

# ANNUAL REPORT 2022

FACTS AND TRENDS 2021/22

## Import Coal Market at a Glance

		2019	2020	2021
<b>World</b>				
Hard Coal Production	Mill. t	7 288	7 063	7 421
World Hard Coal Trade	Mill. t	1 346	1 216	1 237
of which Seaborne Hard Coal Trade	Mill. t	1 235	1 111	1 137
of which Internal Hard Coal Trade	Mill. t	111	105	100
Hard Coal Coke Production	Mill. t	682	667	677
Hard Coal Coke World Trade	Mill. t	26	24	29
<b>European Union (28, from 2020 EU 27)</b>				
Hard Coal Production	Mill. t	65	57	57
Hard Coal Imports (incl. Internal Trade)	Mill. t	133	89	97
Hard Coal Coke Imports	Mill. t	9.5	4.5	6.2
<b>Germany</b>				
Hard Coal Use	Mill. TCE	37.0	30.6	35.6
Hard Coal Volume	Mill. TCE	41.3	29.7	38.8
of which import coal use	Mill. TCE	41.3	29.7	38.8
of which domestic hard coal production	Mill. TCE	-	-	-
Imports of Hard Coal and Hard Coal Coke	Mill. t	43.2	31.3	41.1
of which steam coal <sup>1)</sup>	Mill. t	30.1	19.9	26.9
of which coking coal	Mill. t	11.2	9.8	11.9
of which hard coal coke	Mill. t	1.9	1.6	2.3
<b>Prices</b>				
Steam Coal Marker Price CIF NWE	US\$/TCE	72	58	120
Border-crossing Price Steam Coal	€/TCE	80	63	119
CO <sub>2</sub> emission rights (EEX EUA settlement price)	EUR/EUA	24.84	24.73	53.41
Exchange rate (US\$1 = €....)	EUR/US\$	0.90	0.88	0.85

<sup>1)</sup> Including anthracite and briquettes

# INHALT

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## AN INTRODUCTORY WORD

Since the publication of our yearbook in July last year, the German energy market has changed dramatically. According to calculations by the British think tank EMBER, gas prices rose by up to 585 % in 2021. This led to one of the biggest energy price shocks since the Opec oil embargo of 1973. The prices for electricity generation from gas-fired power plants rose by up to seven times.

Added to this were the geopolitical changes in February 2022 with the Russian army's attack on Ukraine.

Faith Birol, head of the International Energy Agency IEA: "Russia is one of the world's energy markets. The war and the consequences are causing an energy shock. Especially in Europe".

Russia's attack on Ukraine and Western sanctions are driving energy prices and inflation to unimagined heights. The economy is facing a crisis not seen in decades.

And right in the middle: Hard coal.

"Stuttering Russian coal exports" (VdKi press release October 2021), caused by difficulties in the logistics/railway sector, were already the harbingers in late summer 2021: the Ukraine crisis changed the German import coal market with force.

The German hard coal market began to adjust to the unusually unreliable supplies of Russian coal as early as winter - the first alternative supplies were ordered even before the war began.

Rising gas prices and the low availability of renewable energies led to a good utilisation of German hard coal-fired power plants as early as summer 2021.

Coal made a comeback.

Never has more coal been used to generate electricity than last year (more on this in the main section). This year, according to calculations by the International Energy Agency (IEA), more coal could be produced and demanded worldwide than ever before. The IEA also expects records for the coming years.

Nevertheless, the German hard coal market is facing major changes. In April 2022 the EU decided on an import ban for Russian coal as of August 2022. The world market for steam coal must now be redistributed.

Already at the beginning of the crisis, the VdKi encouraged the German government in its view that the very high 50 % share of Russian coal in total imports can be replaced by other sources from other coal-exporting countries. And this should be done relatively quickly, by winter 22/23.

This summer, the test programmes for the new coal types from South Africa, Australia, the USA, Colombia, and Indonesia will begin. The industry is very confident that the changeover will be successful without major difficulties.

The steel industry is also reorienting itself for its PCI needs - away from the Russian quality that was previously in high demand.

And the conversion must succeed because coal-fired power plants are very much in demand.

The Coal Importers' Association was and is also in great demand. Never in recent history has the VdKi been in such demand by the German media. In the national press, as well as on radio and television, we took a stand on the justifiably questions raised by the public on the high dependence on Russian coal and on security of supply issues.

And unexpected support for hard coal also came from the ranks of politics. The Great-Green member of the Bundestag, Anton Hofreiter, repeatedly made a demand that until recently was unthinkable for a Green: **"We have to let the coal-fired power plants run longer"**.

The German government has not yet decided whether it wants to consider longer operating times for coal-fired power plants.

In any case, Germany is not only facing a "turning point" (Chancellor Scholz in February 2022 in the German Bundestag) in foreign and security policy. It is also, at least currently, facing a readjustment of its energy policy.

These are challenges that we, also on the part of the VdKi, face with all our motivation. We wish the sector every success in fulfilling the expectations placed in it: Good luck!



A handwritten signature in black ink, appearing to be 'A. Bethe'.

Alexander Bethe  
– Chairman –



A handwritten signature in black ink, appearing to be 'J. Osterhage'.

Jürgen Osterhage  
– Managing Director –

## THE VDKI IN CONVERSATION

VdKi Chairman Alexander Bethe was a guest at the Energy Committee of the CDU Economic Council Berlin-Brandenburg. The topic of the event: THE SITUATION OF HARD COAL IN GERMANY - CLIMATE KILLER OR SAVIOUR IN TIMES OF NEED. Alexander Bethe gave a status report on the EU-embargo on Russian coal and reported on the market's reaction to the 5<sup>th</sup> EU sanctions package. His presentation focused on the situation on the energy market with limited availability of natural gas.

The event at the CDU Business Council was complemented by a short presentation by the Chairman of the new CDU Climate Union, MdB Thomas Heilmann. After the two presentations, a lively discussion developed about short- and medium-term trends in Germany's electricity mix in view of the tense situation, not only on the electricity market.

Moderation: Björn Spiegel, Head of Policy & Strategy, Arge Netz



*From left to right: Alexander Bethe, Björn Spiegel, Thomas Heilmann*

## 125 YEARS VDKI – IMPRESSIONS



*Representatives of the member companies on the occasion of the 125th anniversary of the association*



*Alexander Bethe*



*Guest speaker von Beust*



*Ambassador of the Republic of Colombia  
Hans-Peter Knudsen Quevedo (r.)*



# FEDERAL REPUBLIC OF GERMANY

German economy in distress –  
prosperity level declines





# FEDERAL REPUBLIC OF GERMANY

## General conditions of the Overall Economy

The sanctions triggered by the Russian attack on Ukraine and the global rise in commodity and energy prices have a major impact on German economic development and are likely to lead directly to considerable adverse effects on the German economy, the full extent of which can hardly be assessed. In their Spring 2022 Joint Economic Forecast of early April 2022 ("From Pandemic to Energy Crisis - Economy and Politics in Permanent Stress"), the leading economic research institutes have sharply reduced the expected rate of change in gross domestic product (GDP) for 2022 to 2.7 %. A natural gas embargo against Russia poses by far the most serious risks for economic development. The German Council of Economic Experts (hereinafter SVR) was much more pessimistic in its forecast of economic development (March 2022) and assumed GDP growth of +1.8 % (cf. Table HT-D1).

In autumn last year, the economic research institutes had still expected a plus of 4.8 %, also due to economies of scale. The resurgence of the Corona pandemic and corresponding renewed containment measures as well as the political and economic effects of the Ukraine crisis made the revision necessary. For 2023, however, the research institutes have increased their estimate for economic growth from +1.9 % to +3.1 %, which is also below the SVR forecast.

As the Tagesschau reported in its online edition in mid-April 2022 on the joint report, the economists have examined in an "alternative scenario" to what extent an immediate halt to the supply of Russian natural gas the impact would be.

According to this, German GDP would increase by 1.9 % at best this year. And in 2023, a recession would even be expected (-2.3 %).

All in all, there would be an economic loss of around € 220 billion for this year and next. Economic expert Prof. Dr. Stefan Kooths from the Kiel Institute for the World Economy (IfW-Kiel) also warned: "If gas supplies are stopped, the German economy is threatened with a sharp recession". For the development of consumer prices in Germany, the SVR assumes an inflation rate of 6.1 % this year and is thus in line with the joint diagnosis. This would be the highest inflation rate in four decades. However, things would be even worse if Russian natural gas exports to Germany were to be stopped immediately. In that case, as the economic research institutes have shown in an alternative calculation, inflation could reach significantly more than 7 %. This would be by far the highest inflation rate since the founding of the Federal Republic. Political instruments, especially to cushion the high energy price burden, should be used in moderation, warned Stefan Kooths. This also includes the action from June 1<sup>st</sup>, 2022, the so-called "tank rebate" to relieve the burden on businesses and households.

## Energy industry

Primary energy consumption in Germany in 2021 was around 418.4 Mill. TCE, 3.1 % lower than in the previous year. This was mainly due to the cooler weather. However, restrictions due to the Corona pandemic and its effects also played a role. Higher energy prices also dampened demand. In contrast, the incipient economic recovery last year had a minor compensating effect.

As can be seen in Table HT-D2, mineral oil was again the most important energy source with a share of around 32 %. Natural gas followed with a share of around 26 %. Renewable energy sources followed far behind with 16 %, as well as lignite and hard coal, each with around 9 %. Nuclear energy accounted for a share of 6 %.

## Key Economic Data — German Council of Economic Experts Assessment of Economic Development

	Unit	2020	2021 <sup>1)</sup>	2022 <sup>1)</sup>	2023 <sup>1)</sup>
<b>Gross Domestic Product<sup>2)</sup></b>	%	-4.6	2.9	1.8	3.6
Expenditures for Consumption	%	-3.2	1.1	2.7	3.6
Expenditures for Private Consumption <sup>3)</sup>	%	-5.9	0.1	3.2	4.4
Expenditures for Public Consumption	%	3.5	3.1	1.6	1.9
Gross Installation Investments	%	-2.2	1.5	1.8	4.5
Equipment Investments <sup>4)</sup>	%	-11.2	3.4	0.6	10.1
Construction Investments	%	2.5	0.7	1.7	1.8
Other Investments	%	1.0	0.7	3.9	4.4
Domestic Utilisation	%	-4.0	2.2	2.3	3.9
Trade Balance	%-Pts.	-0.8	0.8	-0.4	-0.2
Exports	%	-9.3	9.9	2.8	6.1
Imports	%	-8.6	9.3	4.0	6.7
<b>Current Account Balance<sup>5)</sup></b>	%	7.1	7.4	4.7	5.1
<b>Workforce</b>	Thousands	44 898	44 920	45 378	45 652
<b>Employees Subject to Social Security Contributions</b>	Thousands	33 579	33 900	34 371	34 832
<b>Persons Registered as Unemployed</b>	Thousands	2 695	2 613	2 347	2 238
<b>Unemployment<sup>6)</sup></b>	%	5.9	5.7	5.1	4.9
<b>Consumer Prices<sup>7)</sup></b>	%	0.5	3.1	6.1	3.4
<b>Public Fiscal Balance<sup>8)</sup></b>	%	-4.3	3.7	-2.6	-2.2
<b>Per Capita Gross Domestic Product<sup>9)</sup></b>	%	-4.6	2.9	1.8	3.5

<sup>1)</sup> Projection of the Council of Economic Experts

<sup>2)</sup> Adjusted for price. Change over previous year. Applies to all component elements of the GDP shown here.

<sup>3)</sup> Including non-profit private organisations

<sup>4)</sup> Including military weapons systems

<sup>5)</sup> In relation to nominal GDP

<sup>6)</sup> Registered unemployed persons in relation to complete civil labour force

<sup>7)</sup> Change over previous year

<sup>8)</sup> Regional authorities and social security in delineation of national economic total account; in relation to nominal GDP.

<sup>9)</sup> Population development according to medium-term projection of the Council of Economic Experts.

Sources: Council of Economic Experts, Economic Forecast 2022/2023, March 30<sup>th</sup>, 2022 / German Federal Statistical Office

Lignite and hard coal showed the strongest growth with +17.7 % and +16.5 % respectively. Nuclear energy and natural gas also had to forgive slight increases, while mineral oil and renewable energies declined slightly.

According to the annual report of the Working Group on Energy Balances (AGEB) for 2021, the availability and associated use of energy resources plays an important role in the extent of the vulnerability of the German economy to energy crises. In this context, a look at Germany's foreign trade balance is with energy sources of particular interest.

Germany is a net importer of almost all fossil fuels (hard coal, mineral oil and natural gas). Around 98 % of Germany's primary energy consumption of mineral oil is covered by imports and more than 94 % of natural gas. 100 % of the hard coal consumed comes from abroad after German coal mining ceased at the end of 2018. Lignite, on the other hand, comes 100 % from domestic resources. Overall, the German energy industry is therefore dependent on imports for around 77 % of its energy needs.

The import prices for fossil fuels have risen sharply. As a result, the strong increase in import prices as well as the increase in imported energy volumes led to a strong increase in the import bill for coal, oil and gas by almost two thirds to € 69 billion in 2021.

### Primary Energy Consumption in Germany 2019 to 2021

Energy Source	2019	2020	2021 <sup>1)</sup>	Changes 2021/2020		2020	2021
	Mill. TCE			Mill. TCE	%	Shares in %	
Oil	153.9	139.4	135.1	-4.3	-3.1	34.3	32.3
Natural Gas	109.7	107.0	112.2	5.2	4.9	26.4	26.8
Hard Coal	37.0	30.6	35.6	5.0	16.5	7.5	8.5
Lignite	39.7	32.7	38.5	5.8	17.7	8.1	9.2
Nuclear Energy	27.9	24.0	25.7	1.7	7.4	5.9	6.1
Renewable Energy Sources	65.0	67.3	66.4	-0.9	-1.2	16.6	15.9
Electricity Exchange Balance	-4.0	-2.3	-2.4	-0.1	...	-0.6	-0.6
Other	7.8	7.3	7.3	0.0	0.4	1.8	1.7
<b>Total <sup>2)</sup></b>	<b>437.0</b>	<b>406.0</b>	<b>418.4</b>	<b>12.4</b>	<b>3.1</b>	<b>100.0</b>	<b>100.0</b>

<sup>1)</sup> provisional <sup>2)</sup> rounding-off differences possible

Source: AGEB, „Energy Consumption in Germany in 2021 - Annual Report“ for 2020 / 2021

### Electric Power Generation

Gross electricity generation from the individual energy sources developed unevenly in 2021. Less electricity was generated from renewable energies and natural gas in 2021 than in the previous year. In contrast, electricity generation from coal-fired power plants increased significantly compared to the previous year, namely to 54.3 TWh. (Tables HT-D3 and HT-D4). Hard coal-fired power generation increased by 26.7 %, after having decreased by almost a quarter in the previous year. The high growth also continued in the 1<sup>st</sup> quarter of 2022. According to the BDEW quick statistics, electricity production based on hard coal rose by 28 % to 18.8 TWh.

Outlook for security of supply: Overall, the massive expansion of renewable energies, a more diverse procurement structure and the expansion of the hydrogen economy will be particularly important for sufficient security of supply.

### Gross Electric Power Generation in Germany per Energy Source

Energy Source	2019	2020	2021 <sup>1)</sup>	2021	Change
	TWh			Shares	2021/2020
				%	%
Lignite	114.0	91.7	108.3	19 %	18.0 %
Nuclear Energy	75.1	64.4	69.0	12 %	7.2 %
Hard Coal	57.5	42.8	54.3	9 %	26.7 %
Natural Gas	90.0	94.6	89.0	15 %	-5.9 %
Oil	4.8	4.7	4.8	1 %	1.9 %
Renewable Energies	241.9	249.7	238.0	41 %	-4.7 %
Other	19.5	18.8	18.8	3 %	0.6 %
<b>Total</b>	<b>602.8</b>	<b>566.7</b>	<b>582.2</b>	<b>100 %</b>	<b>2.7 %</b>

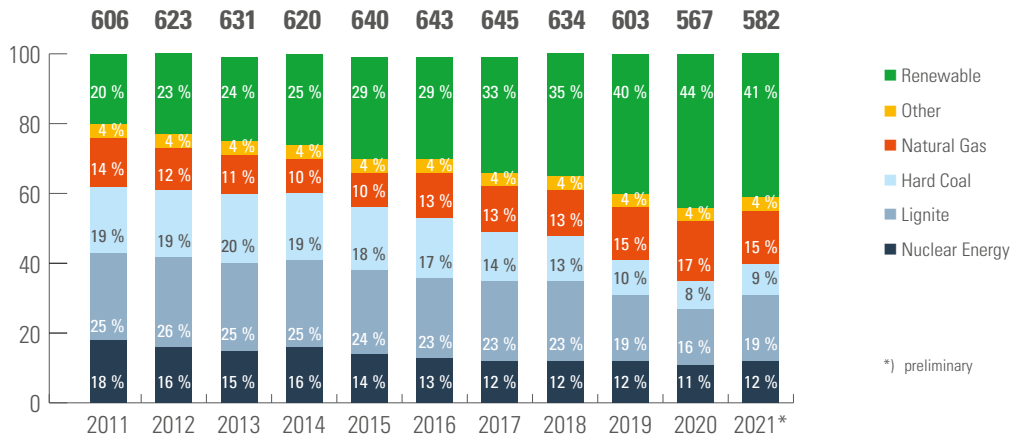
<sup>1)</sup> Provisional

Source: BDEW Annual Report 2021, January 19, 2022

HT-D3

### German Gross Electricity Generation

Past ten years by energy sources in TWh



\* ) preliminary

Source: BDEW Annual Report 2021, January 2022

HT-B2

<b>Gross Power Generation from Renewable Energy Sources</b>					
Energy Source	2019	2020	2021 <sup>1)</sup>	2021 Shares	Change 2021/2020
	TWh			%	%
Hydroelectric Power	20.2	18.7	19.7	8 %	5.4 %
Wind Onshore	101.1	104.6	92.0	39 %	-12.0 %
Wind Offshore	24.7	27.3	25.3	11 %	-7.3 %
Biomass	44.6	44.3	43.9	18 %	-1.0 %
Municipal Wastes (50%) <sup>2)</sup>	5.8	5.8	5.7	2 %	-2.2 %
Photovoltaics	45.1	48.8	51.2	22 %	4.9 %
Geothermal Energy	0.2	0.2	0.2	0 %	-9.9 %
<b>Total</b>	<b>241.9</b>	<b>249.7</b>	<b>238.0</b>	<b>100 %</b>	<b>-4.7 %</b>
Share of Renewable Energies in Gross Electric Power Generation	43 %	44 %	41 %		

<sup>1)</sup> Provisional    <sup>2)</sup> Biogenic share of household wastes

Source: BDEW Annual Report 2021, January 19, 2022

HT-D4

## Grid expansion

As reported by Der Spiegel, the expansion of the central infrastructure for the energy turnaround progressed only slowly. In 2021, only about 120 km of the planned new electricity transmission lines envisaged in the Federal Requirements Plan (BBPIG) and the Energy Line Expansion Act (EnLAG) were built. In the previous three years, a total of 715 km of lines were added. Grid expansion is a central component of the energy revolution. The structure of the electricity supply is changing from centralised to decentralised.

In particular, the higher number of feed-in points increases the complexity immensely. Large amounts of wind power are also generated at sea. And these must somehow reach the main points of consumption, especially Baden- Württemberg and Bavaria.

Grid expansion is thus lagging well behind plans. According to calculations by the BMWK, only about 1 700 km of the originally planned 12 000 km have already been implemented. For another 3 400 km, an approval procedure has not even been initiated.

The main reasons for the slow progress are the unnecessarily high administrative costs and long approval procedures. Economics Minister Habeck is already trying to speed this up. Protest actions by citizens' initiatives are another brake on progress.

## Emission development

After a significant decline in the previous year, energy-related CO<sub>2</sub> emissions in Germany rose again. In 2021, around 627 million tonnes were released - this is around 32 million tonnes or 5.4 % more than in the previous year. The increase is attributed to higher electricity demand, lower electricity generation from renewables, higher gas prices and higher coal-fired generation. Electricity generation from renewables fell by 7 %, mainly due to poor wind conditions. The transport and buildings sectors are above the annual emission levels specified in the Federal Climate Protection Act. This is the result of the latest calculations by the Federal Environment Agency (UBA).

The German government's goal is to make Germany greenhouse gas neutral by 2045, five years earlier than envisaged in the EU Green Deal. By then, all greenhouse gases must either be completely avoided, or emitted gases must be fully sequestered. The interim target for 2030 envisages savings of 65 % compared to 1990.

