (purchased for US\$4 billion in 2011) and the Zambezi and Tete East projects for US\$50 million to the Indian International Coal Ventures Limited (ICVL). Vale has sold a 15% share in the Moatize Mine to the Japanese Mitsui Group.

The key to the resolution of many of the problems is the creation of infrastructure by the state. It would then be possible to expand exports and raise government revenues from the exports.

### Production

Owing to the aforementioned circumstances, it has not been possible to increase production as originally planned. The target of 14.4 million tonnes p.a. in 2014 subsequent to 7.7 million tonnes p.a. in 2013 as set by the government appears just as questionable as the government's goal for 2015 for production of 80 million tonnes per year.

The mining company Beacon Hill suspended coal production in the Minas Moatize Coal Mine in the middle of 2014. Trade of the stock listed on the London stock exchange was suspended at the end of 2014 and the company itself was put under administration.

The Mozambique companies Ncondezi Coal, Midwest Coal and Minas de Revuboe intend to invest about US\$2 billion in their projects between now and 2019. Vale has sold half of its 35% share in the joint venture with the CFM to the Mitsui Group. Furthermore, Mozambique has granted the licence for a mine in Mara District in the west of Tete to the Chinese company Kingo Energy. Geological tests indicate there are deposits of 504 million tonnes of coal here, 54% of it coking coal. The plan is to produce 5 million tonnes per year from underground mining in the future.

### Infrastructure

Since the state is not creating the infrastructure, it must be constructed and financed by private business. This is especially true for railway projects which are intended to improve the export of coal in the long term.

A new railway line with a total length of 912 km from the coal mines in the Moatize Basin to the port in Nacala is supposed to be completed in 2015. This joint venture of Vale and the state railway company Caminhos de Ferro de Mocambique (CFM) consists of a new line with a length of 228 km through Malawi and the upgrading of the existing railway line with a length of 684 km in Mozambique. Investment volume, including the construction of the coal port, amounts to US\$1.5 billion for the Vale share alone. Vale transported the first trainload of coal to Nacala at

the end of 2014. The goal is to export 18 million tonnes p.a. via this line in future. The Mozambique government, however, has also contracted a Thai-Italian company to prepare a railway line project with a length of 547 km from the Moatize coal mines in Tete Province to Macuse on the coast in Zambezi Province. The goal is to award the construction contract in 2018.

## Export

It can be assumed that the coal – steam and coking coal – produced in Mozambique was almost completely exported. There are no official figures, however. Vale reports that it exported about 5 million tonnes in 2014.

security for their long-term investment strategy and to secure closer cooperation between the government and investors.

In addition, a railway line, which would transport primarily coal, is supposed to be built from Botswana to the export port in Namibia. The target here is to export 60 million tonnes p.a. via the railway line with a length of about 1,500 km when the final expansion stage has been completed.

## BOTSWANA

Botswana, as well as South Africa and Mozambique, has large coal deposits. As it does not have any direct sea-port access, Botswana has concluded a basic agreement with Zimbabwe for transport of up to 10 million tonnes a year using the existing railway system in Zimbabwe for its export. Zimbabwe, however, will have to take some action itself for this purpose. This is the first step required to reach the export ports in Mozambique via Zimbabwe.

Botswana has set a coal “road map” for itself in which the ambitious plans and the steps required to realise them have been set down. A detailed development plan is supposed to be ready and the infrastructure work is supposed to commence by the end of 2015. The infrastructure development is envisioned as being completed by 2016/2017. The aim is to give potential investors more

## CANADA

### Production

Production of steam and coking coal in Canada remained stable in 2014 in comparison with 2013. Output of about 70 million tonnes was slightly higher than that of the previous year – despite the mothballing of 3 mines and the worldwide decline in prices. Lignite was produced on the order of 7 million tonnes in addition to the hard coal, which makes up about 90% of the produced coal. The producing provinces are British Colombia, Alberta and Saskatchewan. According to a report about coal production in Canada between now and 2020, average annual output of 83.6 million tonnes of coal is expected. Investments in new production capacities are confirmation of the upward trend. The number of mining licences issued in British Colombia increased sevenfold (to 122) in 2014 over 2013. This is presumably, however, because the applications were submitted during periods when coal prices were still at a high level. Nevertheless, applications for 89 new mining licences were submitted in 2013. Total output in British Colombia declined from 31 million tonnes to an estimated 29 million tonnes, a consequence of production stops in the Peace River Coalfield.

In Alberta, the total area and the number of new mining licences remained stable in comparison with 2013 at 1,233 (previous year: 1,216). The number of new applications for the grant of a mining licence rose from 561 in 2013 to 597 in 2014.

Explorations were also conducted, however. Altitude Resource Ltd., for instance, wants to develop the Elan Field (about 62 million tonnes of minable coal and 84 million

tonnes of unverified deposits), and Riversdale Resources intends to develop the Grassy Mountain Project with an estimated minable volume of 4 million tonnes by 2018.

Australian mining companies are becoming increasingly active in Canadian coal mining (green meadow projects). This is partly due to a reliable framework of mining law and good infrastructure (3 deep-sea coal export ports) and in part to British Colombia's location on Canada's west coast. The transport times from here to Asia are comparable with those from Australia to Asia. The largest project in the north-west of British Colombia is currently being developed by Atrium Coal and is the so-called Groundhog Anthracite Project in the Groundhog Basin. This is the site of the largest known anthracite deposits in the world, containing resources estimated at 1.5 billion tonnes. This anthracite could replace a part of the volume which cannot be mined at the moment because of the occupation by south-east Ukraine by separatists. The high-quality anthracite coal could also, however, replace 20% of the coke in blast furnaces in the steel industry or the quantities Vietnam has blocked from export. The typical quality of the coal is shown at 10% ash content, 5% volatile components and 83.5% fixed carbon. Initial output is planned for the end of 2014/beginning of 2015. All in all, production of steam and coking coal in Alberta rose by 1.2 million tonnes from 28.9 million tonnes in 2013 to 31.1 million tonnes in 2014.

Half of the output of steam coal and the entire lignite output from Alberta and Saskatchewan go to local power plants. Almost all of the hard coal production (31 million tonnes) – largely from British Colombia and Western Alberta – is exported as coking coal, PCI coal and, in smaller quantities (3 million tonnes), as steam coal. A decline

in Canada's steam coal consumption which has been noted results from the closure of the last of coal-fired power plant in Ontario at the beginning of 2014. Two of the four closed coal-fired power plants have been converted to biomass power plants, and additional coverage of electricity demand has come from the upgrading and startup of renewed operations at two nuclear power plants that were closed 15 years ago.

The low price level in 2014 has led to a decline in government revenues from royalties.

### Infrastructure

The Ridley Terminals shipped 7.1 million tonnes in 2014, substantially below the capacity limit of 12 million tonnes p.a. Investments of US\$200 million were planned to expand capacity to 24 million tonnes p.a. by 2014. This expansion project has been stopped, however, in view of the development of worldwide demand for coal and the coal prices. A new coal terminal in the Vancouver port for Fraser Surrey Docks, on the other hand, was approved after 26 months of processing. This coal terminal, known by the name Port Metro Vancouver, is expected to have coal transshipment capacity of 4 million tonnes p.a. and could start shipping coal transported by rail from the American Powder River Basin to Asia from autumn 2015.

### Handling Capacities 2014

Terminal	Capacities 2014	Exports 2014	Capacities 2015
	Mn t/a	Mn t/a	Mn t/a
Neptune Bulk Terminal	12.5	7.5	18.5
Westshore Terminal	33.0	30.6	36.0
Ridley Terminal	12.0	7.2	24.0
<b>Total</b>	<b>57.5</b>	<b>45.3</b>	<b>78.5</b>

Source: Business reports, own estimation

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### Exports

Seaborne exports of 34.3 million tonnes break down into about 3.2 million tonnes of steam coal and about 31.1 million tonnes of coking coal. Only 0.8 million tonnes of coking coal went overland to the USA. Total exports declined by 4 million tonnes in comparison with 2013.

### Key Figures Canada

	2012	2013	2014
	Mn t	Mn t	Mn t
<b>Hard Coal Output <sup>1)</sup></b>	67	69	70
<b>Hard Coal Exports</b>	35	38	34
• Steam Coal	4	3	3
• Coking Coal	31	35	31
<b>Imports Germany</b>	1.5	1.2	1.5
• Coking Coal	1.5	1.2	1.5
<b>Export Rate in %</b>	52	55	49

<sup>1)</sup> Incl. hard lignite

Source: Several and own calculations

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## VIETNAM

### General

Vietnam's economy is back on a successful path. According to the figures published by the General Statistics Office of Vietnam (GSO), GDP grew by almost 6% over 2013. Industry and the service sector in particular were the largest growth drivers. Growth comes essentially from exports and foreign investors. According to the GSO, exports rose by 13.6% over 2013, and Vietnam again received more than US\$20 billion in direct foreign investments. This is almost as much as in 2013 (US\$21.6 billion).

### Production

Economic growth in industry caused an increase in power consumption, in turn leading to higher consumption of Vietnamese coal for power generation. The construction of new power plants is not keeping pace with the growth in demand for electricity, forcing scheduled black-outs that could in turn lead to investment insecurity.

Nine coal-fired power plants have been built, but another 24 are planned or under construction and are scheduled to start operation in 2015. Coal demand is leaping upward as a consequence: from 43 million tonnes in 2014 to 58 million tonnes in 2015 and to 70 to 80 million tonnes in 2020.

Coverage of demand with domestic coal is supposed to rise from 26 million tonnes in 2014 to 56 million tonnes in 2015. This was the reason behind the sharp decline in exports in recent years and the growing import volumes.

The production target for the state-owned company Vinacomin (Vietnam Coal and Mineral Industries Group) was about 38 million tonnes p.a. Production conditions are difficult, however, so that only 37 million tonnes were actually produced per end of 2014. Output of 38 million tonnes is the target for 2015.

The 37 million tonnes of coal output, however, represents a decline of almost 6 million tonnes. 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 goes to exports.

Domestic production will not suffice to provide Vietnam's dynamically growing economy with adequate coal supplies. This is why the demand for imports of steam coal will rise steadily. Coal will continue to be the most important primary energy source for power generation. About 48% of the generated electricity comes from coal-fired power plants. The government consequently want to know what countries could serve as sources of imported coal in future and how the required transport and port capacities can be provided. The government estimate coal requirements for 2015 at 3 million to 15 million tonnes and expect it to grow annually to between 21 million and 40 million tonnes in 2020.

### Export

Seaborne exports again declined, this time by 5.6 million tonnes, to 7.2 million tonnes p.a. in 2014, a drop of almost 44%. These export curtailments will continue in view of the country's need to cover its own requirements.



Besides China, that buys 57% of all Vietnamese coal exports, South Korea is an especially important buyer.

### Import

Since Vietnam is changing from a net exporter to net importer, we will describe imports as well in future. In 2014, Vietnam imported about 3 million tonnes of coal, approximately 36% more than in 2013. Indonesia covered over 50%, Australia 17.5% of these imports.

Key Figures Vietnam			
	2012	2013	2014
	Mn t	Mn t	Mn t
Output	44.5	42.6	37.0
Export	15.2	12.8	7.2
thereof China	12.1	13.1	4.1
Export Rate in %	34	30	20
Imports	---	---	3.1

*Source: Several evaluations*

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## PEOPLE'S REPUBLIC OF CHINA

### General

After three decades of extraordinary economic development, China appears to be moving in the direction of a slower and more sustainable course of growth. According to a communiqué from the National Bureau of Statistics (NBS) of the People's Republic of China regarding China's national economic and social development in 2014 (Statistical Communiqué) of 26/02/2015, the economy grew by 7.4% in comparison with 2013. Although China continues to be the economic locomotive for Asia and the world, this is the lowest rate of growth in 24 years. The decline in the construction and housing sector is the primary reason for the lower increase in GDP. While China's population grew by 7.1 million to 1.3678 billion in 2014 and consumer prices rose moderately by 2%, the area of converted space for housing under construction in the 70 largest and midsize cities of China fell by a total of 10.7% and that of new housing construction by a total of 14.4%, above all in the second half of the year.

This development also impacted other segments of the industry such as steel, cement and concrete and will presumably continue in 2015 as well. The government are seeking to increase GDP by 7.5% in 2015. In the short term, only investments in the infrastructure could produce an economic boost.

All in all, the Chinese economy – including the coal industry – is in a phase of transition from the overheated to a normal state. The Chinese government want to intro-

duce additional reforms to achieve more domestic consumption and sustained, strong and socially compatible economic growth over a longer period of time. Less investment, but instead more innovation and environmental protection will be promoted.

Crude steel production rose by only 0.9% to 823 million tonnes, while pig iron production increased by only 0.4% to 711 million tonnes

Power/Crude Steel/ Pig Iron Production		2012	2013	2014
Power Generation	TWh	4,875	5,245	5,523
Crude Steel Production	Mn t	724.0	815.0	823.0
Pig Iron Production	Mn t	669.0	708.0	711.0

*Source: world-steel, NBS, Statistical Communiqué of 26/02/2015*

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At the end of 2014, installed power generation in China amounted to 1,360 GW, an increase of 113 GW (+9%), according to statistics from the National Energy Administration (NEA). The installed coal-fired power plant output in 2014 came to about 915 GW, increasing by about 6% (53 GW) in comparison with 2013. The share of coal-fired power plants in the total installed power generation capacity fell from 69.1% to 67.3%. Installed hydroelectric power capacity rose by almost 22 GW (8%) to 302 GW. New wind farms with a capacity of 21 GW were installed, and the total installed wind power capacity at the end of 2014 amounted to about 96 GW. This is an increase of

more than 25% in comparison with the previous year. Percentage-wise, the greatest increase was posted by nuclear power plants and photovoltaics. Nuclear energy capacity rose by 5 GW (36.1%) to almost 20 GW. Capacity in solar parks rose by 10.6 GW in 2014 to a total of 28 GW, an increase of 60%.

Chinese power generation capacities will continue to rise, but no longer as rapidly as in the past. The expansion target for hydroelectric power set for 2015, for instance, was reached in 2014. The China Electricity Council assumes growth of 91 GW for 2015: 13.7 GW hydroelectric power, 42 GW coal, 6.6 GW nuclear power, 18 GW wind and 9.9 GW photovoltaics. On the other hand, the National Energy Administration gives capacity of 17.8 GW as the target for additional construction of solar parks in 2015, corresponding to an increase of about 90%. Total installed capacity at the end of 2015, taking closures into account, would then reach a new all-time high of 1,440 GW. The share of coal in the Chinese primary energy mix fell from 66% in 2013 to 64.2% in 2014.

Power generation and consumption rose once again, but significantly more slowly than in previous years. According to the Statistical Communiqué, total power generation rose by 4% to 5,650 TWh while power generation using coal fell for the first time by 0.3% to 4,234 TWh, most likely a consequence above all of the policies causing the shutdown of old coal-fired blocks in large cities and their replacement with gas-fired power plants and increased power generation from renewable sources. Power consumption in 2014 rose by 3.8% (previous year: 7.5%) to 5,523 TWh and could increase by 6% to almost 5,900 TWh in 2015 according to estimates of the state-owned grid operator. However, the rise during Q1 2015 was only

0.8%. The impact of the growing number of power plants using renewable energies can also be seen in the utilisation hours and the specific consumption of coal per generated kWh of the coal-fired power plants. In 2010, the utilisation time of coal-fired power plants amounted to 5,370 hours, but this figure had declined to only 4,706 hours in 2014. A report from Reuters shows that specific consumption of coal rose in 2014 by 3% to an average of 318 grams of coal per generated kWh of electricity.

## Production

The Chinese coal industry was and is still facing enormous challenges. Prices for coking coal and steam coal in China fell by 23% and 26%, respectively, in 2014 in comparison with 2013 and put a number of companies in a precarious economic position. Developments in the Chinese coal industry simultaneously have major impact on the world hard coal market as a whole. According to the Statistical Communiqué, coal output fell by 2.5% to 3.87 billion tonnes. This revealed that the output of 3.63 billion tonnes given by the Bureau for Statistics for 2013 was too low. The output for 2013 was corrected by increasing it to 3.97 billion tonnes in the Statistical Communiqué.

The decline was caused by weaker demand in conjunction with surplus supply and the resulting downward pressure on prices. Over the course of 2014, the Chinese government initiated a number of measures for the support of the coal industry. Since the state-owned coal mining companies in China hold a share of about 62% of the Chinese coal supply, some of the measures impacted the companies directly. The following were among these measures:

- Incentives for curtailment of output and implementation of instruments for the monitoring of production capacities
- Reduction of fees and levies by the provinces
- Import duties of 3% on coking coal and 6% on steam coal
- Reduction of export tax from 10% to 3%
- Introduction of limits on certain trace elements in coal as a means of improving air quality in the densely populated urban areas on China's east coast

The new Air Policy Action Plan has set an objective of reducing the share of coal in the total Chinese primary energy consumption from 66.8% (2012) to 65% in 2017. Because of missing or inadequate permits or for occupational safety reasons, China Coal, for instance, a state-owned company, closed down a mine with annual production of 1.8 million tonnes p.a. after the collapse of a roof and a mine with output of 12 million tonnes per year in Xinjiang without further ado. The government also issued orders shutting down as well all companies that were producing above their planned capacity. Responsibility for the approval of new mines with output in excess of 1.2 million p.a. was taken from the provinces and assigned to the national reform commission to enable better management.

Furthermore, the consolidation of the domestic coal industry in China was driven forward in 2014. Impetus comes from the unchanged need to improve environmental and occupational safety standards in the smaller and midsize mines by merging or closing them. Following closures of 628 mines in 2012 and another 770 mines in 2013, an additional 800 mines were initially scheduled for closure in 2014. This number was increased, how-

ever, by the State Office for Occupational Safety in Coal Mining to 1,725 and a cumulative output capacity of 117 million tonnes per year. This is in contradiction to the original plan to close (only) 2,000 mines between 2013 and 2015 and can be explained at best by the apparent intention to drive ahead the closures of smaller mines. Initially, however, only 800 will be permanently closed, and others will be merged into larger mining companies, where they will presumably be preserved for the moment without dismissing the miners. The majority of the mine closures have taken place in Hunan (156), Yunnan (120) and Sichuan (100) Provinces.

According to information from the State Institution for Occupational Safety Research, the number of coal mines is to be reduced from 12,000 in 2013 to fewer than 6,000 in 2020.

Furthermore, the government have announced a production curtailment of 150 million tonnes and a reduction in imports by 40 million tonnes for the last quarter and underscored the seriousness of its intention by issuing corresponding requirements to the state-owned operations. China Shenhua Energy, China's largest state-owned coal mining company, announced as early as July 2014 that it would reduce sales by 50 million tonnes and lower production by 10% in 2015. The annual report shows that Shenhua sold 451 million tonnes of coal in comparison with 518 million tonnes in 2013. Shenhua's production was 306 million tonnes of coal in comparison with 318 million tonnes in 2013. Many companies and even provinces, however, have not complied with the central government's orders for many different reasons so that the set target of reduction by almost 200 million tonnes was not achieved in 2014.

Individual provinces, however, announced output curtailments in their areas to implement the government decisions. Shanxi Province, for instance, expects output of just under 1.1 billion tonnes in 2015, although Shanxi Province has a permit to produce up to 1.32 billion tonnes p.a. Shandong Province wants to reduce coal consumption of 400 million tonnes per year in future by generating less electricity with coal or by replacing old coal-fired power plants with new and more efficient plants. Shaanxi Province wants to reduce approved output capacity of 1.36 billion tonnes per year to 1 billion tonnes p.a. by 2020 and will not approve any new mines. Coal output in Shaanxi came to 976 million tonnes in 2014. Hebei Province reported a decline in output of about 87 million tonnes (about 7%) in 2014 resulting from the closure of 64 mines.

Another reason for the declines in output because of weaker demand is related to the increased installation of renewable energies and new nuclear power plants as well as heavy rainfall that enabled increased production from hydroelectric power plants. One visible sign for overproduction of coal is documented by the stockpile figures. In comparison with 2013, coal stockpiles at the power plant locations rose by 17.1% to a total of 94.6 million tonnes and stockpiles at the coal mines rose by 2.6% to 87 million tonnes.

At the end of 2014, the Chinese national government initiated three additional measures for reduction of output: a coal tax at a maximum rate of 10%, initially on the quantity, but later corrected to the coal sales price ex mine (ad valorem), is to be levied by local authorities in accordance with the importance of coal for the region, the quality of the coal and the competitiveness of the specific coal

mining companies within the predetermined range. At the same time, the companies are released from payment of certain levies to the province. The provinces where the economy is strongly influenced by coal mining have set the highest tax rates. Inner Mongolia, for instance, collects 9%, Shanxi 8% and Shaanxi 6%. This measure is superficially justified as a means of promoting energy conservation. The coal tax, however, is especially hard on the small mining companies that even now cannot operate at a profit or only at a small profit and could be forced to discontinue their operations. According to Morgan Stanley Research, 22% of the coal companies are operating at a loss today, even without the coal tax.

Additional limits on coal consumption have been set for environmental protection reasons in certain regions on the east coast, including Beijing, Hebei, Shandong, Shanghai and Jiangsu. Beijing, for instance, is supposed to consume 13 million tonnes p.a. less coal by 2017 (from 22.7 million tonnes in 2012). Tianjin wants to lower consumption by 10 million tonnes p.a. (from 52 million tonnes p.a. in 2012), and in Hebei consumption is to be reduced by 40 million tonnes p.a. from 313 million tonnes in 2012; the specific measures necessary to achieve these goals must still be defined in detail. The national government also want to lower coal consumption in the industry sector by 160 million tonnes by 2020 and, even earlier, by 80 million tonnes by 2017, above all by implementing measures for the improvement of efficiency in existing industrial boilers or by changing over to natural gas.

The current overcapacities in Chinese coal mining, however, cannot be decisively reduced even by the complete bundle of actions. We must wait and see whether the measures implemented since 01/01/2015 actually shore

up coal prices and secure sustainably profitable coal mining while simultaneously making the consumption of coal efficient and more environmentally friendly. Specific requirements regarding calorific values and ash and sulphur content of coal were defined for power generation using coal in 2014 with the objective of reducing air pollution. Inner Mongolia alone, China's second-largest coal region, had to reduce output compared to 2013 by 86 million tonnes (almost 12%) to 908 million tonnes in 2014, while the two other coal regions (Shanxi and Shaanxi) increased production by 1.5% and 3.6% to 977 million tonnes and 511 million tonnes, respectively, contrary to government orders.

Coal Production of the Largest Mining Provinces and Companies in China		
	2013	2014
	Mn t	Mn t
Inner Mongolei	994	908
Shanxi	960	977
Shaanxi	493	511
Shenhua Energy	303	306
China Coal	119	114

Source: Various analyses

#### LB-T30

The implemented reduction of the export duty and the re-introduction of the duty on imported coal could also have a decisive effect on production.

As of 1 January 2015, duties on the export of all types of coal will decline from 10% to only 3%. The reduction of the coal tax is intended to stimulate exports and help to improve the financial situation of some mining compa-

nies. In view of the current world market price level and the production costs of many Chinese mines, however, it remains to be seen whether these measures will have a significant impact on production.

The situation is different for the coal import duty and the prohibition to sell coal – whether Chinese or imported – of certain low qualities. After initial plans for introduction of the duty were announced in 2013, the bill was revised three times.

Per 01/01/2015, coal with an ash content higher than 16% and sulphur content greater than 1% may no longer be sold in Beijing, Tianjin, Hebei or neighbouring districts or in the Yangtze and Pearl River deltas.

Import duties were set on anthracite and coking coal (3% per tonne), on other bituminous steam coal (6% per tonne) and all other bituminous coal (5% per tonne) based on the value of the goods.

The intention of these duties is clear, namely, to protect domestic coal mining from imports by making the imported coal more expensive so that the Chinese mining companies can either sell their coal at lower prices or raise the prices of their coal to the same level, as appropriate. There are several interpretation questions, however, that could not initially be clarified clearly. Additional restrictions were placed on the import of coal by implementation of the additional quality requirements for coal regarding trace elements of mercury, arsenic, phosphorus, chloride and fluorine. The requirement that the coal be tested by a Chinese analysis institute in the discharging port before its import was the object of special criticism. This could lead to the rejection of entire cargoes. Efforts are being

made to allow the companies exporting the coal to conduct the analyses in the producing countries so that only coal in compliance with the required quality is shipped in the first place.

Research and the subsidisation of coal gasification also aim at making the utilisation of coal more environmentally friendly. China is the leader in the application of new coal refinement technologies. Coal gasification plants above all are being built on a larger scale and could in the long term stabilise the sale of coal. In Inner Mongolia, a private company has started up commercial operations of the first phase of the coal gasification plant with a capacity of 2 billion m<sup>3</sup> p.a. A second plant with a capacity of 1.375 billion m<sup>3</sup> p.a. started operating in Xinjiang in the middle of 2014. Another 16 plants with a total capacity of 66 billion m<sup>3</sup> p.a. are under construction.

China has also published a draft of an emission trading act that would require companies submitting an inadequate number of CO<sub>2</sub> certificates for their emissions to pay. As much as US\$49 per tonne of CO<sub>2</sub> would be charged in this case. The point in time at which the act will enter into effect is still open.

The production of 476.9 million tonnes of coke in China in 2014 was only 0.1% higher than in the previous year. The largest producing areas in China are Shanxi (87.2 million tonnes; -3.5% over 2013), Hebei (56.1 million tonnes (-12% over 2013) and Shandong (46.0 million tonnes, +4.9% over 2013).

Lignite output is included in the total production quantity of 3.87 billion tonnes. According to the Energy Study 2013 from the German Federal Institute for Geosciences

es and Natural Resources, 145.0 million tonnes of lignite were mined in China in 2012. Information from China Coal Resource, however, shows that the following quantities of lignite were mined:

Lignite Extraction in China	
Year	Production in Mn t
2011	339.81
2012	371.40
2013	299.09
2014	271.74

Source: China Coal Resource

LB-T31

Owing to the lack of separately disclosed quantities in the available official Chinese statistics, the figures from China Coal Resource have been used in this annual report and lignite production of 272 million tonnes has been recognised for 2014. Accordingly, hard coal production in China in 2014 amounted to 3.87 billion tonnes less 0.272 billion tonnes lignite = 3.598 billion tonnes hard coal, about 3.6 billion tonnes. Figures for previous years have also been adjusted.

## Infrastructure

China's infrastructure is being steadily expanded. Xuzhou, the large port in Beijing-Hangzhou, has completed a new coal terminal with an annual capacity of 14 million tonnes.

Shenhua has started construction of a new coal stockpile and transshipment hub in Gaolan port in Guangdong. This project with a planned annual capacity of almost 41

million tonnes is scheduled to go into operation after a construction period of 17 months.

The construction of transport capacities by rail has been intensified in particular. The Hebei region has started operation of a new railway line between Handan and Huanghua. The line, 460 km long and costing US\$2.74 billion, is able to transport 40 million tonnes p.a. today, and the laying of a second track is supposed to increase capacity to 200 million tonnes per year. In Huanghua, the expansion of the Shenhua coal terminal in Huanghua port with additional transshipment capacity of 50 million tonnes went into operation at almost the same time as the completion of the railway line.