## CO<sub>2</sub> Emissions from Energy Generation in Germany by Energy Source

	CO <sub>2</sub> Emissions		Change 2021/2020	Emission Shares	
	2020	2021 <sup>1)</sup>		2020	2021
	Mill. t		%	%	
Oil	227.3	218.0	-4.1	38.2	34.8
Hard Coal <sup>2)</sup>	75.9	89.0	17.3	12.8	14.2
Natural Gas <sup>3)</sup>	162.7	172.4	6.0	27.3	27.5
Lignite	105.4	124.0	17.6	17.7	19.8
Other <sup>4)</sup>	23.6	23.8	0.8	4.0	3.8
<b>Total</b>	<b>594.9</b>	<b>627.2</b>	<b>5.4</b>	<b>100.0</b>	<b>100.0</b>

<sup>1)</sup> Provisional <sup>2)</sup> Incl. furnace and coke oven gas <sup>3)</sup> Incl. mine gas <sup>4)</sup> Incl. volatile emissions

Source: Schiffer, Hans-Wilhelm, "German Energy Market 2021",  
Energiewirtschaftliche Tagesfragen 03/2022

HT-D5

### Climate protection Immediate programme

What about Germany's climate targets? In spring, the Federal Environment Agency spoke plainly. The country had failed to meet its targets in a series of cases. Last year, for example, cars, lorries and trains emitted 148 million tonnes of CO<sub>2</sub> - 3 million more than the law allows. Germany's buildings also missed their legal targets by 2 million tonnes. Emissions have risen instead of falling, the environmental agency warned.

On 99 pages, the federal government has meanwhile reacted and issued a "Emergency Climate Protection Programme 2022". The programme is intended to ensure that the goals of the Climate Act are met by 2030. The ministries had to submit corresponding supplementary plans. It is about the transformation of mobility, incentives for the restructuring of industry, new rules for

construction and a tax reform that could make climate-friendly food cheaper.

Without a change of course, the targeted 438 million tonnes of CO<sub>2</sub> emissions in 2030 would be exceeded by almost 50 %. The government then fears emissions of 633 million tonnes. But the proposals in the various sectors make it clear that even if the entire government agrees to the draft in the upcoming negotiations, things could get tight.

This is already clear from the transport sector, which former Chancellor Angela Merkel identified as a "problem child". Its record has hardly improved in recent years. According to the German Climate Act, emissions in this sector must be almost halved by 2030. But even the additional programme from the department of Transport Minister Volker Wissing (FDP) is not exactly ambitious. In addition to the already planned expansion of rail transport and stricter EU emission limits for cars, Wissing is preparing greater support for fully electric cars for companies. In future, they should be able to finance them more easily by means of special depreciation.

Other measures are more promising. A "Climate Protection in Mobility Platform" of the Ministry is to develop socially and economically viable measures to reduce the remaining CO<sub>2</sub> gap by the end of 2022. In addition, Deutsche Post is to abandon letter transport flights in the Federal Republic.

Nowhere do lapses potentially pile up as high by 2030 as around electricity. The government points to the reform of the Green Electricity Act (EEG), "the biggest acceleration amendment since the law came into existence". An early coal phase-out, "ideally" by 2030, is also included in the emergency programme. But it does not get any more concrete. Instead, the basic features of the next laws are now clearer - for example, the goal of reserving 2 % of the state's land for wind turbines. A corresponding law should set

"concrete area targets for the individual federal states", "including interim targets".

At the same time, more wind power is to be turned into hydrogen with the help of so-called electrolysis. Green hydrogen is seen as the key to making industry climate neutral. The draft also calls for a "strategy for dealing with unavoidable residual emissions" - and that means nothing other than the capture and storage of carbon dioxide, whether underground or chemically, i.e. in new products. There are to be subsidy programmes for all this, including for the conversion of entire production plants. Much of this is already in the coalition agreement.

Germany's houses and commercial buildings are among the problem areas of climate protection; the climate targets for construction and housing were missed in 2020 and 2021. Now things are to move quickly. Above all, the Federal Government wants to tighten the regulations for new buildings and renovations. From January 2024, new heating systems will only be allowed to be put into operation if they are powered by at least 65 % renewable energies. New buildings are to have to meet the energy-saving standard of the Efficiency House 55 (EH55) from the beginning of 2023, but this is not included in the coalition agreement either. This was agreed by the coalition committee in spring. From 2025 onwards, the even stricter EH40 standard will apply.

There is also to be more money for refurbishments - but "with a simultaneous cut in subsidies for new construction". This is likely to lead to conflicts with the Ministry of Construction, which wants to create 400 000 additional dwellings per year. According to experts, this is only realistic with more funding for new construction.

## Hard coal market

German primary energy consumption based on hard coal increased significantly in 2021 compared to the previous year. By around 16.4 % to 35.6 Mill. TCE. The downward trend, which has been steady for seven years, was interrupted again for the first time. This trend reversal was favoured by the price increase for energy sources as well as by low electricity feed-in from wind turbines due to weather conditions.

### Utilisation of Hard Coal in Germany

Utilisation	2018	2019 <sup>2)</sup>	2020 <sup>1)</sup>	2021 <sup>1)</sup>	Change 2021/2020
	Mill. TCE				%
Power Plants <sup>2)</sup>	27.2	17.1	15.6	19.0	23.9
Steel Industry	20.4	18.1	13.1	14.7	12.3
Heating Market	1.1	1.8	1.9	1.9	3.3
<b>Total</b>	<b>48.7</b>	<b>37.0</b>	<b>30.6</b>	<b>35.6</b>	<b>16.4</b>

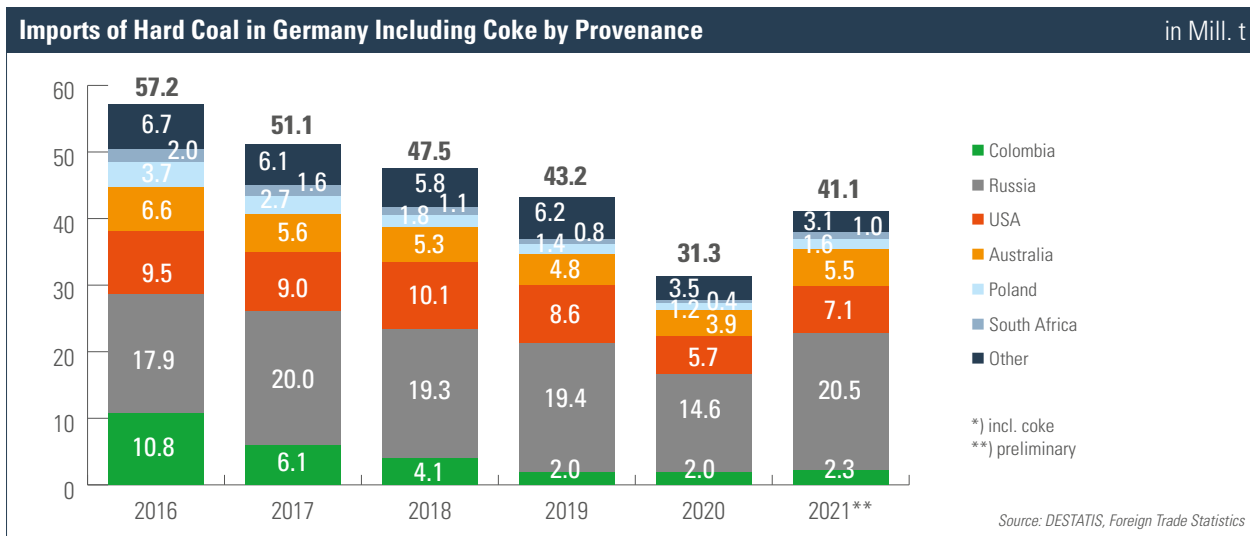
<sup>1)</sup> Provisional information, in part estimated <sup>2)</sup> statistical differences incl.

Source: AGEB, „Energieverbrauch in Deutschland 2021“, March 2022

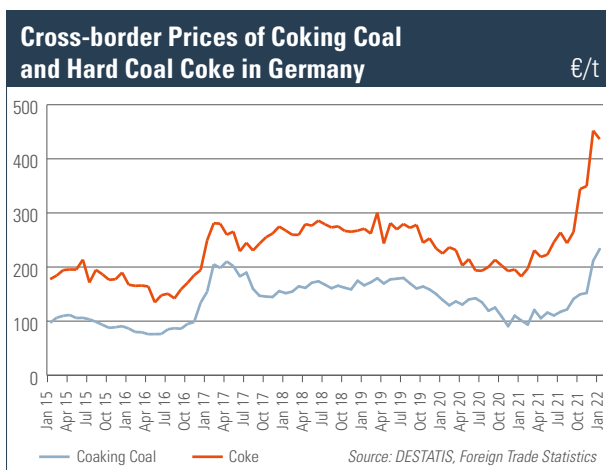
### HT-D6

Thus, hard coal use in the form of coke and coking coal for the steel industry increased by 12 %. The use of hard coal in power plants for electricity and heat generation increased even more strongly and rose by almost 24 %. Despite historic highs in fuel prices for hard coal and natural gas as well as extremely high CO<sub>2</sub> emission certificate prices, the use of hard coal was more favourable than natural gas. This is because gas prices increased even more than those for hard coal.

In the period under review from January to December 2021, Russia remained in first place, as in previous years, with a share of around 50 % of total German hard coal imports (incl. coke). Russia also dominated the steam coal market with almost 71 % of all corresponding imports to Germany.



HT-B3



HT-B6

The development of global hard coal production in 2021 was shaped by the recovery of the global economy and the associated strong demand, especially in Asia. Production increased to around 7.4 billion tonnes, making it the highest coal production ever recorded in a historical context. The International Energy Agency (IEA) expects a further increase in global production in 2022 and foresees a continuation of these high levels until at least 2024.

### Steel production

According to data from the German Steel Federation (WV Stahl), German crude steel production grew again in 2021 for the first time in three years. With a plus of 12.4 %, the 40 million t mark was just exceeded. However, this cannot compensate for the losses from previous years. Thus, production in 2021 was still 7 % below the value of 2017 (43.3 million t).



<b>Crude Steel and Pig Iron Production</b>				
	<b>2019</b>	<b>2020</b>	<b>2021<sup>1)</sup></b>	<b>Change 2021/2020</b>
	Mill. t			%
Crude Steel	39.7	35.7	40.1	12.4 %
Pig Iron	25.5	22.5	25.7	14.3 %

<sup>1)</sup> Provisional

Source: Steel Federation, press release from January 24<sup>th</sup>, 2022

### HT-D12

According to the German Steel Federation (Wirtschaftsvereinigung Stahl), the steel industry is significantly affected by high energy costs. Electricity and gas prices had already risen dramatically in the months before the Russian attack on Ukraine and had almost tripled compared to the beginning of 2021, according to the WV Stahl. This was because of the Corona crisis, weather conditions, drastically increased CO<sub>2</sub> prices and already existing geopolitical tensions. The outbreak of war further accelerated the rise in energy costs. The steel industry is massively affected by this. This applies to electricity-intensive processes such as electric steel production, but also to the use of natural gas in further processing. According to calculations by WV Stahl, the price level for electricity and gas is burdening steel companies in Germany with additional costs of around € 2 billion. According to Hans Jürgen Kerkhoff, President of WV Stahl, the competitiveness of electric steel production, which is important for achieving the climate targets, is suffering as a result.



# EUROPEAN UNION

The war in Ukraine changes everything



# EUROPEAN UNION

## Economic Growth in Europe

The war in Ukraine is putting a significant damper on the European economy. After a significant expansion of 5.3 % in 2021, the EU economy forecast is to grow by only 3.5 % this year and 2.8 % in 2023.

Topsy-turvy world. It has been a steady upward path for decades. After the end of the Cold War, economic growth in the EU countries basically knew only one direction: upwards. There have been slumps: the bursting of the Internet bubble at the beginning of the millennium, but above all the international financial crisis from 2008 and then Corona. But the countries have always recovered, the economy and employment have stabilised. Things have always gone on - despite considerable mountains of debt in some countries such as Greece, Italy and Spain.

Recovery was expected again now - after Corona. But the war in Ukraine changes everything. This war threatens global security and the entire world economy, says EU Council President Charles Michel. But not only that: "The war in Ukraine is also calling our economic model into question," says Achim Wambach, President of the Centre for European Economic Research in Mannheim. Until now, this economic model has had one crucial pillar: comparatively cheap energy and comparatively cheap raw materials, stones, earths, minerals or metals.

"These cheap raw materials, fuels, are used in many industrial processes and then, of course, also for export," explains Guntram Wolff from the political economy think tank Bruegel in Brussels. For the car industry, mechanical engineering, chemical products. Which follows the basic principle: cheap raw material in, high-quality product as an outcome.

This does not work equally well in all EU countries, but it does in many - especially in the economically strong ones and particularly in Germany. For decades, this has ensured prosperity, growth, and employment, with largely stable prices. This is an ideal situation for societies. However, one risk was always ignored: that energy and raw materials would suddenly become unbelievably expensive at some point, because you don't have them yourself, because you must import them. This was not foreseen in the model, but now it is reality.

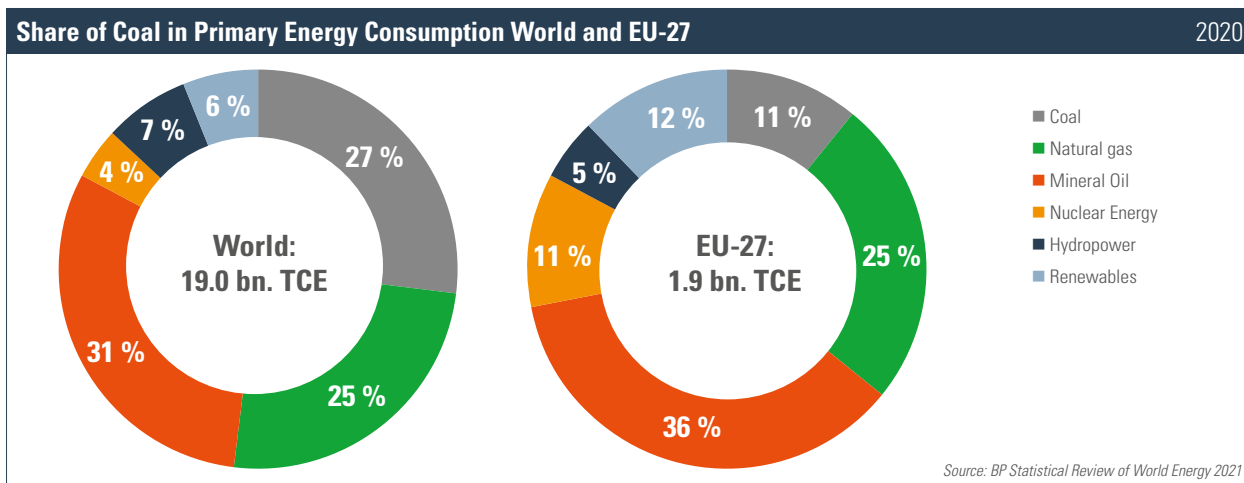
"One thing is clear: the prices for these raw materials, for oil and gas, will remain so expensive for some time, perhaps there will even be shortages, bottlenecks," says economist Wolff. Of course, this will have consequences - especially for the German economic model.

Loss of prosperity is inevitable in this situation, they say. This means that purchasing power will fall, growth will stop, and societies will become poorer. However, there is also good news: the move away from cheap energy was a done deal in Europe anyway.

## Energy Consumption

As calculated by the World Energy Council, in 2020 and 2021 there was the sharpest drop in primary energy consumption (PEV) in the (late) EU countries since the end of the Second World War. This was around 7.5 % lower in the EU-27 in 2021 than in the previous year. This was because of the pandemic and the considerably milder weather compared to the previous year.

The rate of change in electricity demand in the EU-27 was still below the EU-27 economic growth of 5.4 %, at around 4 %. This was essentially due to the lockdown actions at the beginning of the pandemic. In April 2020, electricity demand across the EU was



HT-B7

13 % below the level of the previous year. From May onwards, it gradually increased and reached the pre-crisis level again at the beginning of the fourth quarter.

The use of renewable energies has increased in all 27 EU countries in recent years. On average, the share of renewable energies in gross final energy consumption increased from 13.9 % to 19.7 % between 2009 and 2019.

In 2019, Sweden already covered 56.4 % of its gross final energy consumption from renewable energies, the highest figure in the EU.

In Germany, the share increased from 10.9 % to 17.4 % between 2009 and 2019, according to data from the European statistics agency Eurostat. Germany thus ranked 16<sup>th</sup> among the 27 EU member states in 2019.

The use of renewable energy sources can save fossil fuels and reduce greenhouse gas emissions. The EU Commission therefore

wants to increase the share of renewable energies in gross final energy consumption in the EU to 40 % by 2030. This target is part of the European Green Deal, with which the EU wants to become climate neutral by 2050. As a first step, the EU's annual greenhouse gas emissions are to be reduced by 55 % by 2030 compared to 1990 levels. In 2019, emissions were 24 % lower than in 1990.

### Hard Coal Market

Coal imports to Europe are rising rapidly: Actually, the use of coal in power plants in Germany had been reduced in recent years. Now, however, demand for coal is growing in Europe and imports are soaring compared to the same month last year.

The import of coal to Europe is also increasing considerably due to the rapid rise in gas prices in the wake of the Ukraine war. Overall, imports rose by more than 55 % in January compared to the same month last year.

The main reason is that coal has become cheaper than gas. As a result, more coal-fired power plants are producing electricity, while the use of gas-fired power plants is being reduced. The International Energy Agency (IEA) expects gas consumption in Europe to fall by 4.5 % this year. The comparatively mild winter could also play a role in this.

European hard coal production increased slightly in 2021 compared to the previous year (see tables).

Hard Coal Volume in the EU <sup>1)</sup>				
	2018	2019	2020	2021
	Mill. t (t=t)			
Hard Coal Production	73.2	65.0	56.5	57.2
Hard Coal Imports	165.6	133.1	88.7	96.6
<b>Total - Hard Coal Volume</b>	<b>238.8</b>	<b>198.1</b>	<b>145.2</b>	<b>153.8</b>

<sup>1)</sup> until 2019: EU 28, since 2020: EU 27 (without UK)

Source: EURACOAL, April 2022

### HT-EU3

Poland is Europe's coal stronghold. Today, coal accounts for 70 % of Poland's electricity production. The mining and power generation sector still employs tens of thousands of people. Top politicians regularly express their support for the miners in the Silesian mines; coal is more than just a source of energy, it is closely linked to political identity.

### Hard Coal Production in the EU 27

	2019	2020	2021
	Mill. t (t=t)		
Germany	-	-	-
Spain	-	-	-
Poland	61.6	54.4	55.0
Czech Republic	3.4	2.1	2.2
<b>Total</b>	<b>65.0</b>	<b>56.5</b>	<b>57.2</b>

Source: EURACOAL, April 2022

### HT-EU2

According to the International Energy Agency (IEA), coal accounted for just over 40 % of Poland's primary energy consumption mix in 2020, followed by oil (around 30 %) and natural gas (around 18 %), with the remainder coming from biofuels and waste, as well as other renewable energy sources such as wind and solar. (For more on Poland, see the corresponding country report).

The new Czech government is setting ambitious targets for the energy industry. The coal phase-out is being brought forward and is to end by 2033 at the latest. The Minister of the Environment, Anna Hubáčková, would very much like to see the coal phase-out achieved as early as 2030. That this goal is more than ambitious is shown by the current share of coal in the production of electrical energy, which is 46 %. It is still largely unclear how the Czech Republic intends to replace the energy produced from coal.

Part of the solution is likely to be three new nuclear power plant units that are currently in the planning stage. For example, the state-owned company CEZ wants to start building a unit in Dukovany in 2029 to replace an existing unit. After that, two more units are to follow at the Temelin site.

Currently, the nuclear power plants in Dukovany and Temelin contribute about 35 % to electricity generation. In 2021, this would mean 30.73 billion kWh of electricity.

### **EU: Stop Russian Coal**

The 27 EU states have launched the fifth major package of Russia sanctions. It also includes an import ban on coal from Russia from August 2022 - the first time an energy embargo has been imposed.

According to the Federal Statistical Office, the Federal Republic of Germany imported coal worth around € 2.2 billion from Russia last year. This corresponds to more than 50 % of the total imports of hard coal to Germany. The customers for Russian coal are, for example, the utilities RWE, Uniper and EnBW. They must import hard coal because, as is known, production in Germany was discontinued at the end of 2018.

In 2021, Russia had a share of around 6 % of global coal production - and was also one of the world's three largest coal exporters. Only Indonesia and Australia exported more coal than Russia in 2021. (Cf. Table HT-W8)

Looking at the EU as a whole, Russian coal accounts for about 45 % of coal imports, according to EU figures. The same applies to gas. The share of Russian oil imports is around 25 %. Russian coal accounts for almost 70 % of imports of coal for power plants, which is used to generate electricity. Between 20 and 30 % of imported coking coal, which is used for iron and steel production, comes from Russia.

Along with Poland and the Netherlands, Germany is one of the largest consumers of coal. In 2021, 50 % of German coal imports (incl. coke) originated from Russia, 17 % from the USA, 13 % from Australia, 6 % from Colombia and smaller quantities from Canada, Poland, South Africa and the Czech Republic in particular.

The share of Russian hard coal is already being reduced. As the Federal Ministry for Economic Affairs and Climate Protection (BMWK) announced in a progress report on energy security at the end of March, many power plant operators will completely abandon Russian hard coal or burn considerably less by early summer.

The large industrial users of coal, especially the steel industry, are also already changing their supply contracts.

As a result of the contract conversions, the dependence on coal will drop from 50 % to around 25 % in the next few weeks, which will take effect step by step as early as April: "By autumn, Germany can be independent of Russian coal," is the BMWK's forecast.

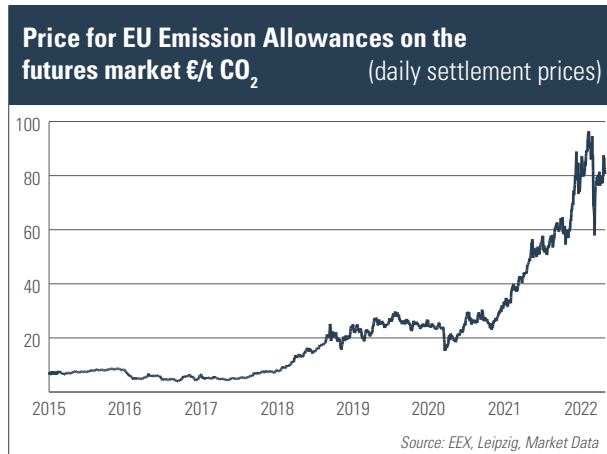
### **Emissions Trading**

The European Emissions Trading Scheme (EU ETS) was introduced in 2005 to implement the Kyoto international climate protection agreement and is the central European climate protection instrument. In addition to the 27 EU Member States, Norway, Iceland and Liechtenstein have also joined the EU ETS (EU 30). The United Kingdom participated until 31 December 2020 in the EU ETS. Since 01 January 2021, after Brexit, a national emissions trading system has been in force there.

The EU ETS operates according to the principle of so-called "cap & trade". A cap determines how many greenhouse gases can be emitted by the participating plants that are subject to emissions trading.

The member states issue a corresponding amount of emission allowances to the installations, or plants - partly free of charge, partly via auctions.

The emission allowances can be freely traded on the market. This creates a price for the emission of greenhouse gases. This price creates incentives for the companies involved to reduce their greenhouse gas emissions.



HT-B9

According to the European Commission, emissions from ETS installations across the EU fell by around 12 % year-on-year in 2020 to around 1.35 billion tonnes of carbon dioxide equivalents (CO<sub>2</sub>-eq). Similar to the development of emissions in the EU, the approximately 1 817 German plants covered by emissions trading also recorded a decrease in emissions: at 320 million t CO<sub>2</sub>-eq, emissions in 2020 were around 12 % below the previous year's value. The main reason for this development was a decrease in emissions from electricity generation, while the emissions from industrial plants as a whole continue to show no substantial changes.

In the meantime, the price for a CO<sub>2</sub> certificate is around € 81. This is the price energy and industrial companies in the EU must pay per tonne of carbon dioxide emitted. The aim is to make climate-

damaging CO<sub>2</sub> consumption so expensive that it is no longer economically viable to emit it and to switch to climate-friendly technologies. This is the principle of the EU ETS.

A reform of the existing EU ETS is currently under discussion. The aim is to reduce emissions from electricity generation and energy-intensive industries. Around 10 000 plants are affected by this across Europe, covering around 40 % of greenhouse gas emissions in the EU.

So far, the EU ETS is supposed to lead to a reduction of CO<sub>2</sub> emissions by 43 % by 2030 compared to 2005. Now the Commission wants to increase this target to 61 %. To achieve this, the total quantity of emission allowances issued in the ETS is to fall more quickly. The quantity is to fall by 4.2 % annually instead of the current 2.2 %. In addition, a higher withdrawal of allowances from the market stability reserve is to be made possible, and it is planned to expand the scope of emissions trading to include maritime transport. As a result, the measures will lead to an increase in CO<sub>2</sub> certificate prices.

In addition to the existing emissions trading system, another emissions trading system is to be introduced that will price the emissions of energy use in buildings and transport from 2026. As in the German national emissions trading system under the Fuel Emissions Trading Act (BEHG), the distributors of fuels will be obliged to participate. They then pass on the CO<sub>2</sub> price to their customers.



# WORLD ECONOMIC SITUATION

The outlook for the global economy is  
severely clouded





# WORLD ECONOMIC SITUATION

## World Production and World Trade

According to a forecast by the International Monetary Fund (IMF), the global economy will grow much more slowly this year because of the Ukraine war. At the same time, the IMF expects higher inflation, driven by higher energy and food prices, among other factors. "The outlook for the global economy has taken a hard hit, largely because of Russia's incursion into Ukraine," said Pierre-Oliver Gourinchas, IMF chief economist.

### Country Ranking by Growth in Real Gross Domestic Product - Selected Countries (according to 2021)

	2018	2019	2020 <sup>1)</sup>	2021 <sup>2)</sup>	2022 <sup>2)</sup>	2023 <sup>2)</sup>
	Change from Previous Year in %					
Indien	6.5	3.7	-6.6	8.9	8.2	6.9
PR China	6.7	6.0	2.2	8.1	4.4	5.1
World	3.6	2.9	-3.1	6.1	3.6	3.6
USA	2.9	2.3	-3.4	5.7	3.7	2.3
Russia	2.8	2.2	-2.7	4.7	-8.5	-2.3
Brazil	1.8	1.2	-3.9	4.6	0.8	1.4
South Korea	2.9	2.2	-0.9	4.0	2.5	2.9
OECD Countries	2.3	1.7	-4.5	5.2	3.3	2.4
Great Britain	1.7	1.7	-9.3	7.4	3.7	1.2
Germany	1.1	1.1	-4.6	2.8	2.1	2.7
Japan	0.6	-0.2	-4.5	1.6	2.4	2.3

<sup>1)</sup> Provisional <sup>2)</sup> Forecast

Source: IMF - World Economic Outlook 2022, April 2022

HT-P1

In its new forecast, the IMF expects global growth of only 3.6 % in 2022. This is 0.8 percentage points less than assumed in January. For the Eurozone, the IMF expects growth to be 1.1 percentage points lower at 2.8 %. Many countries had already been struggling with high inflation before the war. The recent corona lockdowns in China could cause new problems for supply chains. The IMF had already lowered its global growth forecast to 4.4 % in January as a result of the omicron wave of the corona pandemic. The latest cut in the global economic forecast by 0.8 percentage points is mainly due to the worsened outlook for Russia and the EU.

Russia is facing a deep recession as a result of Western sanctions, which accounts for around 0.3 percentage points of the downgrade. The economic effects of the war are also particularly devastating for Ukraine. According to the forecast, the Ukrainian economy is expected to shrink by 35 %. Russia's GDP is expected to decline by 8.5 %. Another 0.2 percentage points are due to the gloomier outlook in Europe "because of the indirect effects of the war". In view of rising prices, only the economies of large commodity exporters would have a more positive outlook in 2022. According to the IMF, the new economic forecast is associated with an unusually high degree of uncertainty. Dangerous Corona variants, which would undermine vaccination protection, could also lead to further lockdowns and production distortions. The IMF also expects higher and longer-lasting inflation due to the war in Ukraine.

Consumer price inflation is expected to reach 5.7 % this year in industrialised countries and 8.7 % in developing and emerging countries.

Federal Finance Minister Christian Lindner described the new forecasts as "another warning signal that economically there is no simple 'business as usual'". Less growth combined with rising inflation "is a dangerous combination". Internationally, it is now

a matter of preventing the threat of "stagflation" - a standstill in economic growth with simultaneous inflation, Lindner warned.

## World Energy Consumption and CO<sub>2</sub> Emissions

According to the IEA report, global electricity consumption will continue to rise. After a decline of around 1 % in 2020, global electricity demand is expected to increase by almost 5 % in 2021 and by 4 % in the following year 2022, the IEA electricity market report predicts. More than half of the global growth in 2022 will take place in China, the world's largest electricity consumer. India, the third largest consumer, is forecast to account for 9 % of global growth.

Primary Energy Consumption (PEC) in Billion TCE - Major Energy Sources -						
	2017	2018	2019	2020	Change 2020/ 2019	Share of PEC 2020
Coal*	5.312	5.418	5.379	5.167	-3.9 %	27.2 %
Natural Gas	4.488	4.731	4.795	4.696	-2.1 %	24.7 %
Oil	6.581	6.532	6.547	5.944	-9.2 %	31.3 %
Nuclear Energy	0.853	0.824	0.851	0.818	-3.8 %	4.3 %
Hydroelec- tric Power	1.314	1.274	1.286	1.302	1.2 %	6.8 %
Renewable Energies and Others	0.700	0.881	0.983	1.082	10.0 %	5.7 %
<b>Total</b>	<b>19.249</b>	<b>19.662</b>	<b>19.842</b>	<b>19.008</b>	<b>-4.2 %</b>	<b>100.0 %</b>
* Hard coal and lignite						
Source: BP, Statistical Review of World Energy 2021						

HT-W2

Despite a record increase in renewable generation capacity, fossil fuel generation and associated greenhouse gas emissions are rising along with electricity demand.

After an increase of 5.7 % in 2020, electricity generation from renewable energies is expected to increase by 8 % in 2021 and by more than 6 % in 2022, according to the IEA report. Despite this expected increase, however, renewable energies are only expected to cover about half of the forecast growth in global demand in 2021 and 2022.

Nuclear power generation will grow by about 1 % in 2021 and by 2 % in 2022. According to the forecast, electricity from fossil fuels will cover about 45 % of the additional demand in 2021 and 40 % in 2022. After a decline of almost 5 % in 2020, electricity generation from coal will increase again in 2021 - and thus even exceed the level before the pandemic (cf. Table HT-W2).

After a decline of more than 2 % in 2020, gas-fired generation is expected to increase by 1 % in 2021 and almost 2 % in 2022, according to the IEA report. The growth of gas-fired power generation lags behind coal because it plays a smaller role in the fast-growing Asia-Pacific region, but also because of increasing competition from renewables in the US and Europe.

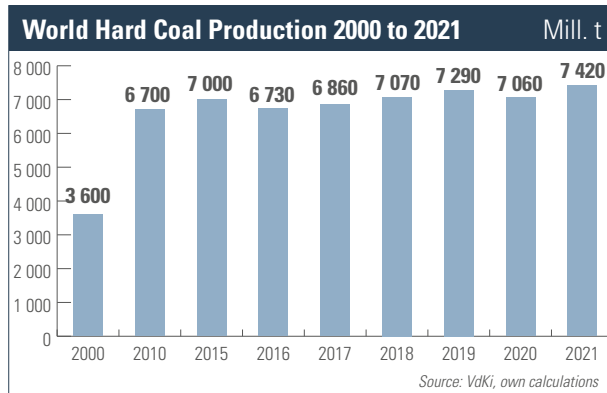
Since the share of fossil fuels continues to rise and the expansion of renewable energies is progressing only slowly, the CO<sub>2</sub> emissions of the electricity sector will also rise again this year and next. In figures: After a decrease of 1 % in 2019 and 3.5 % in 2020, CO<sub>2</sub> emissions from the power sector are expected to increase by 3.5 % in 2021 and 2.5 % in 2022.

The IEA also states that stronger political measures are needed to achieve the climate targets. In the IEA scenario, almost three quarters of the emission reductions between 2020 and 2025 take place in the power sector, where emissions fall by an average of 4.4 % per year. To achieve this reduction, electricity generation from coal would have to be reduced by more than 6 %/year. According to energy and climate experts, it is not an option for the climate targets if emissions from gas combustion replace those from coal combustion.

## 2021 - A Year of Records for Coal as an Energy Source

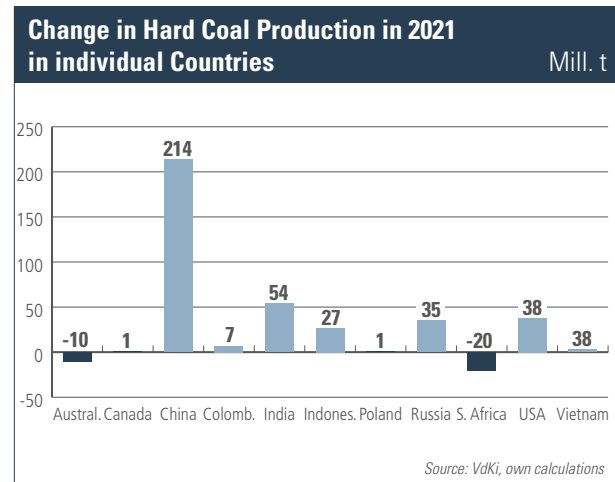
Never has more coal been used to generate electricity than last year. And never has so much money been paid for coal on individual days. The IEA also expects new records for the coming years: This year, for example, more coal could be produced and demanded than ever before.

These are the key results of the current study "Coal 2021 - Analysis and forecast to 2024" by the International Energy Agency (IEA). In 2020, global coal demand had fallen by 4.4 % due to the pandemic-related slump in the world economy. However, in 2021, both electricity demand and gas prices increased significantly, so that coal-fired power plants were often more economical than gas-fired power plants and coal-fired power generation reached a record level. In conjunction with a slight increase in coal demand in industry (steel and cement production), global coal consumption rose sharply in 2021.



HT-B12

Coal production could not keep up with this increase in demand. In China and India, there were supply bottlenecks and, as a result, power cuts and production interruptions. In response, the countries took measures to increase production capacities. The IEA therefore expects that even more coal will be produced this year than in 2013, the year with the highest coal production to date. While the increase in demand in the USA and Europe was only temporary and is strongly dependent on the development of gas prices, China and India will probably consume even more coal this year. Together, the two countries account for about two-thirds of global coal demand. China's importance for the global coal markets in particular should not be underestimated. The country's electricity generation alone (including heat extraction) accounts for about one third of global coal consumption. In total, the country is responsible for more than half of global coal consumption. As the largest producer, consumer and importer, China dominates the international coal markets. In 2021, Chinese coal consumption rose to a new record high.



HT-B13

### TOP-10 Hard Coal Production Countries

(according to values of 2021)

Ranking	Country	2019 Mill. t	2020 Mill. t	2021 Mill. t	Growth 2021/2020 %	2020 Shares in %	2021 Shares in %
1	China	3 746	3 812	4 026	5.6	54.0	54.3
2	India	711	719	773	7.5	10.2	10.4
3	Indonesia	532	498	525	5.4	7.1	7.1
4	USA	640	486	524	7.8	6.9	7.1
5	Russia	437	401	438	9.2	5.7	5.9
6	Australia	472	440	431	-2.0	6.2	5.8
7	RSA	259	248	229	-7.6	3.5	3.1
8	Kasachstan	115	113	112	-0.9	1.6	1.5
9	Colombia	82	48	56	16.7	0.7	0.8
10	Poland	62	54	55	1.1	0.8	0.7
	Vietnam	46	47	50	6.4	0.7	0.7
	Canada	52	41	42	2.8	0.6	0.6
	Ukraine	31	29	29	0.0	0.4	0.4
	Czech Rep.	3	2	2	0.0	0.0	0.0
	UK	2	1	1	0.0	0.0	0.0
	Other	100	124	128	3.2	1.8	1.7
	<b>World</b>	<b>7 288</b>	<b>7 063</b>	<b>7 421</b>	<b>5.1</b>	<b>100.0</b>	<b>100.0</b>

Source: S&P Global-IHS Markit, coal production by country, from April 20, 2022

HT-W3

The development of steam coal prices in the past year reflects the increase in demand and the growing scarcity of the raw material. After comparatively moderate prices in 2020 of around US\$ 50/t cif ARA (free Northwest European ports) on average, these rose at times in 2021 to record values of up to almost US\$ 260/t cif ARA. The annual average in 2021 was US\$ 120.71/t cif ARA, more than twice as high as in the previous year.

### World Production/World Trade

Hard Coal	2019	2020	2021	Change 2021/2020	
	Mill. t			Mill. t	%
World Production	7 288	7 063	7 421	358	5.1 %
World Trade	1 346	1 216	1 237	21	1.7 %
<b>Share World Trade in Production</b>	<b>18.5 %</b>	<b>17.2 %</b>	<b>16.7 %</b>		

Source: VdKi own analyses

HT-W6

### Major Hard Coal Importing Countries/ Regions 2021 in Million Tonns <sup>1)</sup>

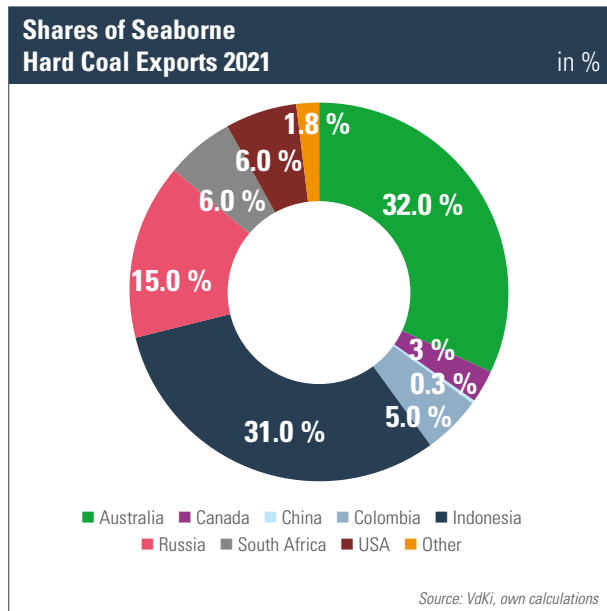
	Total	Steam Coal	Coking Coal
Asia, of which	886	698	188
Japan	183	140	43
PR China <sup>2)</sup>	176	135	41
India	185	124	61
South Korea	126	104	22
EU 27, of which	97	69	28
Germany	39	27	12

<sup>1)</sup>Incl. anthracite <sup>2)</sup>Excl. lignite

Source: Own calculations; seaborne traffic only

HT-W7

This year, the prices for steam coal free of charge reached peak values of up to almost US\$ 390/t in Northwest Europe. In the period from January to the beginning of June 2022, steam coal prices reached an average level of US\$ 272.33/t cif ARA. At these prices, domestic German steam coal would also have been competitive by far. Its average price in 2018 was most recently around US\$ 180/TCE free power plant (cf. Table 23 in the table section).



HT-B15

Australia remains the world's leading coal exporter in 2021. While China is the largest coal mining country, it is also the largest consumer. That is why Australia, and not China, tops the list of the most important coal exporting countries. For Australia, coal, along with iron ore, is by far the most important export commodity.

### The Largest Hard Coal Exporting Countries in 2021 in Million Tonnes <sup>1)</sup>

	Total	Steam Coal	Coking Coal
Australia	367	199	168
Indonesia	348	348	0
Russia	171	122	49
USA	73	35	38
Colombia	57	56	1
South Africa	66	66	0
Canada	31	5	26

<sup>1)</sup> Seaborne only

VdKi own analyses

HT-W8

### Seaborne Hard Coal World Trade

	2019	2020	2021	Change 2021/2020	
	Mill. t			Mill. t	%
Steam Coal	927	830	851	21	2.5%
Coking Coal	308	281	286	5	1.8%
<b>Total</b>	<b>1 235</b>	<b>1 111</b>	<b>1 137</b>	<b>26</b>	<b>2.3%</b>

Source: VdKi own analyses

HT-W5

### World Market Steam Coal

Analysts expect the market for steam coal to normalise at the end of 2023 at the earliest and that the price level in Northwest Europe, for example, will then fall below the US\$ 100/t cif ARA mark. The reasons for the continuing market turbulence this year are, apart from further consequences of the Corona pandemic, above all the war in Ukraine and the sanctions against Russia. Russia is a heavyweight in the international steam coal trade and - after India and Australia - the third largest steam coal exporter in the world. Russia's share of seaborne steam coal world trade in 2021 was around 14.3% (and of coking coal world trade around 17.1%).