The coal province Shanxi, after a construction period of 5 years, has started operation of the Wari railway line, 1,260 km long and running from Luliang in central Shanxi to Rizhao port in Shandong. The new line has a transport capacity of 100 million tonnes per year and is supposed to be expanded in future to 200 million tonnes p.a. The distance from the south of Shanxi to the ports can be reduced by 1,500 km thanks to the new railway lines. Total investments have been given at US\$17.3 billion.

Moreover, China's national reform commission has agreed to the conduct of a feasibility study for a project involving the construction of two railway lines in Hebei Province. The sale of coal could be substantially increased with this project. A new railway line (Hexing Line), 134 km in length, is supposed to connect the east of Shanxi with the Hanhuang Line; the second railway line (Duofeng Line), 145 km in length, will connect Inner Mongolia and the port Caofeidan via the railway line Zhangtang already in operation.

In total, according to the Statistical Communiqué, new railway tracks with a length of 8,427 km began operation in 2014, 7,892 km of lines were expanded by the addition of a second track and 8,653 km of electrified tracks began operation – all in all, about 25,000 in one year.

Import/Export

China's import development had a clear impact on the hard coal world market in 2014. China's changing role from that of a net exporter to that of a net importer of hard coal which has been observed for a number of years has lost some of its significance. China decreased its imports of hard coal by almost 15% in comparison with 2013.

Import/Export Development			
	2013	2014	Difference
	in Mn t	in Mn t	in Mn t
Imports Steam Coal	191.9*	165.5*	-26.4
Imports Coking Coal	75.4	62.4	-13.0
<b>Total Imports</b>	<b>267.3</b>	<b>227.9</b>	<b>-39.4</b>
Exports Steam Coal	6.0*	4.5*	-1.5
Exports Coking Coal	1.1	0.7	-0.4
Exports Coke	4.7	8.6	3.9
<b>Total Exports</b>	<b>11.8</b>	<b>13.8</b>	<b>2.0</b>
* Incl. anthracite, without lignite			
Source: McCloskey CCR			

LB-T32

Lower imports of almost 40 million tonnes and lower exports of 1.5 million tonnes of steam coal have in total impacted the world market in the amount of 38.5 million tonnes, and it was not possible to compensate this amount by imports of other Asian countries or In-

dia. Despite the reduction in imports, Australia was able to increase its exports to China by 6.5 million tonnes and rose to become China's largest coal trading partner for steam coal (58 million tonnes compared to 52 million tonnes in the previous year), followed by Indonesia (26 million tonnes compared to 39 million tonnes in the previous year, excluding lignite and sub-bituminous coal). Vietnam supplied 6.5 million tonnes of anthracite (-50%), largely to south-west China. But coal was also imported from the Atlantic region. Canada decreased its exports to China by 33% (7 million tonnes of coking coal), and South Africa exported 5.7 million tonnes less steam coal to China, half the volume of 2013.

Total Chinese exports increased by 2 million tonnes to about 14 million tonnes in 2014. The export of steam coal declined further by 1.5 million tonnes to 4.5 million tonnes (including anthracite) while the export of coking coal was reduced by 0.4 million tonnes to only 0.7 million tonnes. Coke exports, on the other hand, increased by 3.9 million tonnes over 2013 to 8.6 million tonnes. The major customers were India (2.5 million tonnes), Japan (2.3 million tonnes) and Brazil (0.6 million tonnes). The largest customers for Chinese steam coal in 2014 were South Korea (1 million tonnes) and Japan (0.8 million tonnes).

China remained the world's largest importer of hard coal, importing 228 million tonnes of hard coal. Imports of steam coal remain high above all because they are driven by the market and prices. The transport routes from the north of China to the south-east are longer and the costs are higher than the ship transport from Australia or Indonesia to China. The primary importers are thus



first and foremost the power plants located on the east coast and in the south of China.

As a consequence of the announced measures, a further decline in imports is to be expected for 2015.

Key Figures People's Republic of China <sup>1)</sup>			
	2012	2013	2014
	Mn t	Mn t	Mn t
Hard Coal Output	3,613	3,671	3,598
<b>Hard Coal Exports</b>	<b>9.0</b>	<b>7.1</b>	<b>5.6</b>
• Steam Coal	7.7	6.0	4.8
thereof Anthracite	3.2	2.6	2.3
• Coking Coal	1.3	1.1	0.8
<b>Coke Exports</b>	<b>1.0</b>	<b>4.7</b>	<b>8.6</b>
<b>Hard Coal Imports</b>	<b>243.3</b>	<b>267.3</b>	<b>228.0</b>
• Steam Coal	155.2	152.3	135.2
• Coking Coal	53.6	75.4	62.4
• Anthracite	34.5	39.6	30.4
<b>Imports Germany</b>	<b>0.01</b>	<b>0.01</b>	<b>0.12</b>
Steam Coal	0.009	0.008	0.02
Coke	0.002	0.002	0.1
<b>Export Rate in %</b>	<b>0.2</b>	<b>0.2</b>	<b>0.4</b>
<sup>1)</sup> Without lignite Source: Several evaluations			

LB-T33

# MONGOLIA

## General

The largest resource for Mongolia is its gigantic coal deposits.

TaTavan Tolgoi is the largest deposit in Mongolia. It has estimated reserves of 6.4 billion tonnes of coal, 40% of it coking coal. Shivee Ovoo is the second-largest coal deposit in Mongolia. According to information from Germany Trade & Invest, it extends over a length of 774 km, and information from the Golomt Bank indicates reserves of 5.6 billion tonnes of lignite; while this coal plays an important role for power generation in Mongolia, it has no significance for exports.

Ovoot Tolgoi is the fifth-largest deposit and has reserves of 364 million tonnes. The opencast pit is located in South Gobi Province, only about 40 km from the Chinese border. The Canadian company South Gobi Resources holds mining rights to the steam coal and coking coal deposits.

A new raw materials policy for the time from 2014 to 2025 was adopted by the government at the end of 2013/beginning of 2014 in conjunction with more extensive reforms for mining. The government's objective in adopting the new policy is to promote coal mining, limit their own role with respect to regulation and supervision and encourage transparent, responsible and environmentally acceptable coal mining. The concept of the "strategic deposits", however, was retained. This means that the state will continue to hold shares of up to 50% in the deposits being developed. In general, it is expected that investment activities will again increase in response to this policy and that as much as US\$3 bil-

lion in private funds are available for the development of new deposits.

On the other hand, however, rising inflation, devaluation of the currency and a decline in foreign investments of 70% occurred in the first half of 2014, leading to GDP growth of only 5.3% for the first six months (in comparison: in 2011, GDP growth in the same period was 17.5%). These factors caused the government to rethink their position and to change their attitude towards Russian or Chinese investments; there has been a certain reserve or even rejection in the past because of Mongolia's geographic position between Russia and China. Both Russia and China have concluded bilateral agreements regulating the sectors transport, infrastructure, mining, education and communication with the Mongolian government. The primary obstacle to the opening of the coal deposits is the lack of infrastructure, especially of railway lines to Russia as well as to China.

## Production

Because of Mongolia's location – surrounded by Russia and China – Chinese companies have been especially interested in securing the developing coking coal deposits for themselves.

Mongolia has much more ambitious plans, however. According to a report of the Mongolian science and technology university, Mongolia wants to increase production to more than 100 million tonnes by 2025 and to 125 million tonnes by 2030. According to estimates from the Ministry of Mining, exports could increase to 65 million tonnes p.a. over the next 10 years and to 70 million tonnes p.a. by 2030.

Reports, including the annual report from MMC (no official statistical data are available), indicate that 29 million tonnes were produced in 2014, corresponding to a decrease of 4 million tonnes. These figures include the output of lignite.

## Infrastructure

The infrastructure is still the Achilles heel for coal exports. The railway line, 267 km in length, connecting the Ukhua Khudag Mine in South Gobi with Gashuun Sukhait on the Chinese border is scheduled for completion in 2015. Shenhua has concluded an agreement with Mongolia to build a 13-km-long railway connection between Gashuun Sukhait and Ganqmod on the Mongolian-Chinese border. Shenhua operates its own railway line in Ganqmod that runs to Wanshuiquan in Baton. From there, coal can be transported further on Shenhua's own rails to the Huanhua port.

In addition, the Mongolian government announced in 2014 that they would invest US\$5.2 billion in the greatest expansion of the nationwide railway network. The objective is to construct a number of connections to Inner Mongolia in China and to replace the current, inefficient lorry transport. According to the Mongolia Ministry of Transport, there are also plans to invest US\$2 billion in the extension of the trans-Mongolian line from Russia to China.

Tavan Tolgoi, the largest deposit, is subdivided into six regions. Five of these regions belong to the company Erdenes Tavan Tolgoi, a subsidiary of the state-owned Erdenes MGL. The Mongolian Mining Corporation (MMC) holds the mining rights to the Ukhua Khudag region. MMC has been mining coking coal in opencast pits since 2009 and produced 4.6 million tonnes in 2014. The large-

est section of Tavon Tolgoi is the deposit Tsankhi, which is divided into an eastern and a western sector. Erdenes Tavon Tolgoi is already mining coal at East Tsankhi. The rights to development and mining in the West Tsankhi region have become part of a new offer after China Shenhua Energy (PR China, 40% of the shares), Peabody (USA, 24%) and a Russian-Mongolian syndicate (36%) were initially awarded a contract.

At the end of 2014, the syndicate China Shenhua Energy (China), Energy Resources (Mongolia), a wholly-owned subsidiary of MMC, and Sumitomo Corporation (Japan) were awarded a contract by the Mongolian government to develop the deposit to which the state retains the mining rights. Estimates indicate that investments of about US\$4 billion will be required for all of the measures such as mining, transport and sale of the coal and the construction of a railway line and washing facility with annual capacity of 30 million tonnes.

## Export

Mongolia clearly felt the effects of the Chinese government's restrictions on imports in the second half of 2014. Although exports to China in 2014 rose in total over 2013 by 6% to 19.5 million tonnes, there was a decline of 1.1 million tonnes in comparison with 2012. China imported 62.4 million tonnes of coking coal, about 17% less than in 2013. According to the MMC annual report, Australia was able to increase its market share of China's coking coal import market from 40% to over 50% while Mongolia increased its share only from 20.5% to 23.7%. In total, Mongolia exported 14.8 million tonnes of coking coal, 19% less than in 2013. In the second half of 2014 alone, exports of coal to China declined by 23.7% in comparison with the same period of the previous year while exports

during the first six months in 2014 rose by 26.2% over the comparable period in 2013.

In the longer term, China's decision to open 8 Chinese ports for the export of Mongolian coal to third-party nations could trigger positive stimulus for exports and production. Should the Chinese government intend to reduce coking coal imports even further in 2015, this would hit the new Mongolian mining companies with high startup costs especially hard.

# POLAND

## Production

The crisis in the Polish coal industry, one of the country's key industries, continued in 2014. The Polish government intend to close four coal mines; newspapers report that this will result in losses of up to US\$54 million a month. Moreover, Poland wants to restructure the state-owned coal mining company Kompania Weglowa, a measure that will above all cause the loss of jobs and immediately sparked protests by the trade unions. The plan now is to soften the effects of the adaptation process by providing government aid. This has been decided in an agreement with the trade unions. The agreement is subject to the approval of the EU, however, because it involves direct state aid to the industry. Poland is currently negotiating with EU for a loosening of the strict rules for direct state aid in the coal sector so that the restructuring of Polish coal mining, which is long overdue, will be socially tolerable. About 103,000 miners still work in Polish coal mining, a reduction by more than 5,000 workers in comparison with 2013.

Poland consumes over 70 million tonnes of hard coal. More than 90% of the power and heat production is based on lignite and hard coal. But production is declining steadily. In 2014, 72.5 million tonnes of hard coal were produced as well as lignite (63.7 million tonnes), a decline of 4 million tonnes over 2013. Of the 72.5 million tonnes, 60.2 million tonnes are steam coal and 12.3 million tonnes are coking coal. While lignite is produced in opencast pits, all of the hard coal comes from underground mines of great depth, a feature which causes high production costs. In view of the low world market prices at this time, the companies are hard-pressed to avoid finan-

cial difficulties. At this time there are still 25 coal mines. The state-owned company Kompania Weglowa with 15 production sites produced 31 million tonnes in 2014, 12% less than in the year before (35.2 million tonnes).

The largest private mining company, Lubelski Wegiel BOGDANKA S.A., proved that this decline is not inevitable. The company produced 9.2 million tonnes from underground mines in 2014, an increase of almost 11% over the previous year. Other coal mines also decreased their production or were able to increase it slightly.

The Largest Hard Coal Producers in Poland				
Company	Output		Exports <sup>1)</sup>	
	2013	2014	2013	2014
	Mn t	Mn t	Mn t	Mn t
Kompania Weglowa S. A.	35.2	31.0	8.1	5.6
Katowicka Holding Weglowy	11.9	10.7	0.5	0.5
Jastrzebska Spółka Weglowa S. A.	13.6	13.9	0.5	0.5
LW Bogdanka	8.3	9.2	0.0	0.0
Other Mines	7.5	7.7	0.5	2.2
<b>Total</b>	<b>76.5</b>	<b>72.5</b>	<b>9.6</b>	<b>8.8</b>

<sup>1)</sup> Exports partly estimated  
Source: Own calculations

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Polish production of coking coal of 12.3 million tonnes p.a. and coke production of 9.4 million tonnes represented a slight increase. Coke production in 2014 increased by 0.3 million tonnes in comparison with the same period of the previous year. Stockpiles could not be reduced, and there were still about 7 million tonnes of steam coal in stockpiles at the end of 2014.