# GLOBAL SEABORNE COAL TRADE\*

Main trade flows 2021,  
1.1 billion t (+2.3 %)

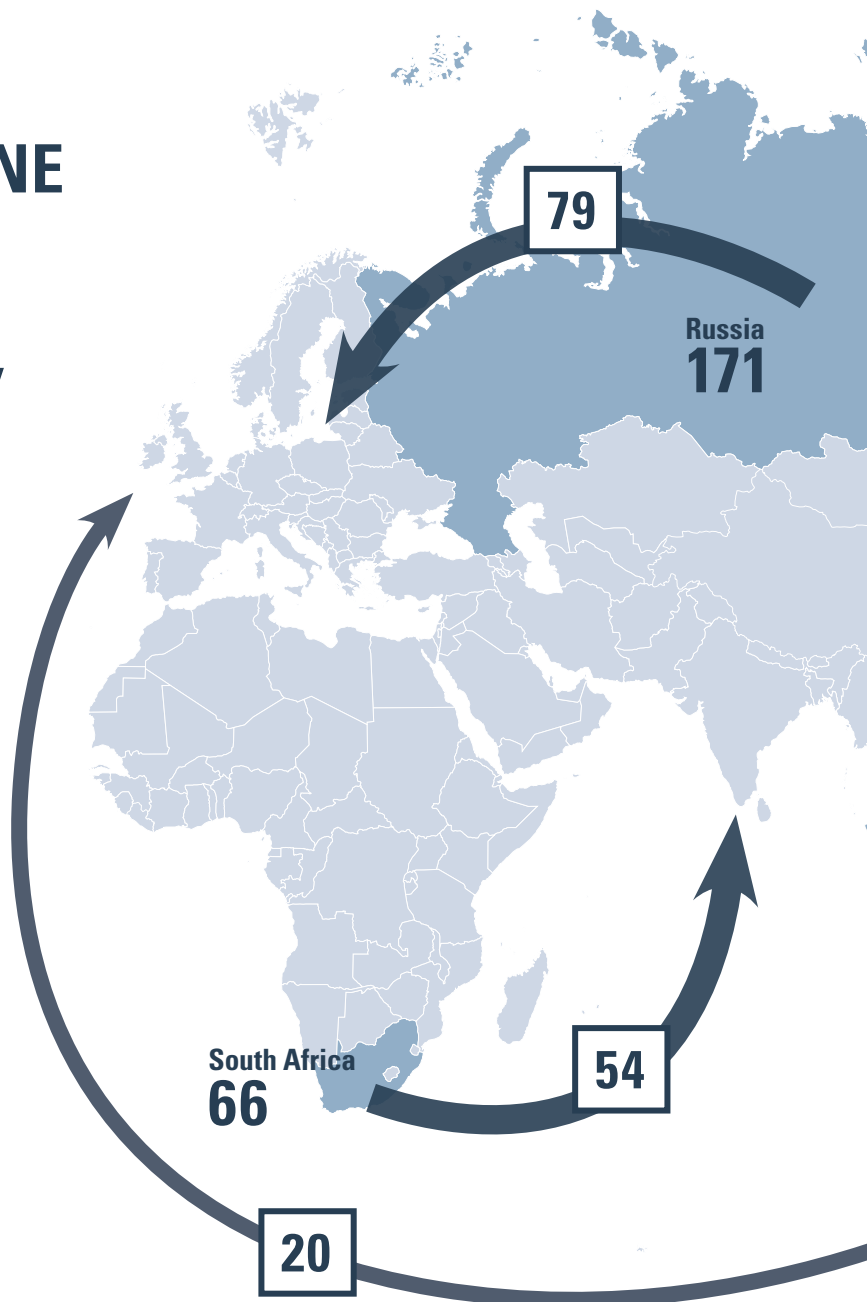
Global Seaborne Trade	
2020	2021
Mill. t	
1 111	1 137

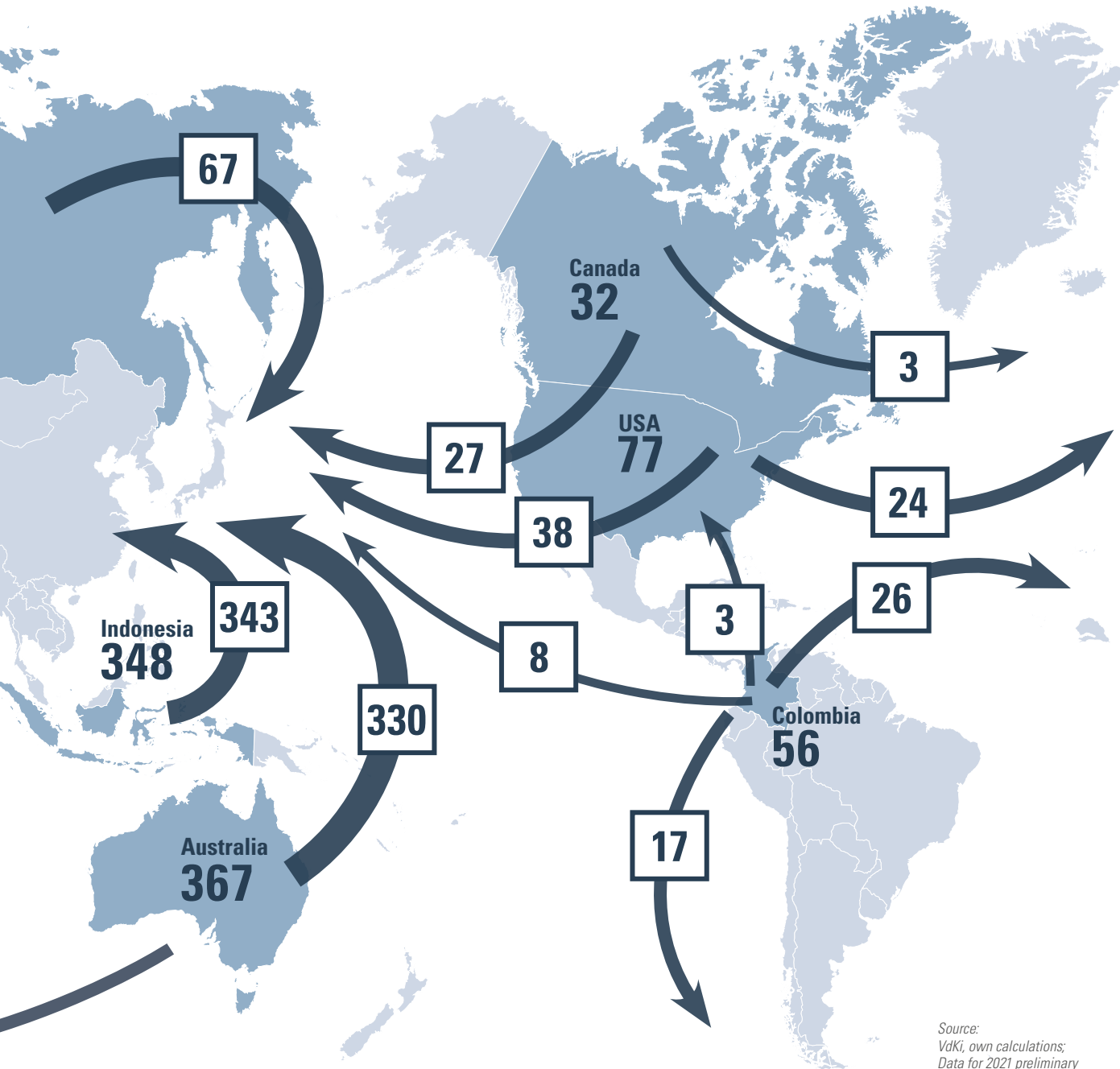
## Legend:

-  Hard coal exports  
(in million tonnes)
- 394** Total seaborne exports  
(in million tonnes)
-  Exporting countries

HT-B14

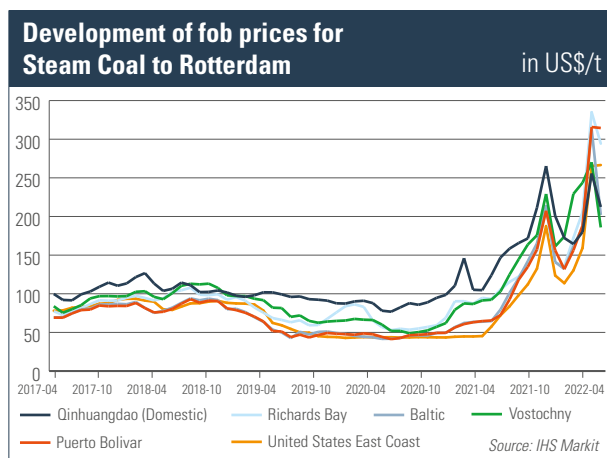
\*expected





Source:  
VdKi, own calculations;  
Data for 2021 preliminary

The EU embargo on Russian coal and, even before that, the Chinese import ban on Australian coal and temporary export ban on Indonesian steam coal have completely shaken up the market. Colloquially, "no stone was left unturned". In the future, international coal flows will largely take different routes than before. Russia, for example, will supply more to the Far East, especially to China, and to some extent also to India and Pakistan. Colombia is likely to regain considerable importance as a supplier of steam coal, especially for Central Europe, and the United States, in its role as a swing supplier, will again be increasingly present on the market (especially in the Atlantic). Europe is also interesting again for South Africa as an export market. However, opportunities due to the EU sanctions against Russia could hardly be exploited at first because of problems in domestic transport (cf. Country Report South Africa).



HT-B16

## World Market Steel Production

The Ukraine war and the pandemic before it caused steel to become scarce worldwide. Prices rose. Also in Germany. For example, the price of steel mesh for the construction industry has increased by 72 % compared to autumn 2021. Reinforcing steel has become 46 % more expensive.

In any case, due to the pandemic, prices have been at historically high levels in the last two years. The reasons for this are the increased energy costs, interrupted supply chains and higher prices for the raw materials ore, coking coal and scrap as well as more expensive freights. The German Steel Trade Association expects prices to continue to rise in the coming weeks and months.

## The 10 Largest Steel-producing Countries in the World

Country	2019	2020	2021 <sup>1)</sup>	Change 2021/2020
	Mill. t			
PR China	995	1 065	1 033	-3.0 %
India	111	100	118	17.7 %
Japan	99	83	96	15.7 %
USA	88	73	86	18.3 %
Russia	72	72	76	6.1 %
South Korea	71	67	71	5.2 %
Turkey	34	36	40	12.8 %
Germany	40	36	40	12.3 %
Brazil	33	31	36	14.6 %
Iran	26	29	29	-1.7 %
<b>Total</b>	<b>1 569</b>	<b>1 592</b>	<b>1 625</b>	<b>2.1 %</b>
<b>Total World</b>	<b>1 875</b>	<b>1 880</b>	<b>1 951</b>	<b>3.7 %</b>

<sup>1)</sup> Provisional figures

Source: World Steel Association

HT-W11

## Crude Steel and Pig Iron Production in the World

	2019	2020	2021 <sup>1)</sup>	Change 2021/2020
	Mill. t			
Crude Steel	1 875	1 880	1 951	3.7 %
Pig Iron	1 279	1 336	1 347	0.8 %
Share of Pig Iron in Crude Steel	68.2 %	71.0 %	69.1 %	-2.8 %

<sup>1)</sup> preliminary

Source: World Steel Association (64 Member States recorded)

HT-W9



## World Market Coking Coal

Coking coal is an important raw material in the production of crude iron and (oxygen) steel. If its price rises, the manufacturing costs of steel producers also increase. It has expanded strongly in the past five-year period and is expected to rise again in 2021 after its Corona-induced decline in the previous year. The price of coking coal, like other commodity prices, is subject to strong fluctuations and reached record levels during the market turbulence described above, especially in 2021 and in the current year to date. For example, the annual average price for Australian premium coking coal FOB in (Eastern) Australia rose from US\$ 120.15/ton in 2020 to US\$ 223.28/ton in 2021 to over US\$ 480/ton in the period under review this year (January to early June 2022).

Peak prices of over US\$ 620/ton were observed in isolated cases (weekly quotation of 18.03.2022). Unlike the world market for steam coal, the world market for coking coal is characterised by a relatively small number of exporting countries. Therefore, the coking coal market usually reacts more drastically to market disturbances.

### Market Share Seaborne World Coking Coal Market

	2019		2020		2021	
	Mill. t	Share	Mill. t	Share	Mill. t	Share
Australia	183	59 %	172	61 %	168	59 %
USA <sup>1)</sup>	46	15 %	36	13 %	38	13 %
Russia	38	12 %	43	15 %	49	17 %
Canada <sup>2)</sup>	34	11 %	26	9 %	26	9 %
other	7	2 %	4	1 %	2	1 %
<b>Total</b>	<b>308</b>	<b>100</b>	<b>281</b>	<b>100</b>	<b>283</b>	<b>100</b>

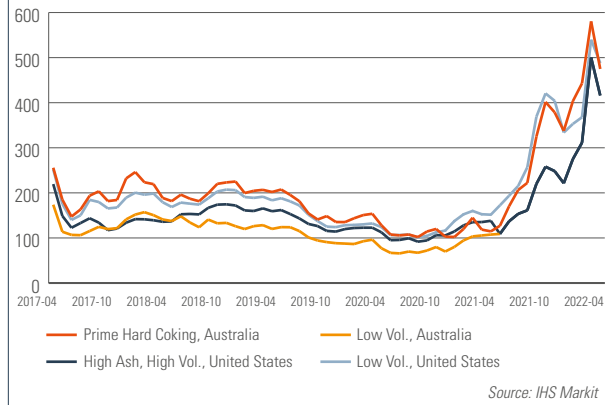
<sup>1)</sup> Excl. trade with Canada <sup>2)</sup> Excl. trade with USA

Source: VdKi own analyses

HT-W12

### Development of fob prices for Coking Coal to Rotterdam

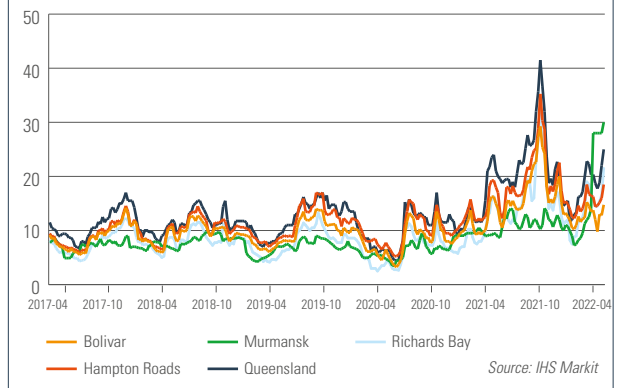
in US\$/t



HT-B17

### Sea freight rates (fob) for Hard Coal to ARA-Ports

in US\$/t



HT-B18



# PERSPECTIVES

Germany is now running in emergency mode



## PERSPECTIVES

Coal consumption will increase worldwide this year. And coal will remain expensive. Because of the EU sanctions against Russia and because of high gas prices. The situation was already tense before. China no longer wanted Australian coal, but at the same time its demand increased. Weather-related production downtimes and bottlenecks in coal logistics led to a worldwide shortage of supply.

In Europe in particular, coal-fired power plants are to ensure security of supply in electricity production in the coming months, so that a European gas reserve can be created for the coming winter with the available gas.

The world's energy markets have been going crazy for months, and millions of consumers are noticing it in their wallets: exploding prices at petrol stations and higher bills for electricity and, above all, gas and heating oil.

Energy costs in Germany have risen to a record level. Never have private households had to pay so much for heating, electricity and fuel.

Within one year, energy prices have risen by 35 %, more than at any time since the turn of the millennium. Energy prices alone are responsible for at least one third of the recent excessive inflation of more than 5 % and more.

The buzzword "energy crisis" has also reached the political arena. The coalition agreement of the SPD, the Greens and the FDP provides relief for consumers in terms of energy prices. In 2023, for example, the financing of the EEG levy, which is worth billions to promote green electricity, is to be abolished via the electricity price.

In addition, the *traffic light parties* want to "strengthen the housing benefit, introduce a climate component and, in the short term,

a one-off increase in the heating cost benefit", as the 177-page agreement states. In addition, landlords will in future also have to contribute to the heating cost surcharge through the CO<sub>2</sub> price - until now only tenants are paying for that.

### The Dilemma of Robert Habeck

As super-minister for the economy and climate protection, he took office only a few months ago to save the foundations of human life. And that is by getting Germany off fossil fuels as quickly as possible.

Germany is now running in emergency mode. Many of the plans for the great transformation that have only just been refined are already wastepaper. Suddenly there is talk of burning more coal or keeping nuclear power plants running longer.

Everything is being put to the test. There is no really good solution for Habeck's new dilemmas. Germany is stuck in a dead end into which it has manoeuvred itself.

The energy deals with Russia were expanded with a keen eye by past federal governments, first by the Red-Green coalition, then by the Black-Yellow coalition and later by the grand coalition.

What was lost due to the phase-out of nuclear power and coal in our country was intended to be replaced cheaply. Habeck cannot unwind in the twinkling of an eye what has been built up strategically over the past 20 years. Even if he would like to.

The situation is most dramatic for gas: Germany covers a good quarter of its energy needs with natural gas and more than half of that, currently 55 %, comes from Russia. The figure for hard coal is 50 % and for oil 35 %.

Coal and oil are also available elsewhere in the world, but there is a gap in gas if supplies from Russia fail. Germany's owner-occupied homes are heated with gas, and industry needs it for its large plants.

But even if the already ambitious expansion of renewables can somehow be accelerated with the new money, if the energy supplies from Russia cease, none of this will be of any use. And then?

"We cannot fight this crisis with the means that got us into it," says Green politician Lisa Badum. Meaning: Please no "misleading debates about nuclear power or coal", but *Energiewende* first.

But the front in the traditional anti-nuclear party has long been crumbling. Even Anton Hofreiter says: "We have to let the coal-fired power plants run longer".

The Greens long ago also arrived in reality. There will be no more getting around coal-fired power plants as an emergency reserve.

## EU Embargo on Russian Coal

Overall, experts consider the consequences of the embargo to be manageable. Last year, almost half of Germany's hard coal imports came from Russia. In terms of steam coal alone Russian imports accounted for a share of around 71 %. "But it is to be expected that this could be offset by imports from other countries, at least in the course of the coming months," says Karen Pittel, energy expert at the Munich Ifo Institute. This is unpleasant in the short term, but finally bearable.

However, this also applies to Russia. "Russia will try to switch to other customers," says Pittel. These customers, in turn, would compete less with the Europeans for coal from other provenances, so that new quantities would become available for the EU.

The impact on coal prices should thus remain manageable, says Pittel. "But so should the consequences for Russia too."

This coincides with surveys conducted by the Association of Coal Importers. A majority of its 44 members at the time of the survey expect prices to rise in the short term but to stagnate in the long term. However, freight is likely to become more expensive because of the longer distances. And that is only one of the problems that are on the horizon.

Recently coal enjoyed growing popularity - especially in power plants. Due to the high gas and electricity prices, it was worth it to burn coal. Last year, almost a quarter more of hard coal was used in power plants than in 2020, and greenhouse gas emissions from electricity generation rose by more than 12 %. This is likely to continue - especially since gas is now increasingly being replaced by coal: Gas is needed more urgently in storage than in electricity generation. The Steag Group is also asking itself whether it really wants to shut down four coal-fired power plants as planned - now. This will not leave German emissions unscathed. "We expect 30 million tonnes of coal to be used in power plants this year," says VdKi Chairman of the Board Alexander Bethe. That would be another increase of more than 11 %.

The only problem is that the entire logistics system had recently adjusted to lower imports. In Amsterdam and Rotterdam, ships currently easily wait two weeks before they are unloaded. "There is a lack of personnel," says Bethe. On top of that, the ships are getting bigger the further they travel. A so-called Capesize from Australia, with its 17-metre draught, can only be unloaded in a few ports in Europe, which places additional demands on logistics.

Moreover, not all hard coal is the same. The calorific values differ, as does the sulphur content. The sulphur content of Russian coal is low, but that of American coal is high - which is why they like to mix the two, says Steag's Stephan Riezler: "Coal is a natural product." Colombian coal could now replace the mixture, with a few adjustments. And in the case of German hard coal it was once possible: The complete waiver.

# COUNTRY REPORTS

From Australia to India to the USA –  
hard coal in demand worldwide



## AUSTRALIA



**FIGURES 2020** (2019) according to World Bank

**GDP growth:** 0 % (2.1 %)

**GDP per capita:** US\$ 51 680 (US\$ 54 875)

**Inflation:** 0.8 % (1.6 %)

**Population:** 26 Mill. (2020)

### Coal

Coal mining is an important economic factor in Australia. The country owns 10 % of all coal reserves in the world. Its mining and export generate € 27 billion annually and provide 50 000 jobs.

In 2021, Australia will have mined more than 430 million tonnes of hard coal. 80 % of Australian coal can be extracted from opencast mines. The comparable figure for the rest of the world is 40 %. The main mining areas are in the eastern parts of New South Wales and Queensland. Coal data is provided separately by the respective state governments. Corresponding information is provided, for example, in Table LB-T1. About 15 % of the total production remained in Australia. However, more than four-fifths were exported, making Australia one of the most important coal exporting countries in the world (see Table LB-T5).

Australia wants to continue mining coal for decades. "We have said very clearly that we will not close any coal mine nor coal-fired power

### Key Figures Australia

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production</b>	<b>472</b>	<b>440</b>	<b>431</b>
<b>Hard Coal Exports</b>	<b>395</b>	<b>370</b>	<b>367</b>
Steam Coal	212	199	199
Coking Coal	183	171	168
<b>Imports Germany</b>	<b>4.7</b>	<b>3.9</b>	<b>5.4</b>
Steam Coal (incl. Anthracite)	0.0	0.0	0.0
Coking Coal	4.7	3.9	5.4
<b>Export Ratio</b>	<b>84 %</b>	<b>84 %</b>	<b>85 %</b>

*Source: Own calculations/ S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022/ DESTATIS*

LB-T5

### Hard Coal Exports According to Grade

Coal Grade	2019 Mill. t	2020 Mill. t	2021 Mill. t
Coking Coal (HCC)	122	118	111
Semi-soft Coking Coal and PCI Coal	61	53	57
Steam Coal	212	199	199
<b>Total</b>	<b>395</b>	<b>370</b>	<b>367</b>

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022*

LB-T3

plants", said Keith Pitt, the previously acting Australian Resources Minister. There will be a market for coal for a long time. And Australia will continue to sell the raw material for that long. Keith Pitt assumed that the demand for coal would continue to increase until 2030. "And if we don't win the market, somebody else will. Then it's better, if Australia's quality product creates jobs in the

### Development of Australia's Exports to PR China

	2019 Mill. t	2020 Mill. t	2021 Mill. t
Coking Coal (HCC)	34.3	33.9	0.2
Semi-soft Coking Coal and PCI Coal	8.5	5.2	-
Steam Coal	50.0	34.9	-
<b>Total</b>	<b>92.8</b>	<b>74.0</b>	<b>0.2</b>

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

LB-T4

### Usable Production of the Major Production States of Australia

	2019 Mill. t	2020 Mill. t	2021 Mill. t
New South Wales (NSW)	201	196	183
Queensland (QLD)	250	223	227
<b>Total NSW/QLD</b>	<b>451</b>	<b>419</b>	<b>410</b>
Rest of Australia	21	21	21
<b>Total</b>	<b>472</b>	<b>440</b>	<b>431</b>

Source: Queensland Department of Natural Resources, Mines and Energy/ S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

LB-T1

country and boosts the economy than if the fuel comes from other countries like Indonesia". However, these political statements have been wastepaper since the Labor Party won the election in May 2022 (see below, in the Politics section). The new Prime Minister Anthony Albanese has already announced a greener climate policy, as can be read in a ZEIT-Online report of 22.05.2022.

Nevertheless, Anthony Albanese's statements on climate policy mainly referred to domestic energy policy in Australia. At present, it can be assumed that the current change of government will not have a significant impact on Australian coal exports.

### Exports of the Largest Coal Loading Ports

Coal Loading Ports	2019 Mill. t	2020 Mill. t	2021 Mill. t
Abbot Point	30.1	29.9	29.6
Dalrymple Bay	66.7	54.6	55.5
Hay Point	49.8	46.5	45.8
Gladstone	71.6	70.5	69.8
Brisbane	6.6	4.5	3.9
<b>Total Queensland</b>	<b>224.8</b>	<b>206.0</b>	<b>204.6</b>
Newcastle	162.2	157.0	155.9
Port Kembla	8.0	7.4	6.9
<b>Total New South Wales</b>	<b>170.2</b>	<b>164.4</b>	<b>162.8</b>
<b>Total</b>	<b>395.0</b>	<b>370.4</b>	<b>367.4</b>

Source: S&P Global-IHS Markit, port throughput by country from 14.02.2022 / own calculations

LB-T2

### Power

In 2021, Australia's gross electricity generation was around 247 TWh, only slightly higher than in the previous year (+1.5 %). More than half of this was still provided by coal-fired generation (51 %). Renewable energy sources contributed around 30 %. Almost 44 TWh were generated based on natural gas, which corresponded to a share of 18 % of total gross electricity generation and a decline of almost 10 % compared to 2020. The remainder (around 1 %) was attributable to other fossil energy sources.

Coal-fired power generation declined by 4.1 %, while the share of green electricity increased steadily, most recently by 23 %. The country has optimal conditions to produce renewable electricity: lots of sun, lots of wind, lots of space. In 2021, Australia was the country with the world's highest installed solar capacity per inhabitant, whereby the rapid expansion outlined above was mainly due to rooftop solar installations by homeowners and small businesses.

Australia's largest coal-fired power plant, ERARING POWER STATION in Sydney's north, is to be shut down in 2025, seven years earlier than planned. "The Australian energy market today is very different from the early 1980s when ERARING was connected to the grid," the company said in a statement.

By 2025, renewable energies are to account for 50 % of electricity in Australia. The new government is expected to accelerate this significantly.

Adjusted for purchasing power, the electricity price in Australia is 17.5 cents/kWh. This in comparison to an average of 24.2 cents/kWh in OECD countries and 40.9 cents/kWh in Germany shows that Germany has the most expensive electricity prices among the developed countries worldwide.

## Economy

Australia's economy ranks 12<sup>th</sup> worldwide in terms of nominal gross domestic product (GDP) at around US\$ 1.4 trillion. It accounts for 1.6 % of the world economy.

The country holds the record for the longest uninterrupted GDP growth of almost 30 years. In the second quarter of 2020, however, Australia briefly fell into recession due to the Covid-19 pandemic. By early 2021, however, Australia's economy had recovered. The skid marks of Corona are barely visible in the economy. Above all, investments and private consumption are expected to increase strongly. According to forecasts from February 2022, the Australian economy is expected to grow by 5 % in 2021, after a decline of 2.4 % in 2020. The Australian government projects 4.25 % growth in 2022 and 2.0 % in 2023.

According to the International Monetary Fund (IMF), unprecedented macro policy stimulus and the relatively rapid suppression of the virus in 2020 contributed to the Australian economy's rapid recovery from the recession.

## Politics

Prime Minister Scott Morrison, who was de-selected in May, was seen as a supporter of the coal industry and was therefore very controversial in the country because of his environmental policy. Critics said he had done too little in the fight against climate change, from which Australia suffers particularly. His hesitant behaviour in the catastrophic bushfires of 2019-2020 also led to fierce controversy. Under his aegis, Australia ranked last within the 38-member Organisation for Economic Development (OECD) in the share of the population of fully vaccinated against Covid-19 in June 2021. By the end of the year, however, the country had made up some ground and was in 10th place in December. Morrison was considered a pragmatist but took clearly conservative positions on individual issues. In Australian migration policy, for example, he advocated a hard *stop-the-boats line* with immigration detention.

In the Australian general election on 21 May 2022, the conservative Morrison government was voted out of office and the (social democratic) Labour Party took the helm. Already on 23 May 2022 Anthony Albanese was sworn in as Australia's 31<sup>st</sup> Prime Minister. One day after this event, Prime Minister Albanese, together with the new Foreign Minister Penny Wong, travelled to Tokyo for a summit meeting with the heads of government of the United States, Japan and India. The goals of this meeting, also called the "Quad Summit", were above all "a free and open Indo-Pacific" and the limitation of Chinese influence, especially in this region of the world. As reported by ZEIT-Online, the new government will initiate an energy turnaround for the future. For example, Anthony Albanese (59) was quoted on election night as saying: "There will be some changes in policy, particularly on climate change and our engagement with the world on these issues." Already during the election campaign, he had promised to reduce his country's CO<sub>2</sub> emissions by 43 % by 2030 compared to 2005. To this end, renewable energy sources are to be massively expanded. In addition, purchase bonuses for electric cars were promised. So far, there has been no talk of closing coal mines.



## INDONESIA



**FIGURES 2020** (2019) according to World Bank

**GDP growth:** -2.1 % (5.0 %)  
**GDP per capita:** US\$ 3 870 (US\$ 4 135)  
**Inflation:** 1.9 % (3.0 %)  
**Population:** 274 Mill. (271 Mill.)

### Key Figures Indonesia

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Coal Production</b> <sup>2)</sup>	<b>616</b>	<b>563</b>	<b>614</b>
<b>Hard Coal Production</b> <sup>1)</sup>	<b>532</b>	<b>498</b>	<b>525</b>
Exports of Lignite	84	65	89
Exports of Hard Coal	372	342	348
<b>Coal Exports</b> <sup>2)</sup>	<b>456</b>	<b>407</b>	<b>437</b>
Domestic Consumption <sup>2)</sup>	138	141	138
Imports Germany	0	0	0
<b>Export Ratio</b> <sup>2)</sup>	<b>74.0 %</b>	<b>72.3 %</b>	<b>71.2 %</b>

<sup>1)</sup> Production including domestic lignite consumption, but excluding lignite exports,  
<sup>2)</sup> Hard coal and lignite

Source: Indonesian Coal Mining Association (APBI) & ESDM/ S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS / Own calculations

### Coal

Heavy rainfall, especially in the first half of the year, caused the Indonesian coal industry to miss the government's production target in 2021 with hard coal production of 525 million tonnes. Compared to the previous year, however, this corresponded to an increase of 5.4 %.

When the coal reserves of domestic coal-fired power plants fell to a critical level, the Indonesian government issued a coal export ban on 31 December 2021 for the entire month of January 2022. The low coal stockpile threatened to under-supply Indonesia's electricity demand and increased the risks of blackouts. The coal export ban further increased the price hype on the already tense international coal markets.

### LB-T8

The reason for the national coal shortage in Indonesia, which is the most important steam coal exporter in the world, was above all the disregard of the so-called Domestic Market Obligation (DMO, in place since 2009) by the domestic coal industry. This regulation serves to ensure the security and affordability of Indonesia's electricity supply and obliges all coal producers in the country to sell at least a quarter of their production on the domestic market at the maximum price of US\$ 70/ton. In 2021, the international price level was significantly higher, more than double from July 2021 and more than triple from January 2022. As a result of the high price difference, domestic coal producers accepted high fines and exported significantly more quantities abroad than allowed. By far the most significant consumption focus was in the Pacific, which accounted for an export share of 99.8 % last year (see Table LB-T6).

### Indonesia's Hard Coal Exports by Market

	2019 Mill. t	2020 Mill. t	2021 <sup>1)</sup> Mill. t
Pacific	370.4	340.6	346.9
Europe	1.2	0.5	0.3
USA	0.6	0.6	0.5
<b>Total</b>	<b>372.2</b>	<b>341.7</b>	<b>347.7</b>

<sup>1)</sup> Estimated

Source: Prepared S&P Global-IHS Markit figures from coal imports and exports by country and type, from 21.02.2022

LB-T6

The most important customer country for Indonesian steam coal exports was India, until 2020, for decades. Indonesian steam coal is of rather inferior quality by international standards and has only relatively low calorific values. Therefore, the offers are usually in the lower price segment and are particularly interesting for Indian customers. In 2021, however, exports to China almost doubled (from 63 million tonnes in 2020 to 108 million tonnes in 2021 = +73 %), reaching record levels. The reason for this was the Chinese quasi-import ban on Australian coal supplies due to political disagreements. Chinese buyers therefore shifted to other supplier countries, especially Indonesia. In the same period, exports to India fell by 26 %.

### The Largest Buyers of Indonesian Hard Coal

	2019 Mill. t	2020 Mill. t	2021 Mill. t
India	121.6	98.2	72.7
PR China	65.5	62.5	108.2
Japan	27.4	27.0	22.7
South Korea	29.6	25.1	20.8
Taiwan	18.7	17.6	16.6

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

LB-T7

## Power

Coal is currently by far the most important energy source in Indonesian electricity generation. With 37 GW of installed power plant capacity in 2020 and a generation of 181 TWh, coal had a share of almost 66 % in Indonesia's electricity generation (279 TWh in total). Natural gas (19 %) and renewables (13 %) were less important.

According to the Electricity Business Plan (RUPTL) 2021-30 published in October 2021, the share of renewables is to be significantly expanded within a decade. The aim is to achieve climate neutrality by 2060. Of the planned total capacity of 40.57 GW, 14 % is to be accounted for by natural gas, 34 % by coal and 52 % by renewables. Among the renewables, the expansion of wind power (<0.4 GW) hardly plays a role, while hydropower plants in particular are to be expanded by 9 GW, solar energy by 5 GW and geothermal energy by 3 GW.

The planned capacity expansion of the previous RUPTL 2019-2028 was revised downwards considerably as a result of the Corona crisis and increasing uncertainties regarding the current and future demand for electricity. In that RUPTL, annual electricity demand growth of 6.5 %/year was still assumed. Currently, an increase of 4.4 %/year is more likely.

## Economy

According to data from the International Monetary Fund (IMF), the economic growth (measured by the rate of change of real gross domestic product [GDP]) of the emerging economy of Indonesia declined to 3.7 % in 2021, due to the Corona crisis. This was well below the world average and also below the level of some developed countries. The lockdown from July to September 2021 dampened economic development drastically.

For the two following years, the IMF analysts expect a return to the pre-crisis growth path with GDP change rates of +5.4 % for 2022 and +6.0 % for 2023.

The raw materials sector is of immense importance for Indonesia's economic development. Hard coal alone generated US\$ 31.5 billion last year, also due to the high world market prices. For some years now, however, the government has been trying to keep the value added from the raw materials sector as much as possible in its own country by encouraging the establishment of so-called "Downstream activities", i.e. the domestic processing and refinement of raw materials. The so-called "Omnibus Act" is dedicated to this goal, which came into force at the beginning of November 2021. This strengthened the rights of the coal industry and other raw material sectors to a high degree and created incentives for the establishment of processing industries.

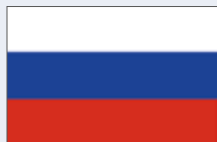
## Politics

According to the German Foreign Office, Indonesia is the third largest democracy in the world and has been a presidential republic since the declaration of independence from the Netherlands in 1945. After the Suharto dictatorship ended in 1998, Indonesia underwent a more or less dynamic reform process, which has slowed down somewhat in recent years. The country ranks fourth in the world population statistics, is home to the largest Muslim population in the world and yet allows freedom of religion. According to the constitution, a third term in office is impossible for Joko Widodo, who has been president for the second time since 2019. New elections are scheduled for 2024. Under Widodo's presidency, economic development and mining in particular were strongly promoted, while the rule of law and human rights were subordinated.

In the context of the Ukraine crisis and the sanctions against Russia, the Indonesian coal industry is already in negotiations with some Western countries. In this respect, the Indonesian coal export balance is likely to shift significantly again in the next few years. The higher international demand also caused the Indonesian coal benchmark price to rise significantly. In March 2022, the corresponding FOB quotations for steam coal averaged US\$ 204/ton.

The Corona crisis will further delay the start of construction of the planned new Indonesian capital in East Kalimantan. Originally, construction work was supposed to start in 2020.

## RUSSIA



**FIGURES 2020** (2019) according to World Bank

**GDP growth:** -3.0 % (2.0 %)

**GDP per capita:** US\$ 10 127 (US\$ 11 498)

**Inflation:** 3.4 (4.5 %)

**Population:** 144 Mill. (by End of 2020)

### Coal

Russia is the fifth largest hard coal producing country in the world. In 2021, 438 million tonnes of hard coal were produced, divided into 328 million tonnes of steam coal (corresponding to a share of 75 %) and 110 million tonnes of coking coal (25 %). Compared to the previous year, Russian production has thus increased by 9.2 %, whereas in 2020 it had declined by 8.2 % (cf. Table LB-T9).

#### Hard Coal Production Russia

	2019 Mill. t	2020 Mill. t	2021 Mill. t
Coking Coal	111	101	110
Steam Coal <sup>1)</sup>	326	300	328
<b>Total</b>	<b>437</b>	<b>401</b>	<b>438</b>

<sup>1)</sup> Incl. anthracite and lignite

Sources: 2019 and 2020 SUEK, 2021 TASS report from 02.01.2022

LB-T9

#### Key Figures Russia

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Coal Production</b>	<b>437</b>	<b>401</b>	<b>438</b>
<b>Hard Coal Exports Seaborne</b>	<b>173</b>	<b>171</b>	<b>183</b>
Steam Coal (incl. Anthracite)	135	125	128
Coking Coal	14	17	19
PCI	24	29	36
<b>Imports Germany</b>	<b>19.5</b>	<b>14.4</b>	<b>20.5</b>
Steam Coal	17.9	13.4	18.9
Coking Coal	1.4	0.9	1.4
Coke	0.2	0.1	0.2
<b>Export Ratio</b>	<b>40 %</b>	<b>43 %</b>	<b>42 %</b>

Sources: CAA, Russian and Kazakh Coal Export, Quarterly Report Q1-Q4\_2019, \_2020, \_2021 / DESTATIS / own calculations

LB-T10

Measured in terms of seaborne coal exports, the export ratio was around 42 %. Seaborne steam coal exports amounted to 128 million tonnes and the corresponding coking coal exports to 19 million tonnes. Both were slightly above the previous year's level. Exports of *pulverised coal injection (PCI)* were almost a quarter higher than in the previous year at 36 million tonnes (cf. Table LB-T10).

Including domestic overland trade, Russia exported a total of just under 211 million tonnes of hard coal last year. The most important customers were China (43 million tonnes), Japan (22 million tonnes) and South Korea (20 million tonnes). Almost 62 million tonnes were exported to the EU-27 and almost 104 million tonnes to Europe as a whole (geographical definition including EU members, Great Britain, Ukraine, Belarus and Mediterranean countries) (cf. Table TT-T09 in the table section).

For a large part of these quantities, Russia will soon have to look for new customers or supply existing customers at a higher level and accept price reductions in return. In addition to the EU and the United States, Japan has also declared (in April 2022) that it will stop importing Russian coal. In 2021, Japan was still purchasing around 11 % of its total imports from Russia.

The sanctions against Russia as a result of Russia's aggression against Ukraine disrupted the international coal markets. As part of the EU's fifth sanctions package against Russia, EU companies were no longer allowed to conclude new coal procurement contracts with Russian exporters from mid-April 2022. Existing contracts were to have been settled by 10 August 2022 at the latest. Therefore, traders smuggled as much Russian coal into the EU as possible. In the period from January to April 2022, Russia shipped a total of 15.6 million tonnes of hard coal to the EU - an increase of 16 % compared to the previous year.

Recently, interest in Russian coal had risen sharply as a result of its increasing international ostracism and the resulting relative price decline, especially among customers from India and Southeast Asia. Russia's exclusion from the Swift payment system, however, made it more difficult to process or financially secure such transactions. This particularly affected deliveries to the People's Republic of China. As early as mid-March 2022, representatives of India and Russia discussed suitable measures to circumvent the Western sanctions and the exclusion from the Swift payment system.

Even before the attack on Ukraine, Russia was negotiating with China on a massive expansion of its coal exports to the People's Republic. The transport capacity of the railway lines to the Far East - the Baikal-Amur Mainline (BAM) and the Trans-Siberian Railway (TSR) - is to be increased from 144 million ton/year (of which 122 million tonnes coal) in 2020 to 180 million tonnes/year in 2024.

These infrastructure projects were already part of the first stage (until 2025) of the revised Russian Coal Strategy 2035, which was published by the Russian Ministry of Energy in June 2020. As a result of the changed situation due to the massive Western sanctions, a renewed revision of the Coal Strategy 2035 is likely, especially with regard to investments for coal exports to Europe.

## Power

Russia has a relatively balanced energy mix in its gross electricity generation. In 2021, natural gas dominated, accounting for almost half of electricity generation (45 %, corresponding to around 500 TWh). Nuclear energy contributed 20.3 % (222 TWh), while renewable energies (incl. hydropower) accounted for 18.7 % (205 TWh). Coal (mainly hard coal) generated around 157 TWh, which corresponds to a share of 14.3 %. Other fossil fuels (incl. non-available production) accounted for a share of 1 % (11 TWh). Compared to the previous year, Russia's gross electricity production increased by 6.6 %. All energy sources recorded increases, but natural gas and coal were the strongest with +9.1 % each. Electricity generation from renewable energies, on the other hand, rose by only 2.3 %.

## Economy

Even before the Ukraine crisis, Russia's economy was clearly slowed down by Western sanctions (in response to the Crimean annexation from March 2014). The Corona crisis, on the other hand, only weakened Russia's economic development to a limited extent, as the country was (and is) not so strongly integrated into international supply chains and the government lockdown measures were comparatively more moderate in nature. As a result, the real GDP growth rate increased by 4.7 % in 2021. The IMF forecast for this year and next year the sanctions resulting from the Ukraine crisis has already been taken into account. Accordingly, the IMF expects economic growth of -8.5 % for 2022 and -2.3 % for 2023.