Although Poland has a share of about 60% of European hard coal production, it also imports. Poland again became a net importer in 2014. Imports of 10.3 million tonnes were in contrast to exports of 8.8 million tonnes. The imports consist essentially of 7.9 million tonnes of steam coal, but there are also smaller quantities of coking coal (2.4 million tonnes). The steam coal came primarily from Russia (6.5 million tonnes) and the Czech Republic (1 million tonnes) and is used mostly in northern Poland. The coking coal comes from Australia (1.2 million tonnes) and the Czech Republic (0.4 million tonnes).

## Infrastructure

In 2014 there were no changes in the transport infrastructure, which is too large for the current export volume. The export logistics in Poland are well developed. Weglokoks exported 2.15 million tonnes of the total exports of 5.6 million tonnes by rail.

Seaside loading ports include Gdansk, Swinoujscie, Szczecin and Gdynia. Weglokoks exported 3.45 million tonnes of coal by sea in 2014.

## Export

Exports of hard coal by Weglokoks in 2014 decreased considerably by 2.5 million tonnes to 5.6 million tonnes according to Polish data, but imports of 10.3 million tonnes and total exports of 8.8 million tonnes mean that Poland remains a net importer. Of the exported 8.8 million tonnes, 5.6 million tonnes were marketed by Weglokoks; 3.2 million tonnes were marketed directly by the mining companies. The quantities marketed by Weglokoks were exported by sea (52%) and land (48%) transport. Coke exports also increased. Coke exports of 5.9 million tonnes correspond approximately to the value of the pre-

vious year. Exports in 2014 break down as shown below (Weglokoks only):

Export 2014			
	Coking Coal	Steam Coal	Total
	Mn t	Mn t	Mn t
Seaborne	---	2.9	2.9
Overland	0.3	2.4	2.7
<b>Total</b>	<b>0.3</b>	<b>5.3</b>	<b>5.6</b>

*Source: Weglokoks*

LB-T36

The largest customers for steam coal were Germany (about 2.9 million tonnes) and the Czech Republic (about 2.6 million tonnes).

Key Figures Poland			
	2012	2013	2014 <sup>1)</sup>
	Mn t	Mn t	Mn t
<b>Hard Coal Output</b>	79.3	76.5	72.5
<b>Hard Coal Exports</b>	7	10.8	8.8
• Steam Coal	5.4	8.5	6.8
• Coking Coal	1.6	2.3	2.0
<b>Coke Exports</b>	5.4	5.9	5.9
<b>Hard Coal Imports</b>	10.1	10.9	10.3
<b>Imports Germany</b>	4	4.3	4.4
• Steam Coal	2.4	2.9	2.9
• Coking Coal	---	0.1	0.0
• Coke	1.6	1.3	1.5
<b>Export Rate in %</b>	18	24	23

<sup>1)</sup> Provisional  
Source: Several evaluations

LB-T37

# CZECH REPUBLIC

## Production

In 2014, the production of hard coal in the Czech Republic of about 8.7 million tonnes was only a little more than the 8.6 million tonnes of 2013. Of the total output, 4.6 million tonnes are coking coal and 4.1 million tonnes are steam coal. The low world market prices and relatively high production costs were a heavy burden on the Czech coal industry for yet another year. In addition, there is the average doubling of the development royalty. The development royalty varies depending on whether hard coal or lignite is mined and whether it is mined in opencast pits or underground mines.

Coke production in 2014 came to 2.53 million tonnes and was slightly higher than the previous year (2.35 million tonnes). Lignite production came to 38.2 million tonnes, a decrease of 2.3 million tonnes from 2013.

## Infrastructure

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

## Export/Import

Exports of hard coal and coke amounted to about 4.7 million tonnes, thereof 4.1 million tonnes of coal and 0.5 million tonnes of coke. A large part of the exports consists of coking coal (1.6 million tonnes). The Czech Republic imported about 3.2 million tonnes of coal and coke.

Key Figures Czech Republic			
	2012	2013	2014
	Mn t	Mn t	Mn t
Hard Coal Output	11.4	8.6	8.7
Hard Coal Exports	5.4	4.8	4.1
Coke Exports	0.4	0.4	0.5
Imports Germany	0.3	0.7	0.7
• Steam Coal	---	0.4	0.4
• Coke	0.3	0.3	0.3
Export Rate in %	52	62	58
(Coke converted into coal)			
Source: Euracoal			

LB-T38

# VENEZUELA

## Production

The problems for the Venezuelan coal industry appear to be growing in severity and Venezuela's role as a coal-exporting nation is declining in importance. In the first half of 2014, hard coal output of 0.47 million was a further decline by 34% over the previous year; over the year as a whole, however, only to 2.01 million tonnes. An exact breakdown of production according to the mines of Carbones de la Guajira's Mina Norte and Carbones del Guasare's Paso Diablo is no longer possible.

Production at the largest mine Paso Diablo officially ceased upon the expiration of the mining licence in October 2014. The mine is allowed to continue to produce small quantities and, when it is mixed with Colombian coal, to export it, however, as a way to prevent social unrest. The Venezuelan government has issued a special permit to Paso Diablo for this purpose. Exports to Europe amounted only to 0.2 million tonnes, a further decline by 0.4 million tonnes over 2013.

<b>Production / Exports by Company <sup>1)</sup></b>			
	<b>2012</b>	<b>2013</b>	<b>2014</b>
	Mn t	Mn t	Mn t
Carbones Del Guasare	1.5	0.93	0.6
Interamerican Coal	0.6	0.54	0.6
Carbones De La Guajira	0.2	0.17	0.4
Miscellaneous	0.4	0.4	0.41
<b>Total</b>	<b>2.7</b>	<b>2.04</b>	<b>2.01</b>

<sup>1)</sup> Estimation  
Source: Own calculation

LB-T39

## Infrastructure

The existing infrastructure has become even worse because of the expiration of the contract between Carbozulia and Coeclerici from Italy regulating the rights for the utilisation of the Wayún bulk goods transfer station. At this time, only self-loading ships can be loaded.

## Export

Exports in 2014 remained at about 2.0 million tonnes, the level of the previous year. Brazil and the USA were the largest customers with 0.65 million tonnes and 0.3 million tonnes, respectively; Europe bought 0.2 million tonnes, almost 60% less than in 2013.

<b>Key Figures Venezuela</b>			
	<b>2012</b>	<b>2013</b>	<b>2014</b>
	Mn t	Mn t	Mn t
<b>Hard Coal Output</b>	2.7	2.04	2.0
<b>Hard Coal Exports</b>	2.7	2.04	2.0
<b>Imports Germany</b>	0.11	0.06	0.0
• Steam Coal	0.11	0.06	0.0
<b>Export Rate in %</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Several evaluations

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**World-Energy Consumption by Source of Energy and Regions** MTCE

Source of Energy	2008	2009	2010	2011	2012	2013
Mineral Oil	5,617	5,400	5,754	5,836	5,913	5,979
Natural Gas	3,898	3,700	4,083	4,167	4,266	4,319
Nuclear Energy	886	900	900	859	800	805
Hydro Power	1,000	1,000	1,100	1,136	1,191	1,224
Hard Coal and Lignite	4,724	4,900	5,080	5,189	5,320	5,467
other and Renewables	255	280	162	286	342	392
<b>Total</b>	<b>16,380</b>	<b>16,180</b>	<b>17,079</b>	<b>17,473</b>	<b>17,832</b>	<b>18,186</b>
<b>Region of Consumption</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	Shares in % <b>2013</b>
North America	24.8	23.8	23.1	22.7	21.8	21.4
Asia/Australia	35.3	37.1	38.1	39.1	40.3	39.9
since 2013 EU-28	15.8	14.4	14.5	13.9	13.0	12.3
CIS	7.8	7.4	8.3	8.3	8.5	8.1
Other regions	16.3	17.3	16.0	16.0	16.4	18.3
<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>Coal Consumption</b> (Hard Coal and Lignite)	<b>4,724</b>	<b>4,688</b>	<b>5,080</b>	<b>5,189</b>	<b>5,320</b>	MTCE <b>5,467</b>
<b>Region of Consumption</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	Shares in % <b>2013</b>
North America	18.9	16.2	15.6	14.5	12.6	12.8
Asia/Australia	61.0	65.7	67.1	67.9	69.7	70.5
since 2013 EU-28	9.5	7.9	7.9	8.3	7.9	7.5
CIS	5.2	4.6	4.8	4.7	4.9	4.7
Other regions	5.4	5.6	4.6	4.6	4.9	4.5
<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>

Considered were only commercial traded sources of energy.  
Source: BP Statistical Review of World Energy until 2013

Table 1

World Hard Coal Production / Foreign Trade <sup>1)</sup>									M t (t=t)
	2009			2010			2011		
	Production	Export	Import	Production	Export	Import	Production	Export	Import
Germany	15	0	36	14	0	41	13	0	44
France	0	0	10	0	0	19	0	0	15
Great Britain	18	0	38	18	1	27	18	0	32
Spain <sup>2)</sup>	9	0	18	9	0	13	7	0	15
Poland	78	9	10	77	14	10	76	7	16
Czech Republic	11	6	2	12	7	2	11	6	2
Romania	4	0	5	4	0	4	4	0	5
<b>since 2013 EU-28</b>	135	15	189	134	22	182	129	13	199
Russia	300	100	25	321	97	10	336	107	2
Kazakhstan	80	25	0	106	29	1	108	30	0
Ukraine	72	4	0	76	6	10	82	0	10
<b>Countries Total</b>	452	129	25	503	132	21	526	137	12
Canada	28	28	2	33	33	9	33	33	9
USA	983	53	19	984	74	15	994	97	11
Colombia	70	66	0	75	72	0	86	81	0
Venezuela	4	4	0	4	4	0	4	4	0
<b>Countries Total</b>	1,085	151	21	1,096	183	24	1,117	215	20
<b>South Africa</b>	250	63	0	250	68	0	252	67	0
<b>Australia</b>	344	273	0	355	300	0	346	281	0
India	532	0	59	537	0	86	554	0	114
China <sup>3)</sup>	2,910	23	127	3,410	19	166	3,650	15	183
Japan	0	0	162	0	0	184	0	0	175
Indonesia <sup>4)</sup>	280	230	0	295	240	0	318	270	0
<b>Countries Total</b>	3,722	253	348	4,242	259	436	4,522	285	472
Other Countries	112	32	333	141	89	390	66	44	339
<b>World</b>	6,100	916	916	6,720	1,053	1,053	6,958	1,042	1,042

1) internal trade and seaborne trade 2) Production incl. "Lignito Negro"  
3) Production incl. lignite (about 50 mill. t estimated), since 2013 without lignite 4) Indonesian imports 2014: lignite included

Table 2

World Hard Coal Production / Foreign Trade <sup>1)</sup>									M t (t=t)
2012			2013			2014			
Production	Export	Import	Production	Export	Import	Production	Export	Import	
11	0	45	8	0	50	8	0	54	Germany
0	0	18	0	0	19	0	0	14	France
17	0	45	13	0	49	12	0	38	Great Britain
6	0	21	4	0	13	4	0	15	Spain <sup>2)</sup>
79	7	10	77	11	11	73	9	10	Poland
11	5	2	9	5	2	9	4	3	Czech Republic
4	0	4	4	0	3	2	0	2	Romania
129	12	214	114	16	216	108	13	205	<b>since 2013 EU-28</b>
353	127	30	347	143	22	356	166	30	Russia
121	30	0	120	30	0	120	30	0	Kazakhstan
85	0	10	84	8	11	65	5	17	Ukraine
559	157	40	551	181	33	541	201	47	<b>Countries Total</b>
67	35	10	69	39	9	70	34	8	Canada
922	114	8	905	106	8	904	88	10	USA
89	81	0	86	75	0	89	77	0	Colombia
3	3	0	2	2	0	2	2	0	Venezuela
1,081	233	18	1,062	222	17	1,065	201	18	<b>Countries Total</b>
260	76	0	256	73	0	261	77	0	<b>South Africa</b>
366	316	0	410	358	0	431	387	0	<b>Australia</b>
580	0	129	554	0	161	643	0	215	India
3,660	9	235	3,671	7	288	3,598	6	228	China <sup>3)</sup>
0	0	185	0	0	191	0	0	188	Japan
386	304	0	342	335	0	389	348	0	Indonesia <sup>4)</sup>
4,626	313	549	4,567	342	640	4,630	354	631	<b>Countries Total</b>
145	57	343	235	45	331	145	39	371	Other Countries
7,166	1,164	1,164	7,195	1,237	1,237	7,181	1,272	1,272	<b>World</b>
Sources: statistics of import and export countries, own calculations									

Sources: statistics of import and export countries, own calculations

Table 2

Seaborne Hard Coal Trade									M t (t=t)
Exporting Countries	2009			2010			2011		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Australia	134	139	273	159	141	300	133	148	281
USA	31	12	43	48	16	64	60	31	91
South Africa	1	61	62	1	67	68	1	66	67
Canada	22	6	28	27	6	33	26	6	32
China	1	22	23	2	17	19	5	10	15
Colombia	3	63	66	4	69	73	3	78	81
Indonesia <sup>2)</sup>	0	230	230	0	277	277	0	270	270
Poland	1	3	4	0	6	6	0	3	3
Russia	5	85	90	7	80	87	8	93	101
Venezuela	0	4	4	0	4	4	0	4	4
Other	3	33	36	2	30	32	3	30	33
Total	201	658	859	250	713	963	239	739	978
Importing Countries/ Regions	2009			2010			2011		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Europe <sup>1)</sup>	36	153	189	51	125	176	48	148	196
since 2013 EU-28	36	137	173	51	125	176	39	116	155
Asia	115	432	547	149	511	660	140	531	671
Japan	45	113	158	52	132	184	55	120	175
South Korea	16	81	97	19	92	111	22	107	129
Taiwan	11	59	70	5	59	64	0	66	66
Hongkong	31	85	116	32	117	149	21	109	130
China	0	12	12	0	10	10	0	13	13
India	12	47	59	26	60	86	33	81	114
Latin America	6	4	10	3	19	22	4	31	35
Other (incl. USA)	44	69	113	47	58	105	47	29	76
Total	201	658	859	250	713	963	239	739	978