Russia has thus been in a deep recession since 2020.

The World Bank is already considerably more pessimistic in its forecast for this year and expects a Russian GDP change rate of -11.2 % by the end of the year. According to the Russian Central Bank, the Russian inflation rate is currently (as of March 2022) at 17.5 %, the highest level in more than twenty years.

## Politics

Amendments to the constitution have enabled President Vladimir Putin to remain in power until 2036. According to the Eastern Europe Information Portal of the State Agency for Civic Education, Russia is on paper "a presidential republic with a federal state structure". In fact, Russia is currently more of a mixture of "autocracy and oligarchy".

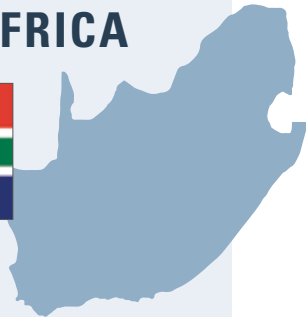
On the fringes of the opening ceremony of the Winter Olympics in Beijing on 4 February 2022, President Putin and Chinese President Xi Jinping agreed to strengthen economic cooperation by signing an "alliance agreement". Sixty-five joint investment projects with a total value of US\$ 120 billion are to give a boost to bilateral economic relations. In the energy sector, for example, the Russian state-owned company Rosatom will support the People's Republic in the construction of four nuclear reactors.

In addition, the construction of several wind and solar parks in southern Russia are planned. Russian exports of energy sources to China are to be further expanded. Russian natural gas deliveries to China are to increase tenfold to up to 100 billion m<sup>3</sup> in the medium term. The pipeline network is to be expanded for this purpose.

im Gesamtwert von 120 Mrd. US\$ sollen Schwung in die bilateralen Wirtschaftsbeziehungen bringen. Im Energiesektor etwa wird der russische Staatskonzern Rosatom die Volksrepublik beim Bau von vier Atomreaktoren unterstützen.

The capacity of the existing pipeline "*Sila Sibiri*" is to be increased from currently 10 billion m<sup>3</sup> to 38 billion m<sup>3</sup> in 2024. In addition, the construction of a pipeline (*Soyuz-Vostok/Sila Sibiri-2*) through Mongolia is to begin in 2024. A third route to the Far East already exists in sections: the pipeline to Vladivostok is to be continued to China under the name *Sila Sibiri-3*.

## REPUBLIC OF SOUTH AFRICA



**FIGURES 2020** (2019) according to World Bank

<b>GDP growth:</b>	<b>-6.4 %</b> (0.1 %)
<b>GDP per capita:</b>	<b>US\$ 5 656</b> (US\$ 6 625)
<b>Inflation:</b>	<b>3.2 %</b> (4.1 %)
<b>Population:</b>	<b>59 Mill.</b> (by End of 2020)

### Coal

With a production of almost 229 million tonnes last year, South Africa ranks seventh among the world's most important hard coal producing countries. Almost all of this was steam coal (99 %). Compared to the previous year, it is a decline of 8 %. Exports were also down, falling by 12 % to around 66 million tonnes - the lowest level for 25 years. This is mainly due to problems in domestic transport by rail (see below). This resulted in an export quota of 29 %, which was at the same level as in previous years. Around 1 million tonnes were exported to Germany in 2021 (cf. Table LB-T15 - Key figures South Africa) and only around 2.5 million tonnes were exported to the EU as a whole. The focus of South African exports was clearly on Asia, with deliveries of around 53 million tonnes. The most important import countries were India (25.3 million t), Pakistan (12.1 million t) and the People's Republic of China (6.7 million t). Exports to China in 2020 still amounted to just under 660 000 tonnes.

### Key Figures South Africa

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production</b>	<b>258.5</b>	<b>248.4</b>	<b>228.6</b>
Steam Coal	254.7	244.1	225.5
Anthracite	3.8	4.3	3.1
<b>Hard Coal Exports<sup>1)</sup></b>	<b>78.5</b>	<b>75.0</b>	<b>66.2</b>
Steam Coal	76.8	73.6	64.9
Anthracite	1.7	1.4	1.3
<b>Imports Germany</b>	<b>0.8</b>	<b>0.4</b>	<b>1.0</b>
Steam Coal	0.8	0.4	1.0
Anthracite	0.0	0.0	0.0
<b>Export Ratio</b>	<b>30.4 %</b>	<b>30.2 %</b>	<b>29.0 %</b>

<sup>1)</sup> Seaborne only

Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022, and coal production by country, from 04.03.2022 / DESTATIS

### LB-T15

The high increase in exports to China resulted from the Chinese import ban on Australian coal (cf. tables LB-T14 and TT-T12).

### Structure of South Africa's Exports in 2021

	Total Mill. t	Europe <sup>1)</sup> Mill. t	Asia Mill. t	Other Mill. t
Steam Coal	64.9	4.2	53.1	7.6
Anthracite	1.3	0.0	0.9	0.4
<b>Total</b>	<b>66.2</b>	<b>4.2</b>	<b>54.0</b>	<b>8.0</b>

<sup>1)</sup> Incl. neighbouring Mediterranean countries (Turkey, Israel)

Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

### LB-T14

At the World Climate Summit in Glasgow in November 2021, the creation of a financing fund with a volume of around US\$ 8.5 billion was promised to enable South Africa to move away from coal use. South Africa is the 12<sup>th</sup> largest emitter of greenhouse gases in the world. The United States, the United Kingdom, France, Germany and the EU have pledged as donors. In May 2022, the South African Minister of Environmental Affairs, Barbara Greecy, reviewed the details of the proposed funding package, pointing out in particular the ensuing risks in terms of employment and income effects. According to the South African Minerals Council, around 93 000 people were employed in South African coal mines last year.

In 2019, the government presented a new plan for South Africa's electricity supply. This Integrated Resource Plan (IRP 2019-2030) covers the period from 2019 to 2030 and envisages the decommissioning of old coal-fired power plants with a total capacity of 11.5 GW and the construction of around 1.5 GW of new coal-fired power plant capacity. In addition, 14.6 GW of wind power and 6.0 GW of photovoltaic capacities are to be newly built.

In mid-November 2021, three environmental organisations (Groundwork, African Climate Alliance, Vukani Environmental Justice Movement) filed a complaint with the South African Supreme Court against the construction of new coal-fired power plants with a capacity of 1.5 GW (see above). An open letter of demand from the environmental organisations to the government remained unanswered.

In recent years, an investment backlog has built up in the South African coal industry. In times of global decarbonisation campaigns, financing new coal projects is becoming increasingly difficult. And investors are increasingly withdrawing from coal projects. Against this backdrop, some large South African mine operators are increasingly diverging from coal and focusing more on mineral mining or renewable energy sources, such as Exxaro Resources. The same applies to Wescoal, which is also considering a name change by deleting the word "coal" from the company name. The 2020 under "Thungela Resources" combined Anglo American coal

sector, on the other hand, is sticking to steam coal exports and continues to hope for sales in Asia, especially in India, China and Pakistan, and increasingly also in Sri Lanka and Bangladesh.

Infrastructure is also affected by insufficient investment. South Africa has increasing problems with the inland transport of coal. For example, the predominantly state-owned railway company Transnet had to declare "force majeure" in April 2022 regarding coal transports to the loading ports. Transnet has been struggling for years with the economic consequences of mismanagement in the areas of maintenance and stocking of spare parts, as well as losses due to copper cable theft and vandalism. Due to the currently very high price level for exported coal, the mine operators switched to expensive transport by truck. However, this could only partially compensate for the loss of rail transport. South African steam coal exporters therefore complain about "missed opportunities" in this context. The South African domestic transport problems create a bottleneck for higher exports to Europe. As a result, the higher European demand due to the EU import ban on Russian coal can only be inadequately served.

## Power

Compared to 2020, South Africa's gross electricity generation in 2021 increased slightly by 2.2 % to just under 230 TWh. With a share of over 84 % and a generation of just under 194 TWh, hard coal is the predominant energy source. Renewable energies, however, are making strong progress. Their contribution has risen by almost 23 % to around 19 TWh. This corresponds to a share of around 8 % of total generation.

The electricity generated by the only African nuclear power plant, Koeberg (30 km north of Cape Town, two pressurised water reactors with a nominal capacity of 900 MW each, operated by Eskom), amounted to about 12 TWh and was thus almost 6 % higher than in the previous year. This corresponds to a good 5 % of South Africa's total electricity production. Natural gas and other fossil fuels accounted for a share of just under 2 % (a good 4 TWh).



For more than 15 years, South Africa has suffered from repeated power supply shortages. This is mainly attributed to mismanagement at the state-owned power utility ESKOM. For years, urgently needed maintenance and expansion investments in the ageing coal-fired power plant park have not been made. However, ESKOM has little room for manoeuvre, as it is struggling with a huge debt burden in the double-digit billions (about US\$ 30 billion). The electricity shortage is currently being countered mainly by so-called "load shedding". These are announced power cuts several times a week. A fundamental solution to the problem is not yet in sight. According to ESKOM estimates, there will be a shortage of around 4 GW of power plant capacity in the next five years.

To support the expansion of renewable energy sources and to promote the corresponding, very ambitious energy transition by 2030 (target share of renewables in electricity generation >50 %), photovoltaic and wind power plants (or parts thereof) from the EU are to be exempted from import duties in the future.

According to a Reuters report from April 2022, the South African government estimates an investment volume of around US\$ 63.7 billion for the South African energy transition by 2030. The focus is on the expansion of renewable energy sources, the installation of sufficient battery storage, the development of infrastructure for electromobility and the creation of a green water industry.

## Economy

Even before the Corona pandemic, South Africa narrowly avoided recession in 2019, but slipped into high negative growth the following year (see "Figures" above). Higher commodity prices, good harvests and a booming financial sector helped South Africa achieve a relatively high GDP growth rate of 4.9 % in 2021. The IMF initially expects the upward trend to weaken in 2022 (+1.9 %) and 2023 (+1.4 %). Overall, South Africa's economy is on shaky ground. Against the background of the harsh and severely restrictive lockdown measures, South Africa's unemployment rate has risen in the

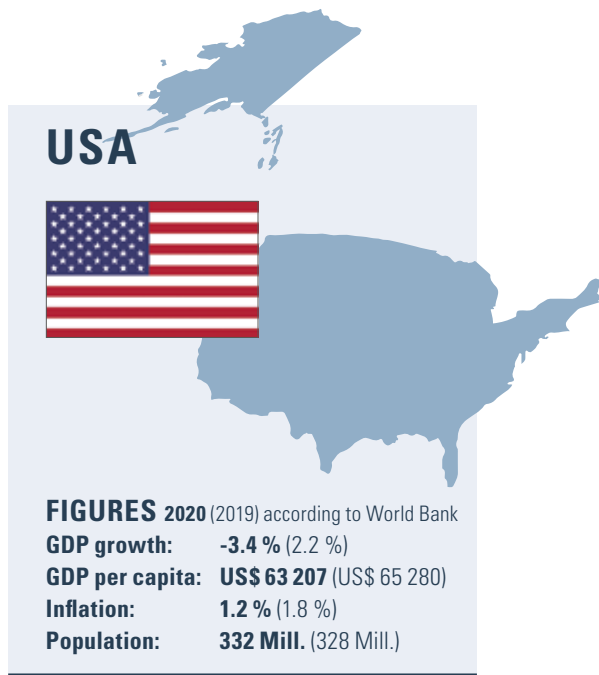
first quarter of 2022 to an all-time high of 35.3 % or 7.9 million registered unemployed in absolute terms. The total unemployment rate, including the non-registered, is estimated at 46.2 %. South Africa's economy also suffers from a one-sided focus on the commodities sector, putting it in a dangerous dependency. The construction sector, the manufacturing industry and, at least temporarily, tourism remain the main problem areas. In addition, urgent structural reforms have so far failed to materialise. And the electricity supply will remain very unreliable for the foreseeable future.

## Politics

Cyril Ramaphosa (African National Congress - ANC) was elected on 15 February 2018 and replaced the corrupt Jacob Zuma (also ANC, in office from 2009 to 2018) as President of the Republic of South Africa (RSA). This year, the vaccination campaign against Covid-19, the continuation of the fight against corruption and the expansion of the partly very dilapidated power supply infrastructure are at the top of the political agenda.

Jacob Zuma proved to be a staunch supporter of nuclear energy during his time in office. Under his government, eight new nuclear power plants were still planned in South Africa. In 2018, however, the Ramaphosa government revised these plans and announced that it would consider the further expansion of nuclear energy at the earliest for the period after 2030. Initially, the government will continue to focus on the expansion of natural gas power plants and wind farms.

The current Corona measures are scheduled to expire on 04 May 2022. These include the wearing of masks in public interiors, restrictions on gatherings and further restrictions on entry. The government's *Social Relief of Distress Grant*, introduced in May 2020, will remain in place in 2022. In addition, a new edition of the National Health Act of 2003 is planned, which should better cover the pandemic consequences and risks in the future.



## Coal

**Comeback of coal in the USA:** Coal production in 2021 has increased significantly compared to 2020. The order situation of US mine operators is better than it has been for years. The West accounted for 57 % of production, Appalachia for 27 % and the Midwest for 16 %. The strongest year-on-year growth was in Appalachia with +11.9 %, followed by the West with +7.2 % and the Midwest with +3.6 %. Overall, US coal production increased by 7.8 % to around 524 million tonnes (cf. LB-T16).

Around 77 million tonnes of the total production were exported. This resulted in an export quota of just under 15 %. Exports were mainly made by sea, around 4 million tonnes found their way to Canada by rail (cf. Table LB-T17).

## Coal Production in the USA by Region (incl. Lignite)

	2018 Mill. t	2019 Mill. t	2020 Mill. t	2021 Mill. t
Appalachians	182	175	126	141
Middle West	124	116	82	85
West	379	349	278	298
Other	1	0	0	0
<b>Total</b>	<b>686</b>	<b>640</b>	<b>486</b>	<b>524</b>

Source: DOE-EIA

LB-T16

## Exports USA 2021

	Coking Coal Mill. t	Steam Coal <sup>1)</sup> Mill. t	Total Mill. t
Seaborne	38.0	35.1	73.1
Overland (Canada)	3.1	1.1	4.2
<b>Total</b>	<b>41.1</b>	<b>36.2</b>	<b>77.3</b>

<sup>1)</sup> Including anthracite coal

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

LB-T17

Compared to 2020, exports more than doubled last year (+114 %, cf.). This is mainly due to the high international coal price level. Exports to China played a relatively minor role in 2020 with 1.6 million tonnes. In 2021, however, it increased sevenfold to 11.6 million tonnes. This was due to the shift in Chinese demand because of the avoidance of Australian coal (see the country report on China for more details). India also took more coal from the USA, almost 20 % more at 13.9 million tonnes. India and China were thus the most important importing countries of US coal, with shares of 18 % and 15 % respectively. 15.3 million tonnes were shipped to the EU-27, of

which 6.9 million tonnes went to Germany, which was also the largest EU customer of the Americans. Exports to Japan with 6.9 million tonnes and South Korea with 5.5 million tonnes are also worth mentioning. These two Pacific rim countries together accounted for a share of a good 16 % (cf. tables LB-T19 and TT-T10 from the table section).

<b>Key Figures USA</b>			
	<b>2019</b>	<b>2020</b>	<b>2021</b>
	Mill. t	Mill. t	Mill. t
<b>Coal Production*</b>	<b>640</b>	<b>486</b>	<b>524</b>
<b>Hard Coal Exports</b>	<b>84</b>	<b>63</b>	<b>77</b>
Steam Coal	34	24	36
Coking Coal	50	39	41
<b>Hard Coal Imports</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Imports Germany</b>	<b>8</b>	<b>6</b>	<b>7</b>
Steam Coal	5	2	3
Coking Coal	3	4	4
<b>Export Ratio</b>	<b>13.1 %</b>	<b>13.0 %</b>	<b>14.7 %</b>
* incl. Lignite			
<i>Source: S&amp;P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022, coal production by country, from 17.03.2022/own calculations</i>			

LB-T19

## Power

US gross electricity generation increased by 2.9 % to 4 157 TWh in 2021 compared to the previous year. Natural gas remained the most important energy source, with a share of 38 % (1 575 TWh). However, its use declined by 3.0 % compared to 2020. In second place in the energy source ranking follows coal (hard coal and lignite) with 22 % (899 TWh) and a high increase of 16.2 %.

Renewable energies accounted for 21 % of electricity generation (870 TWh) and showed an increase of 6.2 % compared to the previous year. The US nuclear power plants provided a share of 18 %, which corresponded to a decline of 1.5 %. The other fossil energy sources shared the remaining 1 %.

Due to the high increase in natural gas prices and lower coal prices, the share of coal-fired power generation in the USA rose again. This marked a turnaround, as utilities had recently increasingly switched from coal to natural gas ("coal-to-gas switch"). But first the Corona pandemic and later the Ukraine war completely turned the energy market upside down. Natural gas became scarce and expensive. Coal was now the cheaper alternative in the US electricity market. However, the Energy Information Administration of the US Department of Energy (US DOE) does not expect coal demand to recover permanently. By 2024, the share of coal-fired electricity is expected to fall to 20 %. For decades, coal was the most important energy source for the US electricity supply. In recent years, however, the share of coal-fired power plants has continued to decline. This had less to do with concerns about the climate than with competition from relatively cheap natural gas. However, the trend has reversed since 2021, as natural gas prices have skyrocketed and coal has become more competitive as a result.

## Economy

The US economy surprisingly slumped at the beginning of 2022. Gross domestic product (GDP) fell by 1.4 % in the first quarter, as the Department of Commerce announced on Thursday on the basis of an initial estimate. Experts, on the other hand, had expected an increase of 1.1 %, after the GDP had still grown by 6.9% at the end of 2021. At that time, many companies had replenished the stocks they had emptied during the pandemic, which provided a strong economic impulse.

In the first quarter, on the other hand, companies spent considerably less on filling their inventories. The reasons given for this development include the recent Corona wave in the USA, a decline in government pandemic aid as well as lower inventories and exports.

This could not be compensated for by increased consumer spending and higher capital investments. The Russian invasion of Ukraine and the outbreak of the Omicron virus in China, which led to production losses and partly cut off foreign customers from primary product and raw material suppliers, probably also played a role.

US President Joe Biden explained that the growth estimate for the first quarter was "influenced by technical factors". Overall, the United States is meeting the current challenges posed by the pandemic, the Ukraine war and global inflation "from a position of strength". The US economy is showing resilience in the face of these historic challenges. This applies, for example, to the labour market.

With the latest economic figures, however, the danger of a recession in the USA increases. With the Federal Reserve raising interest rates due to high inflation, economists have been wondering for some time whether the US is heading for a recession or can still avert it.

Looking at the year as a whole, the economic environment is likely to remain difficult. The economic risks are manifold: Corona outbreaks and local lockdowns in China can repeatedly lead to new disruptions in global supply chains. In addition, the high costs of raw materials as a result of the Ukraine crisis are a burden on the US economy. Added to this are the shortage of skilled workers and expected further interest rate hikes by the Fed.

## Politics

At the beginning of his term, US President Joe Biden promised to promote clean energies. His predecessor Donald Trump relied on coal, oil and gas. Biden, on the other hand, wants to generate electricity from water, wind and sun. The Democrat's climate goals are ambitious. According to Biden's plan, the country's energy sector should be CO<sub>2</sub> neutral by 2035, and the entire economy by 2050.

For this purpose, US President Joe Biden brought a legislative package through the senate to renovate the infrastructure. This plan means much more charging-infrastructure for e-cars, money for further development of the battery industry and tax breaks for renewable energies. The legislative package has a volume of US\$ 1 trillion - spread over several years.

It sounds paradoxical: just as America is turning away from fossil fuels, coal is booming.

## CANADA



**FIGURES 2020** (2019) according to World Bank

**GDP growth:** -5.2 % (1.9 %)

**GDP per capita:** US\$ 43 258 (US\$ 46 329)

**Inflation:** 0.7 % (1.9 %)

**Population:** 38 Mill. (2020)

### Coal

At around 10 billion tonnes, Canada's coal reserves are the 13<sup>th</sup> largest in the world (after Russia, the USA, China and Australia), which corresponds to 0.6 % of the global total. This means more energy than all the country's oil and gas combined.

The production of steam and coking coal in 2021 amounted to 41.5 million tonnes and was thus slightly higher (+2.5 %) than in 2020 - despite the effects of the Corona pandemic.

At 31.7 million tonnes, Canadian hard coal exports were at about the same level as in 2020 (31.5 million tonnes). Coking coal accounts for around 83 % of this. This makes Canada an important player on the international coking coal world market, which is considerably scarcer than steam coal (cf. Table LB-T21). In 2021, the People's Republic of China was the most important purchaser of Canadian hard coal for the first time. Compared to the previous year, exports to China

### Key Figures Canada

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production<sup>1)</sup></b>	<b>51.8</b>	<b>40.5</b>	<b>41.5</b>
<b>Hard Coal Exports</b>	<b>36.2</b>	<b>31.5</b>	<b>31.7</b>
Steam Coal	1.7	4.5	5.4
Coking Coal	34.5	27.0	26.3
<b>Imports Germany</b>			
Coking Coal	1.3	1.3	1.3
<b>Export Ratio</b>	<b>70 %</b>	<b>78 %</b>	<b>76 %</b>

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

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS / own calculations

### LB-T21

### Export / Import Balance Canada

	2019 Mill. t	2020 Mill. t	2021 Mill. t
Exports Steam Coal	1.7	4.5	5.4
Exports Coking Coal	34.5	27.0	26.3
<b>Total</b>	<b>36.2</b>	<b>31.5</b>	<b>31.7</b>
Imports Steam Coal	3.1	1.9	2.5
Imports Coking Coal	3.8	3.4	3.2
<b>Total</b>	<b>6.9</b>	<b>5.3</b>	<b>5.7</b>
<b>Export/Import Balance</b>	<b>29.3</b>	<b>26.2</b>	<b>26.0</b>

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

### LB-T20

increased to around 10.6 million tonnes and thus more than doubled. This corresponds to one third of total exports. Japan followed in second place with 7.3 million tonnes (share of 23 %) and was thus 8 %

below the previous year's value. In the previous year it was enough for the first place.

South Korea came in third with a share of 16 % (5.2 million tonnes). Here, too, the focus was clearly on Asia. The EU-27 accounted for about 2.1 million tonnes and Germany for about 1.3 million tonnes (cf. table from Table TT-T13).

## Power

In 2021, Canada's gross electricity generation was slightly lower than in the previous year (-1.1 %). The most important energy source was hydropower, which alone accounted for a share of 61 % with 378 TWh. Renewables (incl. hydropower) contributed 69 % with 429 TWh. Canadian nuclear power plants supplied 88 TWh (14 %) and natural gas generated 69 TWh (11 %) of electricity. Coal accounted for 5 % and other fossil fuels for 1 %. Wind and solar are the fastest growing energy sources. A phase-out of coal-fired power generation is planned, with a simultaneous expansion of nuclear energy.

The country aims to cover about one third of its energy consumption with green or blue hydrogen by 2050. In the electricity sector, the country is aiming for high emission reductions. By 2035, Canada wants to achieve net zero in the electricity grid. The phase-out of coal and the expansion of renewable energies are the decisive measures for this.

A concrete example of the production of green hydrogen has already been examined by Montem Resources regarding its feasibility. According to a report by McCloskey from April 2022, the Tent Mountain Mine in Alberta (coking coal) is to be converted into a renewable energy project to produce green hydrogen.

## Economy

Canada's economy is one of the most stable in the world. It is not growing rapidly, but steadily. GDP growth in Canada is expected to reach 3.64 % by 2025.

The International Institute for Management Development (IMD) ranks Canada 14<sup>th</sup> in the world for overall economic competitiveness. Canada currently ranks 10<sup>th</sup> in the world for gross domestic product (GDP).

With unemployment rates generally low and rising minimum wages, Canadians tend to have considerable amounts of disposable income.

In addition to the raw materials and mining industries, the automotive industry is of great importance to the Canadian economy. After oil, vehicles are the most important industry for foreign trade. The North American country is the sixth largest producer of passenger cars as well as the tenth largest exporter of trucks.

In addition, Canada is the world's largest supplier of timber and the eighth largest exporter of furniture. Canada is also comparatively strong in the defence industry. The agricultural industry is also important for foreign trade. Canada is the third largest wheat exporter after Russia and the USA.

## Politics

Canada has committed to stop exporting coal by 2030 and to be carbon neutral by 2050. The Trudeau government will provide the equivalent of up to € 700 million for the switch to clean energy.

The Trudeau government had already announced that Canada would completely do without electricity from coal from 2030.

## POLAND



**FIGURES 2020** (2019) according to World Bank  
**GDP growth:** -2.5 % (4.7 %)  
**GDP per capita:** US\$ 15 742 (US\$ 15 732)  
**Inflation:** 3.4 % (2.2 %)  
**Population:** 38 Mill. (2020)

### Coal

After the end of the German coal industry at the end of 2018, Poland is the only remaining large coal-producing country in the EU. Last year Poland produced 55 million tonnes of highly subsidised hard coal (+1.1 % compared to the previous year). The majority was consumed domestically, only 6.4 million tonnes were exported, almost half as coking coal (3.4 million tonnes) and half as steam coal (3.0 million tonnes).

Poland also imported 12.5 million tonnes of hard coal from abroad. With a share of 66 %, Russia was the most important source, followed by a wide margin by Australia (16 %, exclusively coking coal), Colombia (5 %) and Kazakhstan (4 %). In response to the Russian attack on Ukraine, the Polish government introduced a bill at the end of March 2022 to ban imports of Russian coal from May 2022. The majority of Russian imports were used in the heating market last year, mainly in private households to generate heat.

### Key Figures Poland

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production</b>	<b>61.7</b>	<b>54.4</b>	<b>55.0</b>
<b>Hard Coal Exports</b>	<b>4.4</b>	<b>4.6</b>	<b>6.4</b>
Steam Coal <sup>1)</sup>	1.8	2.0	3.0
Coking Coal	2.6	2.6	3.4
<b>Coke Exports</b>	<b>6.1</b>	<b>6.3</b>	<b>7.1</b>
<b>Hard Coal Imports</b>	<b>16.7</b>	<b>12.9</b>	<b>12.5</b>
<b>Imports Germany</b>	<b>1.4</b>	<b>1.2</b>	<b>1.6</b>
Steam Coal	0.2	0.2	0.2
Coking Coal	0.0	0.0	0.0
Coke	1.2	1.0	1.4
<b>Export Ratio</b> (coke converted into coal)	<b>17 %</b>	<b>20 %</b>	<b>25 %</b>

<sup>1)</sup> Including anthracite coal

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

LB-T24

### Poland's Coking Coal Exports

	2019 Mill. t	2020 Mill. t	2021 Mill. t	Change over PY
<b>Total</b>	<b>2.58</b>	<b>2.66</b>	<b>3.41</b>	<b>28.2 %</b>
of which:				
Czech Republic	1.39	1.53	1.94	26.8 %
Ukraine	0.15	0.08	0.02	-75.0 %
Austria	0.72	0.71	0.92	29.6 %
Slovakia	0.24	0.20	0.33	65.0 %
Hungary	0.08	0.13	0.21	61.5 %

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

LB-T23

At the end of April 2021, the Polish coal phase-out by 2049 was finally sealed in a socially acceptable way by the government, the coal industry and the trade unions after tough negotiations. This agreement was preceded by immense extra-political pressure (Paris Climate Agreement, EU Green Deal), declining national and European coal demand, increasing competitive pressure from imported coal and the extremely high price level in the EU emissions trading system.

Shortly after signing the "Global Coal to Clean Power Transition Statement" at the World Climate Conference in Glasgow (COP26), the Polish government confirmed on the same day (4 November 2021) its decision to phase out coal-fired power generation by 2049 (and not earlier, as envisaged in the above-mentioned statement for so-called "large" economies. Obviously, Poland is not one of them).

<b>Poland's Steam Coal Exports</b>				
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Change</b>
	Mill. t	Mill. t	Mill. t	over PY
Total	<b>1.79</b>	<b>1.95</b>	<b>3.01</b>	<b>54.4 %</b>
of which:				
Czech Republic	0.87	1.15	1.48	28.7 %
Germany	0.19	0.15	0.25	66.7 %
Austria	0.26	0.18	0.10	-44.4 %
Slovakia	0.30	0.22	0.14	-36.4 %
Ukraine	0.09	0.09	0.76	744.4 %

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

LB-T22

## Power

Compared to the previous year, Poland's gross electricity generation in 2021 increased by 12.4 % to just under 177 TWh. The electricity generation mix was dominated by coal, with a share of 70 % (124 TWh). Around 30 TWh was provided based on renewable energy sources, which corresponds to a share of 17 %. Natural gas supplied 17 TWh (10 %). Other, exclusively fossil sources, some of which cannot be clearly allocated, added another 5 TWh (3 %). Except for natural gas (-1.0 %) and the others (-28.3 %), the use of the other two energy sources developed positively in double figures: coal +15.7 % and renewables +18.9 %.

As early as February 2021, the government approved the new Polish energy strategy "Polityka Energetyczna Polski 2040" (PEP- 2040), which aims to reduce the share of coal in electricity generation from 70 % in 2020 to 56 % in 2030 and to further expand renewable energy sources (offshore and onshore wind power and photovoltaics).

As a result of the Ukraine crisis, Poland wants to accelerate the PEP-2040 and expand renewable energy sources more quickly than previously planned. Like Germany, but on a much larger scale, this will require extensive reconstruction and expansion of the Polish electricity transmission and distribution grid. Until now, the grid has been designed for the transmission of electricity from a few large power plants. Moreover, the Polish electricity grid is hopelessly outdated in large parts. In 2017, the Polish Court of Audit found that more than 40 % of Polish high-voltage lines were more than 40 years old.

In August 2021, for the first time since 2017, the high electricity prices in Central Europe made Polish coal-fired electricity more attractive for customers beyond Poland's borders and Poland sold more electricity abroad than it had to import itself. Over the year as a whole, however, Poland's export-import balance remained negative.



## Economy

After economic growth of 5.7 % (rate of change of real GDP) last year, the IMF expects a moderate weakening of the previous growth path and anticipates a plus of 3.7 % for 2022 and growth of only 2.9 % for 2023. The Ukraine crisis and its effects have already been partially considered in the forecast.

The Ukraine crisis has disrupted many supply chains, which are increasingly causing problems and placing a greater burden on economic development. Last year, Poland sourced around 10 % of its iron and steel imports from Ukraine and Russia. Poland is also heavily dependent on energy imports from Russia. In 2021, 63 % of Poland's oil needs were covered by imports from Russia. For natural gas it was 44 % and for coal 15 %. The new natural gas pipeline "Baltic Pipe" from Norway will probably bring some relief in this respect from the end of the year. In addition, already existing LNG terminals in Swinoujście enable the import of liquefied natural gas from Qatar and the United States. In contrast to this is the already manifested stop of Russian natural gas deliveries to Poland from 27 April 2022.

## Politics

Since the beginning of August 2020, Dr Andrzej Duda has been in his second term as President of Poland. He was first elected to office in August 2015 through the PiS party (Prawo i Sprawiedliwość - Law and Justice), from which he left for symbolic reasons when he took office. Since then, however, he has continued to be considered very loyal to the PiS, which international observers classify as nationalist and EU-sceptical. Mateusz Morawiecki has been Prime Minister (PiS) since 12 December 2017 and was confirmed in office on 15 November 2019. The PiS is the ruling party in the ruling right-wing alliance, which, however, is increasingly losing support. This makes new elections likely soon.

Since the introduction of the disciplinary chamber in 2019, the national conservative government has been at odds with the EU Commission, particularly regarding its judicial reforms. In 2021, the European Court of Justice (ECJ) had ordered Poland to dissolve the disciplinary chamber at the highest Polish court, which had been established shortly before, because it allowed political influence on judges. Poland did not react to this ruling at first, and by the beginning of 2022, around € 69 million in EU fines (€ 1 million/day) had already accrued. In this context, Brussels threatened to withhold € 35 billion from the Corona Reconstruction Fund. In response, President Duda relented and presented a bill to dissolve this disciplinary chamber. At the end of May, the Sejm (the Polish Chamber of Deputies) approved it, thus fulfilling an important condition for EU payments from the Corona Reconstruction Fund. In the meantime, EU fines of around € 200 million had accumulated against Poland in this matter.

At the end of April 2022, the Polish government announced the creation of a national transformation fund to restructure the domestic energy supply. It plans to use around 40 % of the revenues from emissions trading (approx. € 25 billion) for a national transformation fund FTE (Fundusz Transformacji Energetyki). The aim is to improve the environmental compatibility and efficiency of Poland's energy supply.

## PEOPLE'S REPUBLIC OF CHINA



**FIGURES 2020** (2019) according to World Bank

**GDP growth:** 2.3 % (5.9 %)

**GDP per capita:** US\$ 10 435 (US\$ 10 144)

**Inflation:** 2.4 % (2.9 %)

**Population:** 1.411 Billion (1.408 Billion)

### Coal

According to the National Bureau of Statistics of China (NBS), China's total primary energy consumption (PEV) in 2021 was around 5.4 billion TCE, up 5.2 % year-on-year. Coal consumption increased by 4.6 % and accounted for 56 % of total PEV.

China is by far the most important coal-producing country in the world. In 2021, more coal was produced than ever before, at around 4 billion tonnes (+5.6 % compared to the previous year). Apart from small exports (2.6 million tonnes), almost all domestic production remained in the country. In addition, almost 205 million tonnes were imported (-18.8 % compared to the previous year).

In May and from August onwards, the Chinese power industry suffered from a temporary coal shortage. Due to this, power plants had to be choked or completely taken from the grid and electricity

### Key Figures PR China <sup>1)</sup>

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production</b>	<b>3 746</b>	<b>3 812</b>	<b>4 026</b>
<b>Hard Coal Exports</b>	<b>6.0</b>	<b>3.2</b>	<b>2.6</b>
Steam Coal	4.6	2.3	2.5
of which anthracite	2.0	1.3	1.5
Coking Coal	1.4	0.9	0.1
<b>Coke Exports</b>	<b>6.5</b>	<b>3.5</b>	<b>6.7</b>
<b>Hard Coal Imports</b>	<b>197.3</b>	<b>205.0</b>	<b>204.5</b>
Steam Coal	115.4	124.6	140.6
Coking Coal	74.7	72.6	54.7
Anthracite	7.2	7.8	9.2
<b>Imports Germany</b>	<b>0.07</b>	<b>0.06</b>	<b>0.15</b>
Steam Coal (incl. Anthracite)	0.01	0.00	0.00
Coke	0.06	0.06	0.15
<b>Export Ratio</b> (coke converted into coal)	<b>0.33 %</b>	<b>0.18 %</b>	<b>0.23 %</b>

<sup>1)</sup> Excluding lignite

Source: Various analyses / S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

### LB-T28

supply to industry and households was reduced or temporarily suspended (see Table LB-T28 "Key figures for the People's Republic of China" and explanations in the subchapter "Electricity").

At the latest after the experience of the "energy crisis" with electricity shortages in 2021, a change of mindset has become apparent in the Chinese central government regarding the use of coal.

This is contrary to the promises made at the World Climate Summit in Glasgow (reduction of CO<sub>2</sub> emissions before 2030/CO<sub>2</sub> neutrality for China by 2060). Three new coal policy goals were formulated: to emphasise the role of coal in China's energy supply, to further boost domestic coal production and to stabilise the coal price level. A number of measures have already been taken to achieve this.

According to a Reuters report, coal mining companies across the country have been instructed since October 2021 to exhaust their production capacities to the maximum in order to counter the coal shortage. By the beginning of 2021 (21 January 2022), coal stockpiles at power plants had been restocked with around 162 million tonnes and secured fuel supplies to power plants for a period of up to three weeks. Compared to one year earlier, the stocks were about 40 million tonnes higher. Coal mines that had already been shut down were also reactivated.

On 21 February 2022, China's top planning authority - the National Development and Reform Commission - approved the construction of three multi-billion-dollar coal mining projects. Two projects are in Shaanxi province, one is to be built in Inner Mongolia. Together, the three projects require an investment volume of about US\$ 3.8 billion and are expected to produce 19 million tonnes of coal per year.

Figuratively speaking, China is relying on "all available horses" to secure its energy supply. In addition to coal projects, many projects from the non-fossil sector are also being supported. For example, the China Electricity Council (CEC) announced on 27 January 2022 that the national power generation capacities of non-fossil energy sources are to be expanded by 180 GW to a total of 1 300 GW. For 2022, the CEC expects China's total gross electricity generation to grow by 5 to 6 %. Also in the medium term, ambitious goals are being pursued.

For example, solar and wind power plants with a peak capacity of 450 GW are planned in the Gobi Desert and other Chinese desert regions by 2030.

During a general debate at the UN General Assembly in September 2021, Chinese President Xi Jinping declared that China does not want to build any more coal-fired power plants abroad to fight against climate change. According to a study by the Finnish research institute Crea, China is the most important public financier for the construction of coal-fired power plants worldwide. According to the Salzburger Nachrichten, 68 coal-fired power plants were still planned in September 2021. Of these, 15 power plant projects with a total capacity of 12.8 GW have since been withdrawn. A further 18 projects have already been sufficiently financed and approved and will probably be realised. 32 projects could currently still be terminated prematurely.

As can be seen from a Spiegel report from mid-April 2022, the People's Republic of China, contrary to its basically Russia-friendly policy, initially purchased considerably less Russian coal after the start of the Ukraine crisis. Coal imports from Russia fell by 30 % in March 2022 compared to March of the previous year. This is mainly attributed to the Western sanctions regarding Russia's exclusion from the Swift payment network. As a result, Chinese traders had difficulties securing financing for their transactions via state-owned banks.

## Power

Compared to the previous year, China's gross electricity generation in 2021 increased by 9.5 % to around 8 460 TWh. The most important energy source was again coal, with a share of 64 % (5 383 TWh). Renewable energy sources made a contribution of 2 388 TWh (28 %). Nuclear energy and natural gas contributed 407 TWh (5 %) and 267 TWh (3 %) respectively.

### Electricity/Crude Steel/Pig Iron Production PR China

		2019	2020	2021
Electric Power Generation	TWh	7 456	7 727	8 460
Crude Steel Production	Mill. t	995	1 065	1 033
Pig Iron Production	Mill. t	809	908	869

Sources: World Steel Association / National Bureau of Statistics of China / ArgusMedia / Ember-climate.org

#### LB-T25

Despite the high growth in electricity generation, the People's Republic suffered from a glaring power shortage ("power crunch"), especially in the second half of the year. This was caused by a low availability of hydropower, extremely high coal prices and a resulting lower supply of coal-fired power.

In spring 2021, the central government in Beijing instructed the provincial governments to strictly reduce emissions in order to keep China's climate targets within reach. In addition, the import ban on Australian coal forced coal buyers to look for alternatives and caused temporary shortages. As a result, there was a shortage of steam coal.

In May 2021, the first warning shot was fired when five provinces in southern parts of the country had to ration electricity in order to cope with the high demand for electricity after the Corona pandemic and the subsequent economic boom. This warning signal, however, initially remained inconsequential.

From August 2021, however, electricity had to be rationed even in twenty administrative regions and entire supply areas had to be temporarily disconnected from the power supply, sometimes with only short notice. In January 2022, the Indonesian export ban on steam coal further complicated the situation.

### Import/Export Development PR China

	2019	2020	2021	Difference
	Mill. t	Mill. t	Mill. t	2021/2020
				Mill. t
Imports Steam Coal <sup>1)</sup>	122.6	132.3	149.9	17.6
Imports Coking Coal	74.7	72.6	54.7	-17.9
<b>Total Imports</b>	<b>197.3</b>	<b>204.9</b>	<b>204.6</b>	<b>-0.3</b>
Exports Steam Coal <sup>1)</sup>	4.6	2.3	2.5	0.2
Exports Coking Coal	1.4	0.9	0.1	-0.8
Export Coke	6.5	3.5	6.7	3.2
<b>Total Exports</b>	<b>12.5</b>	<b>6.7</b>	<b>9.3</b>	<b>2.6</b>

<sup>1)</sup> Incl. anthracite, excl. lignite

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022

#### LB-T27

### Economy

After the Corona crisis year of 2021 and a resulting record of +18.3 % in the first quarter of 2021, China's economic development was immediately slowed down again by rising energy and commodity prices, increasing power supply bottlenecks and lockdown measures as a result of a resurgence of the Covid-19 infection. For the year as a whole, the Chinese National Bureau of Statistics (NBS) reports only comparatively moderate economic growth of 8.1 %. For the two following years 2022 and 2023, the International Monetary Fund expects GDP growth rates of only +4.4 % and +5.1 % respectively also due to the Ukraine-crisis.