Figures excl. land transport

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

<sup>2)</sup> Indonesia 2014: lignite included

Sources: evaluation of several sources

Table 3

Seaborne Hard Coal Trade										M t (t=t)
2012			2013			2014			Exporting Countries	
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total		
145	171	316	171	188	359	186	201	387		
59	48	107	56	44	100	53	29	82		
1	75	76	0	73	73	0	77	77		
30	4	34	35	3	38	31	3	34		
1	8	9	1	6	7	1	5	6		
1	80	81	1	74	75	1	75	76		
0	304	304	0	335	335	0	348	348		
0	3	3	0	6	6	0	3	3		
8	109	117	15	116	131	33	110	143		
0	3	3	0	2	2	0	2	2		
11	21	32	0	16	16	4	25	29		
256	826	1,082	279	863	1,142	309	878	1,187	Total	
2012			2013			2014			Importing Countries/ Regions	
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total		
42	193	235	43	190	233	70	140	210		
37	149	186	38	156	194	64	104	168		
139	601	740	194	658	852	199	694	893		
52	133	185	48	143	191	43	145	188		
21	105	126	21	105	126	6	125	131		
0	66	66	0	67	67	0	67	67		
34	145	179	51	158	209	48	161	209		
0	12	12	0	13	13	0	14	14		
31	98	129	54	107	161	37	178	215		
20	17	37	19	12	31	17	16	33		
55	15	70	23	3	26	23	28	51		
256	826	1,082	279	863	1,142	309	878	1,187	Total	

Table 3

World Coke Production								1,000 t
Country/Region	2008	2009	2010	2011	2012	2013	2014	
<b>Europe</b>								
Austria	1,360	1,290	1,400	1,350	1,310	1,350	1,330	
Belgium	1,983	1,570	1,880	1,867	1,788	1,654	1,260	
Bosnia-Herzegovina	816	714	920	891	694	703	656	
Bulgaria	300	0	0	0	0	0	0	
Czech Republic	3,206	2,172	2,396	2,436	2,317	2,348	2,395	
Finland	860	740	828	852	881	878	900	
France	4,422	3,170	3,110	2,841	3,186	3,331	3,231	
Germany	8,260	6,770	8,150	7,990	8,050	8,379	8,770	
Hungary	999	746	1,018	1,049	1,026	924	923	
Italy	4,455	2,724	3,708	4,154	3,907	2,880	2,680	
The Netherlands	2,166	1,700	1,882	1,998	1,860	1,967	2,000	
Poland	9,832	6,947	9,546	9,134	8,637	9,104	9,360	
Romania	1,017	237	0	0	0	0	0	
Slowakia	1,735	1,575	1,550	1,555	1,608	1,445	1,600	
Spain	2,400	1,691	2,021	2,045	1,761	1,610	1,483	
Sweden	1,174	980	1,118	1,151	1,048	1,009	1,000	
Great Britain	4,152	3,600	3,774	3,717	3,487	3,656	3,920	
<b>Europe in total</b>	<b>49,137</b>	<b>36,626</b>	<b>43,301</b>	<b>43,030</b>	<b>41,560</b>	<b>41,238</b>	<b>41,508</b>	
<b>CIS</b>	<b>50,783</b>	<b>45,379</b>	<b>48,220</b>	<b>49,673</b>	<b>48,135</b>	<b>46,657</b>	<b>42,132</b>	
<b>North America</b>	<b>19,029</b>	<b>14,550</b>	<b>19,624</b>	<b>19,632</b>	<b>19,230</b>	<b>19,204</b>	<b>18,953</b>	
<b>Latin America</b>	<b>12,275</b>	<b>9,754</b>	<b>12,350</b>	<b>13,018</b>	<b>13,593</b>	<b>12,952</b>	<b>13,171</b>	
<b>Africa</b>	<b>2,975</b>	<b>1,970</b>	<b>2,691</b>	<b>2,618</b>	<b>2,404</b>	<b>2,204</b>	<b>2,299</b>	
<b>Middle East</b>	<b>5,611</b>	<b>5,125</b>	<b>5,320</b>	<b>5,135</b>	<b>5,459</b>	<b>5,186</b>	<b>5,650</b>	
<b>Asia</b>								
China	327,000	355,100	384,060	427,790	441,620	473,050	476,910	
India	17,936	18,803	19,334	19,779	20,209	20,882	21,370	
Indonesia	0	0	0	0	0	112	991	
Japan	38,300	37,500	37,500	35,400	34,700	35,200	33,000	
South Korea	10,614	9,577	12,835	15,799	14,607	15,572	16,899	
Pakistan	370	350	323	250	150	50	50	
Taiwan	4,010	3,983	4,752	4,859	4,821	6,103	6,277	
Vietnam	200	247	384	530	447	465	641	
<b>Total</b>	<b>398,430</b>	<b>425,560</b>	<b>459,188</b>	<b>504,407</b>	<b>516,554</b>	<b>551,434</b>	<b>556,138</b>	
<b>Australia</b>	<b>3,161</b>	<b>2,498</b>	<b>3,149</b>	<b>2,982</b>	<b>2,858</b>	<b>2,619</b>	<b>2,446</b>	
<b>WORLD in total</b>	<b>541,401</b>	<b>541,462</b>	<b>593,843</b>	<b>640,495</b>	<b>649,793</b>	<b>681,494</b>	<b>682,297</b>	

Sources: Several sources, data from associations and industry

Table 4

Qualities of Steam Coal Traded on the World Market							
Exporting Countries	Volatile %	Ash %	Moisture %	Sulphur %	F. Carbon %	Grinding Index HGI	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 / Anthracite	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
<i>Indication in gross bandwidths</i> <i>Sources: see table 6</i>							

Table 5

Qualities of Coking Coal Traded on the World Market						
Exporting Countries/ 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	n.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	n.a.	7-9
Poland	23-28	7.0-8.9	0.7-1.5	0.60-0.80	n.a.	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	n. a.	8-9
Poland	29-33	6.9-8.9	0.8-1.5	0.60-1.00	n.a.	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
<i>Figures in bandwidths</i>						
<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.						
<i>Sources: Australian Coal Report, Coal Americas, companies' information</i>						

Table 6



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

Coke strength CSR-value <sup>2)</sup>	Fluidity max. ddp <sub>m</sub>	Contraction max %	Dilatation max %	Reflection middle %	Macerals reactive %    inert %		Minerals %
50-65	500-2000	20-30	25-140	1.23-1.29	38-61	36-58	3-4
60-75	34-1400	24-34	35-140	1.12-1.65	61-75	20-34	3-5
65-72	10-150	20-26	7-27	1.22-1.35	70-75	20-35	5
60-70	30-100	25-28	30-60	1.30-1.40	65-75	20-30	3
40-60	200-2000+	25-35	0-65	1.01-1.05	50-53	43-44	4-6
50-70	150-7000	19-33	(-)5-240	1.00-1.10	58-77	20-38	3-4
50-70	150-600	21-28	50-100	1.04-1.14	70-76	20-24	5
60-70	500-7000	22-18	50-100	1.10-1.50	72-78	18-24	4
n.a.	n.a.	26-32	30-120	n.a.	n.a.	n.a.	n.a.
35-55	100-4000	27-45	(-)10-60	0.69-0.83	67-84	11-28	2-5
65-75	950-1000+	23-24	35-160	0.95-1.03	61-79	18-36	3-4
50-60	600-30000	22-31	50-148	1.00-0.95	76-81	17-19	2-4
60-70	18000-26847	26-33	150-217	1.00-1.10	75-78	18-21	4
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
50-65	30-3000	27-28	108-170	1.15-1.45	60-80	15-35	5

Table 6

Hard Coal Export of Australia								1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014	
Germany	5,156	3,759	4,303	4,280	4,451	4,739	5,673	
France	3,446	2,077	2,946	2,363	2,719	3,317	3,212	
Belgium/Luxembourg	2,927	680	1,298	1,179	992	444	39	
The Netherlands	2,523	500	1,217	1,470	1,202	2,651	2,785	
Italy	2,041	1,122	1,741	1,557	1,519	821	657	
Great Britain	3,943	2,746	3,612	3,585	2,357	2,458	1,809	
Denmark	0	151	0	0	0	0	0	
Spain	2,105	776	1,715	1,337	1,118	1,062	1,436	
Portugal	0	0	0	0	0	0	0	
Sweden	1,379	716	1,825	1,092	1,057	1,056	1,071	
Other				364	379	695	1,357	
<b>since 2013: EU-28</b>	24,730	12,904	18,657	17,227	15,794	17,243	18,039	
Israel	824	672	592	498	678	496	174	
Turkey	2,242	759	1,304	787	1,221	311	633	
Romania	0	0	0	0	0	0	0	
Other Europe <sup>1)</sup>	383	350	288	0	0	0	0	
<b>Europe</b>	28,179	14,685	20,841	18,512	17,693	18,050	18,846	
Japan	117,962	101,618	117,768	106,171	113,626	123,811	119,557	
South Korea	36,797	41,662	43,629	46,037	46,201	49,819	54,804	
Taiwan	24,385	22,517	28,706	26,878	24,378	27,128	29,864	
Hongkong	303	1,175	440	895	679	446	518	
India	25,694	27,092	32,862	30,224	32,071	34,813	46,709	
China	3,295	46,546	37,069	34,000	62,894	87,923	93,239	
Brazil	5,036	3,713	3,457	2,198	2,691	3,044	4,740	
Chile	592	481	944	1,135	717	913	901	
Other Countries	17,576	13,902	15,042	15,025	15,376	12,110	17,542	
<b>Export in Total</b>	<b>259,819</b>	<b>273,391</b>	<b>300,758</b>	<b>281,075</b>	<b>316,326</b>	<b>358,057</b>	<b>386,720</b>	
<sup>1)</sup> incl. bordering Mediterranean countries								
Source: McCloskey								

Table 7

Hard Coal Export of Indonesia							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	513	86	69	34	0	0	0
The Netherlands	1,669	239	0	927	71	15	0
Italy	6,252	5,427	7,094	4,882	3,692	3,365	3,516
Great Britain	2,126	786	162	390	0	0	0
Ireland	318	0	0	0	0	0	0
Denmark	0	0	0	0	0	0	0
Spain	3,826	4,361	2,115	1,877	5,634	3,392	4,071
Slovenia	2,032	840	840	559	332	n.a.	n.a.
Other	1,014	376	2,220	851	2,071	1,638	1,053
<b>since 2013: EU-28</b>	17,750	12,115	12,500	9,520	11,800	8,410	8,640
USA	2,956	2,025	1,240	1,180	469	650	1,390
Chile	498	437	980	483	160	0	0
Japan	39,719	32,109	26,040	24,950	31,800	26,010	32,050
Südkorea	26,620	33,698	34,650	36,720	37,700	36,080	35,330
Hongkong	10,382	11,131	9,540	8,650	11,673	11,100	10,970
Taiwan	25,754	25,206	21,770	19,090	19,600	22,110	21,980
Malaysia	9,415	11,184	8,600	11,880	12,600	12,140	12,250
Philippines	6,160	7,066	5,160	6,050	9,300	10,140	9,680
Thailand	11,371	10,334	8,770	6,780	11,421	8,440	10,500
India	29,283	37,735	36,500	52,800	60,520	82,720	104,740
China	16,093	39,402	68,060	77,950	83,300	106,940	88,180
Other countries	6,259	7,844	6,164	13,836	13,657	10,550	12,330
<b>Export in total <sup>1)</sup></b>	<b>202,260</b>	<b>230,286</b>	<b>239,974</b>	<b>269,889</b>	<b>304,000</b>	<b>335,290</b>	<b>348,040</b>

<sup>1)</sup> 2014 lignite included

Sources: Own calculations, companies' information

Table 8

Hard Coal Export of Russia							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	7,800	9,449	10,308	10,731	11,227	12,841	13,494
Belgium/Luxembourg	1,867	0	0	0	0	2,620	2,304
Italy	1,723	1,017	862	2,346	2,600	4,406	4,341
Great Britain	21,434	15,501	7,332	11,592	14,600	17,748	16,200
Spain	2,623	1,439	768	1,917	2,300	2,196	2,157
Finland	3,745	4,770	2,900	5,111	2,700	3,586	3,784
Poland	5,267	1,766	1,402	1,389	1,700	1,300	1,303
Romania	1,009	222	308	438	450	460	460
Other	5,533	11,325	13,532	12,802	10,200	9,894	10,632
<b>since 2013: EU-28</b>	51,001	45,489	37,412	46,326	45,777	55,051	54,675
Turkey	2,229	8,672	9,139	8,180	9,785	8,580	8,460
<b>Europe</b>	53,230	54,161	48,551	54,008	95,562	63,651	63,135
Japan	9,960	8,718	10,575	11,608	15,292	8,422	14,519
South Korea	7,495	4,541	8,574	13,100	11,438	12,853	16,841
Taiwan	1,203	1,652	1,116	3,498	3,330	2,994	5,464
China	760	12,122	11,660	10,836	20,183	27,251	25,921
Other countries <sup>1)</sup>	4,952	8,409	9,056	7,434	11,195	15,649	17,520
<b>Export in Total <sup>2)</sup></b>	<b>77,600</b>	<b>89,603</b>	<b>87,532</b>	<b>100,982</b>	<b>117,000</b>	<b>130,800</b>	<b>143,400</b>
<sup>1)</sup> 2008-2014 exports via Cyprus/Libanon; the quantities were partially exported in unknown countries							
<sup>2)</sup> only hard coal exports (seaborne trade)							
Sources: 2008-2014: information from companies, own calculations							

Table 9

Hard Coal Export of the United States							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	5,662	5,104	5,727	8,140	9,809	12,044	11,099
France	3,213	3,052	2,788	3,615	3,720	3,728	1,990
Belgium/Luxembourg	2,746	2,503	2,080	2,783	2,360	1,745	917
The Netherlands	2,976	2,458	3,314	5,908	7,178	4,352	4,571
Italy	2,891	2,125	3,000	5,070	7,747	5,981	5,331
Great Britain	5,342	4,052	3,980	6,283	10,856	11,986	8,898
Ireland	142	0	0	219	208	0	0
Denmark	283	291	73	146	0	0	0
Spain	2,161	1,581	1,837	1,551	1,975	1,430	1,357
Portugal	391	1,020	531	891	1,127	356	201
Finland	425	202	428	452	266	374	670
Sweden	667	434	676	633	613	438	651
Other	6,315	1,920	4,076	1,717	3,786	3,565	3,472
<b>since 2013: EU-28</b>	33,214	24,742	28,510	37,408	49,645	45,999	39,157
Israel	0	0	0	0	17	0	0
Turkey	1,736	1,295	2,296	2,670	4,871	4,521	4,045
Romania	0	0	0	937	607	819	0
Other Europe <sup>1)</sup>	5,414	2,033	3,069	6,330	5,951	4,583	2,725
<b>Europe</b>	40,364	28,070	33,875	47,345	61,091	55,922	45,927
Canada	20,589	9,509	10,528	6,022	6,393	6,284	5,884
Mexico	1,092	1,161	1,682	2,526	3,126	5,102	4,267
Argentina	331	417	281	233	471	427	413
Brazil	5,785	6,720	7,177	7,867	7,206	7,742	7,233
Japan	1,572	822	2,869	6,209	5,169	4,783	4,475
South Korea	1,225	1,562	5,237	9,479	8,250	7,648	7,282
Taiwan	71	77	227	0	227	342	91
Other countries	2,468	4,891	11,787	17,033	21,615	17,689	12,424
<b>Export in total</b>	<b>73,497</b>	<b>53,229</b>	<b>73,663</b>	<b>96,714</b>	<b>113,548</b>	<b>105,939</b>	<b>87,996</b>

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

Source: McCloskey

Table 10

Hard Coal Export (only Steam Coal) of Colombia							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	5,906	5,173	7,397	10,550	8,972	9,794	7,265
France	2,589	2,232	2,329	1,100	1,239	1,765	695
Belgium/Luxembourg	149	168	125	68	75	0	31
The Netherlands	5,986	10,726	9,061	7,412	13,053	10,305	8,502
Italy	2,026	2,080	1,715	1,593	1,916	1,264	1,205
Great Britain	4,041	4,471	4,417	4,198	6,365	6,195	6,867
Ireland	661	980	1,048	1,942	1,729	1,773	1,792
Denmark	1,869	1,973	1,092	4,998	3,153	1,927	1,248
Greece	0	0	76	480	0	0	0
Spain	2,301	2,441	2,272	2,125	4,340	2,981	6,067
Portugal	1,903	1,929	1,553	2,069	3,212	3,246	4,196
Finland	130	72	277	459	0	0	0
Sweden	0	0	0	1,169	0	0	0
Slovenia	356	341	0	1,031	214	222	238
Other				858	0	619	299
<b>since 2013: EU-28</b>	<b>28,359</b>	<b>32,587</b>	<b>31,362</b>	<b>40,052</b>	<b>44,268</b>	<b>40,091</b>	<b>38,405</b>
Israel	2,092	2,549	3,770	5,595	5,713	4,901	5,257
Other Europe <sup>1)</sup>	3,901	3,718	3,006	10,222	8,424	7,660	9,300
<b>Europe</b>	<b>34,352</b>	<b>38,854</b>	<b>38,138</b>	<b>55,869</b>	<b>58,405</b>	<b>52,652</b>	<b>52,962</b>
Japan	31	30	119	145	220	278	0
Hongkong	0	0	0	0	0	0	0
USA	21,919	14,191	11,301	6,928	5,029	4,511	5,565
Canada	2,214	1,794	1,843	1,488	1,125	1,593	1,516
Brazil	1,038	750	1,123	1,631	1,776	2,076	4,303
Other Countries	9,123	7,814	16,683	10,033	13,189	12,537	10,544
<b>Export in total</b>	<b>68,677</b>	<b>63,433</b>	<b>69,207</b>	<b>76,094</b>	<b>79,744</b>	<b>73,647</b>	<b>74,890</b>
<sup>1)</sup> incl. bordering Mediterranean countries, Turkey							
Sources: McCloskey, companies' information							

Table 11

Hard Coal Export of Republic of South Africa							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	8,190	5,231	3,363	2,644	1,972	2,533	5,082
France	5,450	2,050	1,030	1,190	1,060	1,150	850
Belgium/Luxembourg	1,140	300	500	430	320	0	0
The Netherlands <sup>1)</sup>	8,234	4,049	1,087	1,056	2,838	5,047	6,358
Italy	4,170	4,230	3,400	3,630	3,120	2,040	1,540
Great Britain	3,110	1,000	470	670	810	620	1,160
Ireland	0	460	220	50	90	140	140
Denmark	1,140	1,080	780	1,380	630	300	690
Greece	0	0	50	0	80	0	0
Spain	5,981	5,062	3,670	2,470	2,360	1,720	3,260
Portugal	1,660	1,240	320	0	0	360	180
Finland	150	0	0	0	0	0	0
Other	185	680	170	180	400	390	190
<b>since 2013: EU-28</b>	39,410	25,382	15,060	13,700	13,680	14,300	19,450
Israel	3,720	3,250	2,490	3,180	4,770	3,490	2,580
Morocco	1,333	300	810	70	140	250	860
Turkey	1,350	1,106	3,182	2,760	2,890	2,850	3,690
Other Europe <sup>1)</sup>	6,403	4,656	6,482	6,010	7,800	6,590	7,130
<b>Europe</b>	45,813	30,038	21,542	19,710	21,480	20,890	26,580
Japan	50	390	300	620	470	560	150
South Korea	1,150	525	2,260	3,520	1,550	150	310
Taiwan	160	2,220	2,990	3,490	4,500	5,815	1,400
Hongkong	0	340	160	0	0	0	0
India	7,766	18,690	22,397	17,071	23,170	21,030	30,600
China	0	790	6,960	10,460	12,950	13,703	3,370
USA	0	0	170	40	490	0	680
Brazil	1,223	296	1,099	1,030	1,130	320	935
Other countries	6,493	8,927	10,534	11,380	10,450	10,291	12,750
<b>Export in total</b>	<b>62,655</b>	<b>62,216</b>	<b>68,412</b>	<b>67,321</b>	<b>76,190</b>	<b>72,759</b>	<b>76,775</b>
<sup>1)</sup> incl. bordering Mediterranean countries							
Sources: South African Coal Report, own calculations							

Table 12

Hard Coal Export of Canada							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	1,708	1,070	1,203	1,736	1,516	1,214	1,462
France	569	117	166	104	55	0	31
Belgium/Luxembourg	0	0	48	55	0	0	0
The Netherlands	272	300	696	267	412	227	30
Italy	1,084	465	1,016	1,000	767	817	403
Great Britain	1,123	317	284	505	99	186	423
Denmark	0	0	0	0	0	0	0
Spain	235	1	64	120	1	58	1
Portugal	0	0	0	0	0	0	0
Finland	426	258	416	422	303	428	537
Sweden	0	0	0	0	60	0	0
Other			59	221	0	291	614
<b>since 2013: EU-28</b>	5,987	2,528	3,952	4,430	3,213	3,221	3,501
Other Europe <sup>1)</sup>	1,426	952	840	182	500	567	551
<b>Europe</b>	7,783	3,480	4,792	4,612	3,713	3,788	4,052
Japan	11,482	8,765	10,615	9,265	9,526	10,108	8,850
South Korea	6,736	7,381	6,553	8,611	6,360	7,594	0
Taiwan	1,154	795	638	1,070	1,005	1,151	1,509
Brazil	2,020	936	1,693	2,281	1,813	1,677	2,263
USA	1,725	1,045	1,470	1,330	898	911	834
Chile	411	214	259	216	253	327	274
Mexico	695	283	697	400	183	278	158
Other countries	468	4,931	5,944	5,602	10,761	12,712	16,320
<b>Export in Total</b>	<b>32,474</b>	<b>27,830</b>	<b>32,661</b>	<b>33,387</b>	<b>34,512</b>	<b>38,546</b>	<b>34,260</b>
<sup>1)</sup> incl. bordering Mediterranean countries							
Sources: McCloskey, own estimations							

Table 13



Hard Coal Export of China							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	14	5	7	11	9	8	23
France	216	0	0	0	0	0	0
Belgium/Luxembourg	143	0	14	0	0	0	0
The Netherlands	57	5	0	0	0	0	0
Italy	0	0	0	0	0	0	0
Great Britain	0	0	0	0	0	0	0
Spain	104	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0
<b>EU-15</b>	534	10	21	11	9	8	23
Japan	13,337	6,391	6,436	6,222	3,989	3,020	2,070
South Korea	16,457	9,919	7,207	5,559	3,662	3,303	2,835
Taiwan	10,597	4,870	4,418	2,197	1,270	835	467
Hongkong	475	122	395	1	0	0	59
India	1,006	0	0	173	0	0	0
Malaysia	52	12	12	6	0	0	4
Thailand	1	0	0	0	1	0	0
North Korea	228	52	224	205	172	129	80
Philippines	1,119	839	2	0	0	0	0
Brazil	156	0	0	0	0	0	0
Other countries	1,309	133	225	127	24	18	59
<b>Export in total</b>	<b>45,271</b>	<b>22,348</b>	<b>18,940</b>	<b>14,501</b>	<b>9,127</b>	<b>7,313</b>	<b>5,597</b>

Source: several, i.a. MCR, CCR

Table 14

Hard Coal Export of Poland							1,000 t
Importing Countries	2008	2009	2010	2011	2012	2013	2014
Germany	3,834	2,649	3,659	2,659	2,406	3,007	2,931
France		358	597	10	212	534	0
Belgium	1	79	232	1	80	450	2
The Netherlands	1	165	81	0	0	147	54
Italy	0	0	0	0	0	0	1
Great Britain	197	565	598	634	89	665	230
Ireland	266	240	257	206	140	170	148
Denmark	151	82	455	60	60	553	365
Spain	0	0	23	20	20	19	26
Portugal	0	0	0	0	0	0	0
Finland	88	224	220	37	148	358	183
Austria	906	853	883	435	786	807	887
Sweden	60	59	134	84	105	184	117
Czech Republic	1,017	746	1,444	1,820	1,540	1,663	2,604
Slovakia	64	71	638	568	302	767	500
Hungary	127	58	118	133	98	93	58
Other	1,029	1,970	557	10	383	401	38
<b>since 2013: EU-28</b>	7,741	8,119	9,896	6,677	6,369	9,818	8,144
Other countries	559	581	480	101	667	1,018	699
<b>Export in total</b>	<b>8,300</b>	<b>8,700</b>	<b>10,376</b>	<b>6,778</b>	<b>7,036</b>	<b>10,836</b>	<b>8,843</b>
<i>Sources: McCloskey, Federal Statistical Office and own calculations</i>							

Table 15

Hard Coal Imports of EU-Countries – Imports inclusive internal trade of Member States							1,000 t
	2008	2009	2010	2011	2012	2013	2014
Germany	44,000	36,800	41,000	44,200	44,900	50,100	53,600
France	19,400	16,200	18,900	15,300	17,000	18,300	14,300
Italy	26,200	22,000	22,700	24,000	25,000	20,800	20,000
The Netherlands	12,100	10,800	11,800	11,700	12,400	12,400	12,400
Belgium	6,000	4,100	3,500	4,000	3,500	5,200	4,400
Luxembourg	150	200	200	200	n.a.	n.a.	n.a.
Great Britain	43,200	38,100	26,500	31,700	44,800	44,800	38,300
Ireland	2,300	2,300	2,200	1,900	2,200	1,200	1,800
Denmark	7,700	4,400	4,100	6,100	3,900	5,000	4,500
Greece	800	400	600	600	200	200	200
Spain	16,500	17,100	12,800	15,300	22,300	13,500	14,700
Portugal	3,800	3,100	2,700	3,600	5,000	4,200	4,400
Finland	4,600	6,000	5,900	7,000	4,000	5,100	5,400
Austria	4,200	4,000	4,000	3,800	2,900	3,500	3,200
Sweden	2,500	2,400	3,000	2,700	2,200	2,500	2,500
Poland	9,900	10,000	10,000	15,500	10,100	10,800	10,300
Czech Republic	2,200	1,700	1,900	2,400	2,000	2,100	2,900
Hungary	1,900	1,400	1,800	1,500	1,500	1,300	1,300
Slovakia	4,900	3,200	3,500	3,400	3,400	7,100	6,700
Slovenia	600	600	600	500	600	500	400
Croatia	n.a.	n.a.	n.a.	n.a.	n.a.	1,200	1,000
Latvia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Lithuania	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	1300	3,500	2,900	3,300	2,300	1,700	1,600
Romania	3200	1,200	1,400	1,200	1,300	900	700
<b>Other EU28 since 2013</b>	<b>217,450</b>	<b>189,500</b>	<b>182,000</b>	<b>199,900</b>	<b>800</b> <b>212,300</b>	<b>700</b> <b>213,100</b>	<b>204,600</b>
<b>Coke</b>	thereof coke: 11,000	thereof coke: 11,000	coke: 8,000	coke: 8,000	coke: 8,000	coke: 6,000	coke: 6,000

Sources: McCloskey, Euracoal, own calculations

Table 16

Primary Energy Consumption in Germany MTCE							
Energy Sources	2008	2009	2010	2011	2012	2013	2014
Hard Coal	61.4	50.1	57.9	55.3	58.3	61.0	56.2
thereof Import Coal	(43.2)	(36.2)	(44.4)	(43.4)	(46.8)	(52.4)	(52.1)
Lignite	53.0	51.4	51.6	53.3	56.1	55.6	53.6
Mineral Oil	166.4	159.3	160.0	154.8	154.9	158.3	156.2
Natural Gas	104.4	100.3	107.1	99.3	99.6	104.4	91.2
Nuclear Energy	55.4	50.2	52.3	40.2	37.0	36.2	36.2
Hydro and Wind Power	7.5	7.1	7.2	8.1	8.9	9.2	9.4
Foreign Trade Balance Electricity	0.0	-1.8	-2.2	-0.8	-2.8	-4.2	-4.4
Other Energy Sources	36.0	41.8	47.9	51.0	51.0	47.7	47.8
<b>Total</b>	<b>484.1</b>	<b>458.4</b>	<b>481.8</b>	<b>461.2</b>	<b>463.0</b>	<b>468.2</b>	<b>446.2</b>
							Shares in %
Energy Sources	2008	2009	2010	2011	2012	2013	2014
Hard Coal	12.7	10.9	12.0	12.0	12.6	13.0	12.6
thereof Import Coal	(8.9)	(7.9)	(9.2)	(9.4)	(10.1)	(11.0)	(10.5)
Lignite	11.0	11.2	10.7	11.6	12.1	11.9	12.0
Mineral Oil	34.3	34.8	33.2	33.6	33.5	33.8	35.0
Natural Gas	21.6	21.9	22.2	21.5	21.5	22.3	20.5
Nuclear Energy	11.4	11.0	10.9	8.7	8.0	7.8	8.1
Hydro and Wind Power	1.6	1.6	1.5	1.8	1.9	2.0	2.1
Foreign Trade Balance Electricity	0.0	-0.4	-0.5	-0.2	-0.6	-0.9	-1.0
Other Energy Sources	7.4	9.0	10.0	11.0	11.0	10.1	10.7
<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: The Working Group on Energy Balances, The Federal Statistical Office of Germany, own calculations							

Table 17

Coal Handling in German Ports							1,000 t
	2008	2009	2010	2011	2012	2013	2014
<b>North Sea Ports</b>							
Hamburg	5,195	5,189	5,276	5,805	5,111	5,629	5,924
Wedel - Schulau	0	0	0	530	239	42	-
Bützfleth	4	9	5	8	6	0	6
Wilhelmshaven	2,229	2,404	1,843	1,924	1,597	3,301	3,112
Bremen ports	1,668	1,410	1,796	1,599	1,783	1,270	1,636
Brunsbüttel	874	500	434	424	710	793	525
Emden	5	1	2	-	-	-	-
Nordenham	1,889	2,284	2,235	2,792	2,240	1,574	1,277
Papenburg	149	121	141	0	-	-	-
Other North Sea Ports S.H.	574	502	610	0	-	3	7
Other North Sea Ports N.S.	-	-	7	3	-	-	-
<b>Total</b>	<b>12,587</b>	<b>12,420</b>	<b>12,349</b>	<b>13,085</b>	<b>11,686</b>	<b>12,612</b>	<b>12,487</b>
<b>Baltic Sea Ports</b>							
Rostock	1,443	823	1,200	1,345	1,335	1,032	1,234
Wismar	35	26	34	0	-	-	-
Stralsund	1	-	-	-	1	-	-
Lübeck	-	-	-	-	-	2	-
Flensburg	301	230	209	237	235	255	239
Kiel	291	453	479	271	503	178	325
Sassnitz	3	1	5	1	1	1	2
Wolgast	-	-	-	-	-	-	-
Other Baltic Sea Ports	1	-	-	-	-	-	-
<b>Total</b>	<b>2,075</b>	<b>1,533</b>	<b>1,927</b>	<b>1,854</b>	<b>2,075</b>	<b>1,468</b>	<b>1,800</b>
<b>Tonnage Total</b>	<b>14,662</b>	<b>13,953</b>	<b>14,276</b>	<b>14,939</b>	<b>13,761</b>	<b>14,080</b>	<b>14,287</b>

Source: The Federal Statistical Office

Table 18

Consumption, Import / Export and Power Generation in Germany							
	2008	2009	2010	2011	2012	2013	2014
<b>Gross Electricity Consumption</b> in TWh	618.2	581.3	615.4	606.8	607.1	599.4	578.5
<b>Electricity Foreign Trade</b> in TWh							
Exports	62.7	54.9	59.9	56.0	67.3	72.2	74.4
Imports	40.2	40.6	42.2	49.7	44.2	38.4	38.9
Balance (export surplus)	-22.5	-14.3	-17.7	-6.3	-23.1	-33.8	-35.5
<b>Gross Electricity Generation</b> in TWh	640.7	595.6	633.1	613.1	630.1	633.2	614.0
<b>Utilization of Energy Sources for Power Generation</b> in TWh							
	2008	2009	2010	2011	2012	2013	2014
Hard Coal	124.6	107.9	117.0	112.4	116.4	121.7	109.0
thereof Import Coal <sup>1)</sup>	(86.4)	(76.3)	(86.8)	(84.9)	(89.1)	(101.8)	(91.6)
Lignite	150.6	145.6	145.9	150.1	160.7	160.9	155.8
Natural Gas	89.1	80.9	89.3	86.1	76.4	67.5	58.3
Fuel Oil	9.7	10.1	8.7	7.2	7.6	7.2	6.0
Nuclear Energy	148.8	134.9	140.6	108.0	99.5	97.3	97.1
Hydro / Wind Power	61.0	57.6	58.8	66.6	72.8	74.7	76.5
Other	56.9	58.6	72.8	82.7	96.7	103.9	111.3
<b>Total</b>	<b>640.7</b>	<b>595.6</b>	<b>633.1</b>	<b>613.1</b>	<b>630.1</b>	<b>633.2</b>	<b>614.0</b>
<sup>1)</sup> Sales to power stations							
Sources: BDEW, Statistik der Kohlenwirtschaft, BAFA, The working group on energy balances, DIW, own calculations							

Table 19

European / International Price Quotations							
	2008	2009	2010	2011	2012	2013	2014
<b>Crude Oil Prices</b>							
USD/Barrel Brent	96.99	61.51	79.47	111.26	111.63	108.56	99.02
USD/TCE	499.21	316.60	409.04	572.66	574.57	557.24	514.90
<i>Source: MWV</i>							
<b>Natural Gas Prices: Free German Border</b>							
€/TCE	237.00	198.00	185.00	230.00	263.00	250.00	211.00
<i>Source: Statistik der Kohlenwirtschaft</i>							
<b>Steam Coal Marker Prices 1 %S, CIF NW Europe</b>							
USD/TCE	172.28	82.12	107.74	141.73	107.92	95.29	87.83
€/TCE	117.13	58.87	81.27	101.82	83.99	71.75	66.15
<i>Source: McCloskey (from 6000 kcal/kg converted into 7000 kcal/kg)</i>							
<b>Sea Freight Rates Capesize Units - Port of Destination ARA ( Amsterdam, Rotterdam, Antwerp)</b>							
South Africa	USD/t	30.36	13.66	12.41	10.74	8.13	9.38
USA/East Coast	USD/t	32.65	16.68	15.06	12.01	9.62	11.44
Australia/NSW	USD/t	50.91	22.46	22.15	19.43	15.05	18.03
Colombia	USD/t	31.71	16.25	14.75	11.89	9.63	11.33
<i>Sources: Frachtcantor Junge, own calculations</i>							

Table 20

Imports of Hard Coal and Hard coal coke										1,000 t
Countries	2011					2012				
	Steam Coal	Coking Coal	Anthr.	Coke	Total	Steam Coal *	Coking Coal	Coke	Total	
Poland	2,646	11	1	2,481	5,139	2,397	9	1,565	3,971	
Czech Republic	27	0	3	330	360	7	0	316	323	
Spain				33	33			7	7	
France				62	62			48	48	
Other	620	20	196	595	1,431	1,638	38	679	2,355	
<b>since 2013 EU-28</b>	3,293	31	200	3,501	7,025	4,042	47	2,615	6,704	
CIS	9,574	863	294	361	11,092	10,474	753	319	11,546	
Norway	857	0	0	0	857	395	0	0	395	
USA	5,079	3,036	24	0	8,139	7,072	2,737	0	9,809	
Canada	43	1,693	0	0	1,736	0	1,516	0	1,516	
Colombia	10,550	214	0	62	10,826	8,972	347	33	9,352	
South Africa	2,644	0	0	0	2,644	1,972	0	0	1,972	
Australia	206	4,074	0	0	4,280	308	4,143	0	4,451	
China	6	0	5	184	195	9	0	2	11	
Indonesia	0	34	0	0	34	0	0	0	0	
Venezuela	132	29	0	0	161	111	0	1	112	
Other Third Countries	1,261	1	7	120	1,389	1,985	64	5	2,054	
<b>Third Countries</b>	30,352	9,944	330	727	41,353	31,298	9,560	360	41,218	
<b>Total</b>	<b>33,645</b>	<b>9,975</b>	<b>530</b>	<b>4,228</b>	<b>48,378</b>	<b>35,340</b>	<b>9,607</b>	<b>2,975</b>	<b>47,922</b>	

Sources: The Federal Statistical Office, BAFA, own calculations

\*Steam Coal incl. Anthracite

Table 21



into Germany								1,000 t
2013				2014				Countries
Steam Coal*	Coking Coal	Coke	Total	Steam Coal*	Coking Coal	Coke	Total	
2,938	70	1,317	4,325	2,925	6	1,458	4,389	Poland
365	0	325	690	362	0	297	659	Czech Republic
0	0	3	3	0	0	1	1	Spain
0	0	19	19	0	0	1	1	France
2,485	33	809	3,327	5,489	35	450	5,974	Other
5,788	103	2,473	8,364	8,776	41	2,207	11,024	since 2013 EU-28
11,975	867	249	13,091	12,312	1,183	227	13,722	CIS
680	0	0	680	435	0	0	435	Norway
8,933	3,111	0	12,044	7,725	3,374	0	11,099	USA
0	1,214	0	1,214	0	1,462	0	1,462	Canada
9,794	180	25	9,999	7,265	116	0	7,381	Colombia
2,533	0	0	2,533	5,034	48	0	5,082	South Africa
128	4,611	0	4,739	350	5,323	0	5,673	Australia
8	0	0	8	14	9	101	124	China
0	0	0	0	0	0	0	0	Indonesia
59	0	0	59	0	0	0	0	Venezuela
0	135	0	135	0	204	0	204	Other Third Countries
34,110	10,118	274	44,502	33,135	11,719	328	45,182	Third Countries
<b>39,898</b>	<b>10,221</b>	<b>2,747</b>	<b>52,866</b>	<b>41,911</b>	<b>11,760</b>	<b>2,535</b>	<b>56,206</b>	<b>Total</b>
*Steam Coal incl. Anthracite				*Steam Coal incl. Anthracite				

Table 21

Germany – Energy Prices / Exchange Rates							
	2008	2009	2010	2011	2012	2013	2014
Exchange Rates							
EUR/USD	0.6799	0.7169	0.7543	0.7184	0.7783	0.7530	0.7527
Source: Deutsche Bundesbank							
Cross Border Prices for Coking Coal and Coke – €/t							
Imported Coking Coal	132.62	173.75	174.78	185.30	188.42	127.19	104.67
Imported Coke	281.20	196.91	259.37	319.78	258.72	204.88	193.66
Source: Federal Statistical Office							
Cross Border Prices for Steam Coal in €/TCE: Utilization in Power Plants							
	1. Q	2. Q	3. Q	4. Q	Annual value		
2008	93.73	106.01	131.80	120.13	112.48		
2009	91.24	76.35	69.36	73.31	78.81		
2010	75.06	86.34	87.97	92.89	85.33		
2011	105.30	105.22	106.22	110.44	106.97		
2012	100.21	93.09	92.01	86.62	93.02		
2013	84.03	80.03	75.64	76.66	79.12		
2014	75.16	71.18	71.21	73.41	72.94		
Source: BAFA Division 431 (cross border price=cif price ARA + freight German border)							
Energy Prices free power station €/TCE							
Energieträger	2008	2009	2010	2011	2012	2013	2014
Erdgas	252.00	239.00	222.00	241.00	264.00	265.00	244.00
Heizöl schwer	275.00	208.00	270.00	355.00	394.00	349.00	309.00
Kesselkohle	117.00	84.00	90.00	112.00	98.00	84.00	78.00
Sources: BAFA, Statistik der Kohlenwirtschaft, own calculations							

Table 22

## Hard Coal Market in Germany

### Quantities and Prices 1957 - 2014

Quantities								Prices							
Imports of Hard Coal and Coke t=t				Domestic Mining of Hard Coal Mill. t usable output				Steam Coal from non-EEC Countries <sup>1)</sup>				Domestic Industrial Coal			
Year	M t	Year	M t	Year	M t	Year	M t	Year	€/TCE	Year	€/TCE	Year	€/TCE	Year	€/TCE
1957	18.9	1987	8.8	1957	149.4	1987	75.8	1957	40	1987	46	1957	29	1987	132
1958	13.9	1988	8.1	1958	148.8	1988	72.9	1958	37	1988	42	1958	29	1988	134
1959	7.5	1989	7.3	1959	141.7	1989	71.0	1959	34	1989	49	1959	29	1989	137
1960	7.3	1990	11.7	1960	142.3	1990	69.8	1960	33	1990	49	1960	29	1990	138
1961	7.3	1991	16.8	1961	142.7	1991	66.1	1961	31	1991	46	1961	29	1991	139
1962	8.0	1992	17.3	1962	141.1	1992	65.5	1962	30	1992	42	1962	30	1992	147
1963	8.7	1993	15.2	1963	142.1	1993	57.9	1963	30	1993	37	1963	30	1993	148
1964	7.7	1994	18.1	1964	142.2	1994	52.0	1964	30	1994	36	1964	31	1994	149
1965	8.0	1995	17.7	1965	135.1	1995	53.1	1965	29	1995	39	1965	32	1995	149
1966	7.5	1996	20.3	1966	126.0	1996	47.9	1966	29	1996	38	1966	32	1996	149
1967	7.4	1997	24.3	1967	112.0	1997	45.8	1967	29	1997	42	1967	32	1997	149
1968	6.2	1998	30.2	1968	112.0	1998	40.7	1968	28	1998	37	1968	30	1998	149
1969	7.5	1999	30.3	1969	111.6	1999	39.2	1969	27	1999	34	1969	31	1999	149
1970	9.7	2000	33.9	1970	111.3	2000	33.3	1970	31	2000	42	1970	37	2000	149
1971	7.8	2001	39.5	1971	110.8	2001	27.1	1971	32	2001	53	1971	41	2001	149
1972	7.9	2002	39.2	1972	102.5	2002	26.1	1972	31	2002	45	1972	43	2002	160
1973	8.4	2003	41.3	1973	97.3	2003	25.7	1973	31	2003	40	1973	46	2003	160
1974	7.1	2004	44.3	1974	94.9	2004	25.7	1974	42	2004	55	1974	56	2004	160
1975	7.5	2005	39.9	1975	92.4	2005	24.7	1975	42	2005	65	1975	67	2005	160
1976	7.2	2006	46.5	1976	89.3	2006	20.7	1976	46	2006	62	1976	76	2006	170
1977	7.3	2007	47.5	1977	84.5	2007	21.3	1977	43	2007	68	1977	76	2007	170
1978	7.5	2008	48.0	1978	83.5	2008	17.1	1978	43	2008	112	1978	84	2008	170
1979	8.9	2009	39.5	1979	85.8	2009	13.8	1979	46	2009	79	1979	87	2009	170
1980	10.2	2010	45.2	1980	86.6	2010	12.9	1980	56	2010	85	1980	100	2010	170
1981	11.3	2011	48.4	1981	87.9	2011	12.1	1981	84	2011	107	1981	113	2011	170
1982	11.5	2012	47.9	1982	88.4	2012	10.8	1982	86	2012	93	1982	121	2012	180
1983	9.8	2013	52.9	1983	81.7	2013	7.6	1983	75	2013	79	1983	125	2013	180
1984	9.6	2014	56.2	1984	78.9	2014	7.6	1984	72	2014	73	1984	130	2014	180
1985	10.7			1985	81.8			1985	81			1985	130		
1986	10.9			1986	80.3			1986	60			1986	130		

since 1991 Eastern Germany included, euro values are rounded

<sup>1)</sup> Price free German border

<sup>2)</sup> Estimated cost-covering price

Sources: Federal Statistical Office, Statistik der Kohlenwirtschaft, BAFI, own calculations

Table 23

## Members of VDKI

Member Company	Area Code	Phone	Fax	Website
<b>AG der Dillinger Hüttenwerke</b> Werkstrasse 1, 66763 Dillingen/Saar, Germany	+ 49 6831	47-2220	47-3227	www.dillinger.de
<b>Antwerp Port Authority</b> Entrepotkaai 1, 2000 Antwerp, Belgium	+ 32 3	205 22 46	205 22 69	www.portofantwerp.be
<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	9161 15-130	9161 15-137	www.bulktrading.ch
<b>CDF Energie SA (Groupe TOTAL)</b> Immeuble Nova - 71, Boulevard National CS 70009, 92257 La Garenne Colombes Cedex, France	+ 33	141 35 72 95	141 35 22 05	www.total.com
<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>Currenta GmbH &amp; Co. OHG</b> BIS-EN-BM, Geb. G11, 51068 Leverkusen, Germany	+ 49 214	3057885	30657885	www.currenta.de
<b>DAKO Coal Kohlen Ex- und Import GmbH</b> Kämpenstrasse 151, 58456 Witten, Germany	+ 49 2302	970 30 17	970 30 70	www.dako-coal.com
<b>DB Schenker Rail AG, MB Montan</b> Rheinstrasse 2, 55116 Mainz, Germany	+ 49 6131	15-61100	15-61199	www.dbschenker.com
<b>Douglas Services GmbH</b> Rohrbergstr. 23 b, 65343 Eltville, Germany	+ 49 6123	70390	703920	
<b>EDF Trading (Switzerland) AG</b> Kurfürstendamm 194, Haus Cumberland, 10707 Berlin, Germany	+ 49 30	700 140 460	700 159 510	www.edftrading.com
<b>EnBW AG</b> Durlacher Allee 93, 76131 Karlsruhe, Germany	+ 49 721	63-23314	914-20071	www.enbw.com
<b>Enerco bv</b> Keerweg 2, 6122 CL Buchten, The Netherlands	+ 31 46	48 19 900	48 59 211	www.enerco.nl
<b>E.ON Global Commodities SE</b> Holzstrasse 6, 40221 Düsseldorf, Germany	+ 49 211	732 75-0	732 75-1552	www.eon.com
<b>E.ON Kraftwerke GmbH</b> Brüsseler Platz 1, 45131 Essen, Germany	+ 49 201	184 00		www.eon.com
<b>Ernst Russ Shipbroker GmbH &amp; Co. KG</b> Neumühlen 9, 22763 Hamburg, Germany	+ 49 40	380303-213	380303-399	www.russbroker.de
<b>EUROKOR Barging B.V.</b> Gieterijstraat 93, 2984 AB Ridderkerk, The Netherlands	+ 31 180	481 960	481 969	www.eurokorbarging.nl
<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 2236	200 12352	200 82352	www.evn.at
<b>Evonik Industries AG</b> Paul-Baumann-Strasse 1, 45722 Marl, Germany	+ 49 2365	49-6084	49-806084	www.evonik.de
<b>Exxaro International Trading AG</b> Bahnhofstrasse 18, 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>Freepoint Commodities Europe LLP</b> 157-197 Buckingham Palace Road, London SW1W 9SP, UK	+ 44	203 262 6264	203 262 6900	www.freepoint.com

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Member Company	Area Code	Phone	Fax	Website
<b>GDF SUEZ Energy Management Trading</b> Boulevard Simon Bolivar/Simon Bolivarlaan 34, 1000 Brussels, Belgium	+ 32	2518 61 11	2501 59 06	www.gdfsuez.com
<b>GLENCORE International AG</b> Baarermattstrasse 3, 6341 Baar, Switzerland	+ 41 41	709 2000	709 3000	www.glencore.com
<b>Goldman Sachs International</b> Rivercourt, 120 Fleet Street, London EC4A 2BB, UK	+ 44 20	7051 2937	7051 6704	www.gs.com
<b>Grosskraftwerk Mannheim AG</b> Marguerrestr. 1, 68199 Mannheim, Germany	+ 49 621	8684310	8684319	www.gkm.de
<b>GUNVOR SA</b> Rue du Rhone 82-84, 1204 Genève, Switzerland	+ 41 22	718 79 00	718 79 29	www.gunvorgroup.com
<b>HANSAPORT Hafenbetriebsgesellschaft mbH</b> Am Sandauhafen 20, 21129 Hamburg, Germany	+ 49 40	740 03-200	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	www.hcc-trading.de
<b>HMS Bergbau AG</b> An der Wuhlheide 232, 12459 Berlin, Germany	+ 49 30	656681-0	656681-15	www.hms-ag.com
<b>Holcim (Germany) 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> Neumarkt 7-11, 47119 Duisburg, Germany	+ 49 203	47989-0	47989-193	www.htag-duisburg.de
<b>ICT Coal GmbH</b> Katzenberger Str. 107, 45327 Essen, Germany	+ 49 201	860 44 61	860 44 65	www.ict-coal.de
<b>IMPERIAL Shipping Holding GmbH</b> Dr.-Hammacher-Str. 49, 47119 Duisburg, Germany	+ 49 203	5794-0	5794-229	www.imperial-shipping.com
<b>Incolab Services B.V.</b> Röntgenstraat 3, 3261 LK Oud Beijerland, The Netherlands	+ 31 186	610 355	610 552	www.incolab.com
<b>Inspectorate Germany GmbH</b> Daimlerstr. 4a, 47167 Duisburg, Germany	+ 49 203	860 967-13	860 967-20	www.inspectorate.com
<b>Knight Energy Services Ltd.</b> Unit 1, Palmermount Ind. Estate, Bypass Road, Dundonald, Kilmarnock, Ayrshire, KA2 9 BL, UK	+ 44	1563 850 375		www.ahkgroup.com
<b>L.B.H. The Netherlands B.V.</b> Rijdsdijk 13, 3161 HK Rhooon, The Netherlands	+ 31 10	506 50 00	501 34 00	www.lbh.nl
<b>Mark-E Aktiengesellschaft</b> Körnerstrasse 40, 58095 Hagen, Germany	+ 49 2331	12 3-0	123-22222	www.mark-e.de
<b>Marquard &amp; Bahls AG</b> Admiralitätsstrasse 55, 20459 Hamburg	+ 49 40	370 04-0		www.mbhholding.de
<b>MSG eG</b> Südliche Hafenstrasse 15, 97080 Würzburg, Germany	+ 49 931	9081-100	950261	www.msgeg.de
<b>Niederrheinische Verkehrsbetriebe Aktiengesellschaft</b> Rheinberger Str. 95 a, 47441 Moers <small>*) Member since 01/06/2015</small>	+49 2841	205 528	999 398 544	www.niag-online.de
<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> Mr F.J. Haarmanweg 16 d, 4538 AR Terneuzen, The Netherlands	+ 31 11	5676700	5620316	www.ovet.nl
<b>Oxbow Coal GmbH</b> Renteilichtung 44a, 45134 Essen, Germany	+ 49 201	439 529-0	439 529-50	www.oxbow.com

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<b>Peterson Rotterdam B.V.</b> Boompjes 270, 3011 XZ Rotterdam, The Netherlands	+ 31 10	28 23 333	28 23 282	www.onepeterson.com
<b>Pfeifer &amp; Langen GmbH &amp; Co. KG</b> Dürener Str. 40, 50189 Elsdorf, Germany	+ 49 2274	701-300	701-293	www.pfeifer-langen.com
<b>Port of Amsterdam</b> De Ruijterkade 7, 1013 AA Amsterdam, The Netherlands	+ 31 20	523 45 77	523 40 77	www.portofamsterdam.nl
<b>Port of Rotterdam</b> Wilhelminakade 909, 3072 AP Rotterdam, The Netherlands	+ 31 10	252 1638	252 4041	www.portofrotterdam.com
<b>RAG Verkauf GmbH</b> Shamrockring 1, 44623 Herne, Germany	+ 49 2323	15-5410	15-5412	www.rag-verkauf.de
<b>RC INSPECTION Coal B.V.</b> Gustoweg 66, 3029 AS Rotterdam, The Netherlands	+ 31 10	425 02 46	501 99 80	www.rc-inspection.com
<b>Rheinbraun Brennstoff GmbH</b> Stüttgenweg 2, 50935 Köln, Germany	+ 49 221	480-1364	480-1369	www.energieprofi.com
<b>RheinCargo GmbH &amp; Co. KG</b> Hammer Landstr. 3, 41460 Neuss, Germany	+ 49 2131	53 23-0	53 23-100	www.rheincargo.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 Supply &amp; Trading GmbH</b> Altenessener Str. 27, 45141 Essen, Germany	+ 49 201	12-09	12-17900	www.rwetradng.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>Ssp Stockpile surveying and protection B.V.</b> Zuideinde 36, 2991 LK Barendrecht, The Netherlands	+ 31	180 55 65 61	180 55 62 89	www.ssp-rotterdam.nl
<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>STEAG GmbH</b> Rüttenscheider Str. 1-3, 45128 Essen, Germany	+ 49 201	801-3230	801-3232	www.steag.com
<b>SUEK AG, Swiss Office</b> Vadianstrasse 59, 9000 St. Gallen, Switzerland	+ 41 71	226 85 00	226 85 03	www.suekag.com
<b>Südzucker AG Mannheim/Ochsenfurt</b> Maximilianstr.10, 68165 Mannheim, Germany	+ 49 621	421-0	421-466	www.suedzucker.de
<b>swb Erzeugung AG &amp; Co. KG</b> Theodor-Huuss-Allee 20, 28215 Bremen, Germany	+ 49 421	359-2270	359-2366	www.swb-gruppe.de
<b>Torval s.a.</b> Rue l'Île Monsin 129, 4020 Liège, Belgium	+ 32	4 264 9348	4 264 0835	www.terval.com
<b>THB Transport- und Handelsberatungsgesellschaft mbH</b> Auf dem Dreieck 5, 28197 Bremen, Germany	+ 49 421	536 868	536 86-78	www.thb-bremen.de
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<b>Vattenfall Energy Trading Netherlands N.V.</b> Hoekenrode 8, 1102 BR Amsterdam, The Netherlands	+ 31	888 380 037		www.vattenfall.com
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All figures shown for 2014 are provisional. Corresponding hints were not considered in text, tables, lists and other statements of numbers.

**Publisher:**

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Design & Layout: abcdruck GmbH, Germany

Print: abcdruck GmbH, Germany

(ISSN 1612-5371)