The IMF economic forecast already seems unrealistic. The central government in Beijing is pursuing a so-called zero-covid strategy, which involves hard lockdowns in some million-metropolises. For example, the self-governing zone of Shanghai, which alone accounted for 4 % of China's GDP last year, has been in a hard

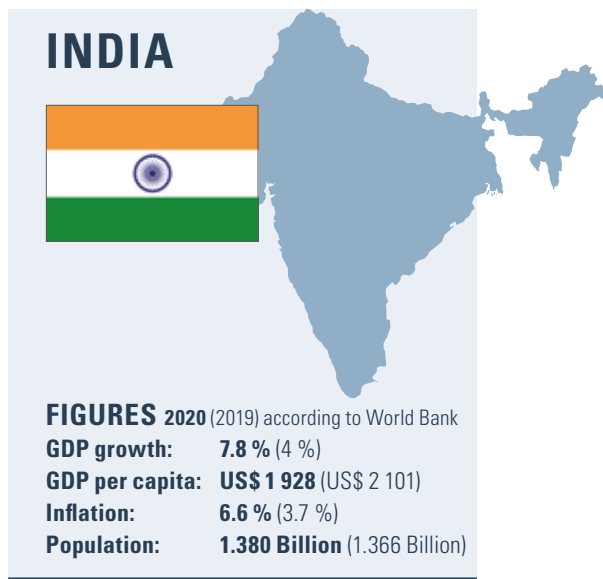
lockdown since the end of March 2022 with a strict ban on going out for the entire population (>25 million).

China was once again Germany's most important trading partner last year, for the 6<sup>th</sup> time in a row. According to the Federal Statistical Office (DESTATIS), trade between the two countries increased by 16 % to a record value of € 245 billion compared to the previous year.

## **Politics**

In order to counter energy shortages like last year's, the central government has put energy and electricity security at the top of its agenda for the current year. It is thus clearly moving away from its climate targets of the previous year.

This November, at the 20<sup>th</sup> Party Congress of the Communist Party of China, Xi Jinping will seek reappointment to the office of General Secretary for a five-year term. His term as president will be extended beyond the usual ten years and his power will be further consolidated.



### Coal

India is relying even more heavily on coal than before, owning more than 250 coal-fired power plants. Another 28 are under construction. The country has immense coal reserves.

India's coal production increased by 7 % to 773.2 million tonnes compared to the previous year. The reason for this was the increase in demand for electricity due to the economic recovery after the easing of restrictions related to the coronavirus.

India's coal supply increased by 5.7 % to 993 million tonnes in 2021, with total domestic supply exceeding annual domestic production by 5.2 % as consumers drew on reserves.

The energy-hungry nation's coal imports rose by just under 1 % to 219.8 million tonnes in 2021, compared to 218.2 million tonnes the previous year.

### Key Figures India

	2019 Mill. t	2020 Mill. t	2021 Mill. t
<b>Hard Coal Production</b>	<b>711.0</b>	<b>718.8</b>	<b>773.2</b>
<b>Hard Coal Imports</b>	<b>239.9</b>	<b>218.2</b>	<b>219.8</b>
Steam Coal	179.3	159.3	145.8
Coking Coal	58.8	56.9	71.9
Anthracite	1.8	2.0	2.1

*Source: various analyses / S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022*

### LB-T32

Coal consumption in India, the world's second-largest producer, consumer and importer of the fuel after China, will exceed 1 billion tonnes for the first time in fiscal year 2021/22.

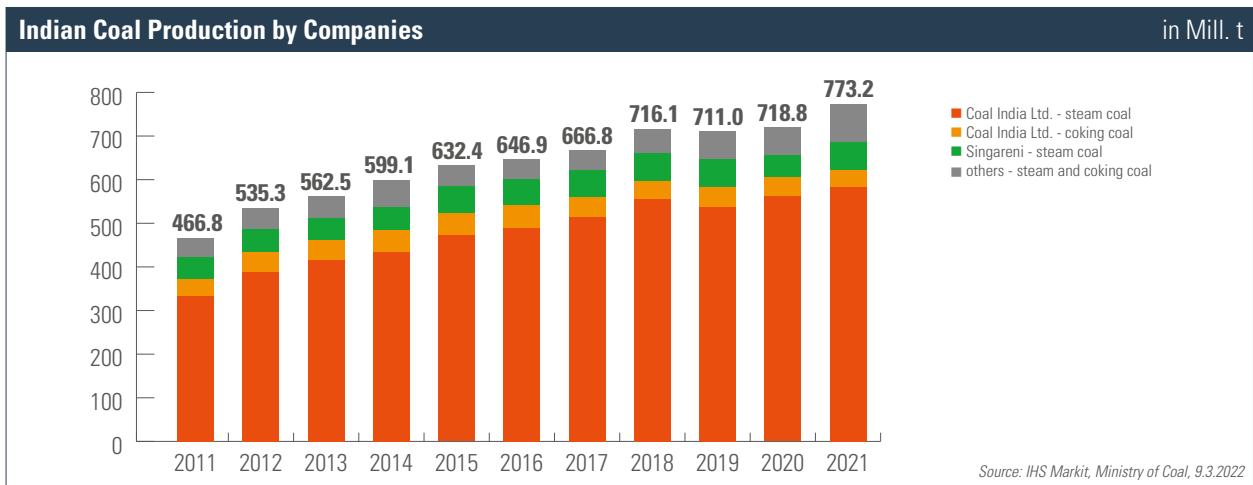
The state-owned company Coal India, which accounts for more than 80 % of domestic production of the fuel, increased its output by 4.4 % during the year to a record 622.6 million tonnes.

### Power

India's electricity supply increased by almost 9 % in 2021/22. This is the highest growth rate in ten years.

More than three quarters of India's coal consumption is in the electricity sector and almost 74 % of India's electricity generation is from coal. According to the IEA, electricity generation from coal in India will increase by 11 % by 2024 (see Table LB-T31).

Although India's use of climate-friendly energy sources has increased significantly since 2014, electricity consumption is also growing significantly. Solar and wind power are far from being able to cover the additional demand.



LB-B12

### Power generation in India by energy source

	2020 TWh	2021* TWh	Change over PY in %	2021 Share in %
Coal	1 125.2	1 250.5	11.1	73.7
Natural Gas	70.8	58.1	- 17.9	3.4
Oil	4.9	4.7	- 4.1	0.3
<i>Fossil Fuels in total</i>	<i>1 200.9</i>	<i>1 313.3</i>	<i>9.4</i>	<i>77.4</i>
Nuclear Energy	44.6	42.7	- 4.3	2.5
Hydro Electric	163.6	171.3	4.7	10.1
Renewables	151.2	169.1	11.8	10.0
Other	0.6	0.5	- 16.7	0.0
<b>Total</b>	<b>1 560.9</b>	<b>1 696.8</b>	<b>8.7</b>	<b>100.0</b>

\*preliminary

Sources: BP Statistical Review of World Energy 2021 / values for 2021 are from Ember, „Global Electricity Review 2022, partly estimated

LB-T31

Coal-fired power will therefore remain the most important component of India's energy supply for a long time to come. The country is still a long way from a sustainable energy transition.

Nevertheless: India is one of the countries with the lowest per capita emissions worldwide. Hundreds of millions of Indians still do not have a reliable electricity connection.

According to a study by the Global Carbon Project, the average American consumes ten times as much energy as the average Indian.

## Economy

India is the fifth largest economy in the world in terms of nominal GDP.

In addition, no other large economy in the world is currently growing as strongly as India.

For the coming fiscal year 2022/23, India's economy will grow by around 8 %, according to government forecasts. And thus, also outpace its big neighbour China.

The Indian government wants to increase government investment by spending particularly strongly. Compared to the previous year, it is expected to increase by 35 % to more than US\$ 100 billion.

### **Politics**

India's friendship with Russia threatens the West's Asia strategy. The Ukraine war threatens to drive a wedge between the Western states and one of their most important partners. India vehemently refuses to condemn the actions of Russian President Putin.

The country is thus putting the West's Indo-Pacific strategy to the test. Both the EU and the USA must ask themselves whether the government in New Delhi can still be relied upon.

India is clearly setting itself apart from other Western allies in the Indo-Pacific region. Both Japan and Australia accuse Russia of illegally violating Ukraine's sovereignty.

India's rejection of a joint approach with the West in the Ukraine crisis can be traced back to its decades-long foreign policy doctrine, according to which the country tries to stay out of international conflicts. India has had a traditionally close relationship with Russia for decades.



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2021 preliminary



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## The Hard Coal Market in Germany

Volumes and Prices 1957 - 2021															
Quantities								Prices							
Imports of Hard Coal and Coke t=t <sup>1)</sup>				Domestic Production of Hard Coal Tonnes Usable Production				Steam Coal From Third Countries <sup>1)</sup>				Domestic Coal <sup>2)</sup>			
Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	€/TCE	Year	€/TCE	Year	€/TCE	Year	€/TCE
1957	18.9	1990	11.7	1957	149.4	1990	69.8	1957	40	1990	49	1957	29	1990	138
1958	13.9	1991	16.8	1958	148.8	1991	66.1	1958	37	1991	46	1958	29	1991	139
1959	7.5	1992	17.3	1959	141.7	1992	65.5	1959	34	1992	42	1959	29	1992	147
1960	7.3	1993	15.2	1960	142.3	1993	57.9	1960	33	1993	37	1960	29	1993	148
1961	7.3	1994	18.1	1961	142.7	1994	52.0	1961	31	1994	36	1961	29	1994	149
1962	8.0	1995	17.7	1962	141.1	1995	53.1	1962	30	1995	39	1962	30	1995	149
1963	8.7	1996	20.3	1963	142.1	1996	47.9	1963	30	1996	38	1963	30	1996	149
1964	7.7	1997	24.3	1964	142.2	1997	45.8	1964	30	1997	42	1964	31	1997	149
1965	8.0	1998	30.2	1965	135.1	1998	40.7	1965	29	1998	37	1965	32	1998	149
1966	7.5	1999	30.3	1966	126.0	1999	39.2	1966	29	1999	34	1966	32	1999	149
1967	7.4	2000	33.9	1967	112.0	2000	33.3	1967	29	2000	42	1967	32	2000	149
1968	6.2	2001	39.5	1968	112.0	2001	27.1	1968	28	2001	53	1968	30	2001	149
1969	7.5	2002	39.2	1969	111.6	2002	26.1	1969	27	2002	45	1969	31	2002	160
1970	9.7	2003	41.3	1970	111.3	2003	25.7	1970	31	2003	40	1970	37	2003	160
1971	7.8	2004	44.3	1971	110.8	2004	25.7	1971	32	2004	55	1971	41	2004	160
1972	7.9	2005	39.9	1972	102.5	2005	24.7	1972	31	2005	65	1972	43	2005	160
1973	8.4	2006	46.5	1973	97.3	2006	20.7	1973	31	2006	62	1973	46	2006	170
1974	7.1	2007	47.5	1974	94.9	2007	21.3	1974	42	2007	68	1974	56	2007	170
1975	7.5	2008	48.0	1975	92.4	2008	17.1	1975	42	2008	112	1975	67	2008	170
1976	7.2	2009	39.5	1976	89.3	2009	13.8	1976	46	2009	79	1976	76	2009	170
1977	7.3	2010	45.2	1977	84.5	2010	12.9	1977	43	2010	85	1977	76	2010	170
1978	7.5	2011	48.4	1978	83.5	2011	12.1	1978	43	2011	107	1978	84	2011	170
1979	8.9	2012	43.8	1979	85.8	2012	10.8	1979	46	2012	93	1979	87	2012	180
1980	10.2	2013	51.2	1980	86.6	2013	7.6	1980	56	2013	79	1980	100	2013	180
1981	11.3	2014	59.9	1981	87.9	2014	7.6	1981	84	2014	73	1981	113	2014	180
1982	11.5	2015	58.6	1982	88.4	2015	6.2	1982	86	2015	68	1982	121	2015	180
1983	9.8	2016	57.2	1983	81.7	2016	3.8	1983	75	2016	67	1983	125	2016	180
1984	9.6	2017	51.1	1984	78.9	2017	3.7	1984	72	2017	92	1984	130	2017	180
1985	10.7	2018	47.5	1985	81.8	2018	2.6	1985	81	2018	95	1985	130	2018	180
1986	10.9	2019	43.2	1986	80.3	2019	-	1986	60	2019	80	1986	130	2019	-
1987	8.8	2020	31.3	1987	75.8	2020	-	1987	46	2020	63	1987	132	2020	-
1988	8.1	2021	41.1	1988	72.9	2021	-	1988	42	2021	119	1988	134	2021	-
1989	7.3			1989	71.0			1989	49			1989	137		

, Figures: From 1991, incl. new German states; euro values rounded off

<sup>1)</sup> Including anthracite and briquettes <sup>1)</sup> Price free German border <sup>2)</sup> Estimated breakeven price

Sources: German Federal Statistical Office according to energy statistics law, from 2012 according to „Außenhandelsstatistik / Carbon Statistics from Kohlenwirtschaft / BAFA / own calculations

Table 23

World Energy Consumption by Energy Source and Region in Mill. TCE										
Energy Source	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oil	5 836	5 913	5 970	6 074	6 188	6 510	6 581	6 532	6 547	5 944
Natural Gas	4 167	4 266	4 361	4 402	4 479	4 390	4 488	4 731	4 795	4 696
Nuclear Energy	859	800	805	822	833	845	853	824	851	818
Hydroelectric Power	1 136	1 191	1 231	1 263	1 276	1 305	1 314	1 274	1 286	1 302
Hard Coal and Lignite	5 189	5 320	5 524	5 587	5 485	5 294	5 312	5 418	5 379	5 167
Miscellaneous and Renewable Energies	286	342	404	452	521	596	700	881	983	1 082
<b>Total</b>	<b>17 473</b>	<b>17 832</b>	<b>18 295</b>	<b>18 600</b>	<b>18 782</b>	<b>18 940</b>	<b>19 249</b>	<b>19 662</b>	<b>19 842</b>	<b>19 008</b>
<b>Primary Energy Consumption</b>										shares in %
Consumption Regions	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
North America	22.7	21.8	21.8	21.8	21.3	20.8	20.4	20.4	20.1	19.4
Asia/Australia	39.1	40.3	40.7	41.3	41.6	42.1	42.7	43.3	44.1	45.5
European Union	13.9	13.0	13.1	12.5	12.4	12.6	12.6	12.1	10.4	10.0
CIS	8.3	8.5	7.9	7.7	7.4	7.3	6.6	6.7	6.7	6.7
Rest of World	16.0	16.4	16.5	16.7	17.3	17.2	17.7	17.4	18.6	18.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Coal Consumption (Hard Coal and Lignite)</b>										Mill. TCE
Consumption Regions	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
North America	14.5	12.6	12.6	12.6	11.2	10.0	9.8	9.1	7.9	6.5
Asia/Australia	67.9	69.7	70.6	71.5	72.6	74.0	74.5	75.3	77.6	79.9
European Union	8.3	7.9	7.5	7.0	6.9	6.9	6.3	5.9	4.6	3.9
CIS	4.7	4.9	4.6	4.2	4.2	4.2	3.4	3.5	3.5	3.4
Rest of World	4.6	4.9	4.7	4.7	5.1	4.9	6.0	6.1	6.3	6.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Includes commercially traded energy sources only

Source: BP Statistical Review of World Energy 2021 / own calculations

Table 1

World Hard Coal Production/Foreign Trade <sup>1)</sup>

	2016			2017			2018		
	Production	Export	Import	Production	Export	Import	Production	Export	Import
Germany	4	1	55	4	1	49	3	1	45
France	0	0	13	0	0	15	0	0	13
UK	4	0	7	3	0	7	3	0	9
Spain <sup>2)</sup>	2	0	14	3	0	19	3	0	16
Poland	70	9	8	66	7	13	63	5	20
Czech Republic	7	4	3	5	3	3	5	3	2
Romania/Bulgaria	2	0	2	0	0	2	0	0	5
Rest of EU 28 <sup>4)</sup>	0	0	55	0	0	54	0	0	59
<b>EU 28 <sup>4)</sup></b>	<b>89</b>	<b>14</b>	<b>157</b>	<b>81</b>	<b>11</b>	<b>163</b>	<b>76</b>	<b>9</b>	<b>169</b>
Russia	384	166	22	408	193	25	433	203	25
Kazakhstan	103	26	0	112	29	0	118	29	1
Ukraine	41	1	16	35	1	20	26	0	19
<b>Designated Countries</b>	<b>528</b>	<b>193</b>	<b>38</b>	<b>555</b>	<b>223</b>	<b>45</b>	<b>577</b>	<b>232</b>	<b>45</b>
Canada	61	30	6	61	30	7	55	31	8
USA	661	55	9	703	88	7	686	105	5
Colombia	91	89	0	91	83	0	84	80	0
Venezuela	0	1	0	0	0	0	0	0	4
<b>Designated Countries</b>	<b>813</b>	<b>175</b>	<b>16</b>	<b>855</b>	<b>201</b>	<b>14</b>	<b>825</b>	<b>216</b>	<b>17</b>
<b>South Africa</b>	<b>250</b>	<b>75</b>	<b>0</b>	<b>252</b>	<b>83</b>	<b>0</b>	<b>253</b>	<b>81</b>	<b>0</b>
<b>Australia</b>	<b>433</b>	<b>391</b>	<b>0</b>	<b>449</b>	<b>373</b>	<b>0</b>	<b>470</b>	<b>387</b>	<b>0</b>
India	639	0	198	667	0	198	716	0	221
PR China	3 364	9	183	3 445	8	189	3 546	5	186
Japan	0	0	190	0	0	192	0	0	189
Indonesia <sup>3)</sup>	402	311	0	415	318	0	471	343	0
<b>Designated Countries</b>	<b>4 405</b>	<b>320</b>	<b>571</b>	<b>4 527</b>	<b>326</b>	<b>578</b>	<b>4 733</b>	<b>348</b>	<b>597</b>
Rest of Asia			298			323			351
Remaining countries/ Statistical difference	211	57	146	139	49	143	137	52	146
<b>World</b>	<b>6 729</b>	<b>1 225</b>	<b>1 226</b>	<b>6 858</b>	<b>1 266</b>	<b>1 266</b>	<b>7 071</b>	<b>1 325</b>	<b>1 325</b>

<sup>1)</sup> Domestic and seaborne trade <sup>2)</sup> Production incl. "Lignito Negro" <sup>3)</sup> Indonesia: Production incl. dom. lignite consumption, but excluding lignite exports <sup>4)</sup> from 2020 EU 27 without UK

Sources: Statistics from Kohlenwirtschaft, ECE, IEA, statistics of the importing and exporting countries, own calculations

Table 2

2019			2020			2021			
Production	Export	Import	Production	Export	Import	Production	Export	Import	
0	1	41	0	1	30	0	2	39	Germany
0	0	10	0	0	7	0	0	8	France
2	0	5	allocated to the other countries			allocated to the other countries			UK
0	0	8	0	0	4	0	0	5	Spain <sup>2)</sup>
62	4	17	54	5	13	55	6	12	Poland
3	3	2	2	3	3	2	3	3	Czech Republic
0	0	2	0	0	1	0	0	2	Romania/Bulgaria
0	0	52	0	0	27	0	0	34	Rest of EU 28 <sup>4)</sup>
<b>67</b>	<b>8</b>	<b>137</b>	<b>56</b>	<b>9</b>	<b>85</b>	<b>57</b>	<b>11</b>	<b>103</b>	<b>EU 28<sup>4)</sup></b>
437	208	25	401	198	25	438	211	26	Russia
115	28	1	113	29	1	112	32	1	Kazakhstan
31	0	21	29	0	17	29	0	18	Ukraine
<b>583</b>	<b>236</b>	<b>47</b>	<b>543</b>	<b>227</b>	<b>43</b>	<b>579</b>	<b>243</b>	<b>45</b>	<b>Designated Countries</b>
52	36	7	41	32	5	42	32	6	Canada
640	84	5	486	63	5	524	77	5	USA
82	76	0	48	52	0	56	56	0	Colombia
0	0	1	1	0	0	1	0	0	Venezuela
<b>774</b>	<b>196</b>	<b>13</b>	<b>576</b>	<b>147</b>	<b>10</b>	<b>623</b>	<b>165</b>	<b>11</b>	<b>Designated Countries</b>
<b>259</b>	<b>79</b>	<b>0</b>	<b>248</b>	<b>75</b>	<b>0</b>	<b>229</b>	<b>66</b>	<b>0</b>	<b>South Africa</b>
<b>472</b>	<b>395</b>	<b>0</b>	<b>440</b>	<b>370</b>	<b>0</b>	<b>431</b>	<b>367</b>	<b>0</b>	<b>Australia</b>
711	0	240	719	0	214	773	0	185	India
3 746	6	197	3 812	3	205	4 026	3	205	PR China
0	0	186	0	0	174	0	0	183	Japan
532	372	0	498	342	0	525	348	0	Indonesia <sup>3)</sup>
<b>4 989</b>	<b>378</b>	<b>623</b>	<b>5 029</b>	<b>345</b>	<b>593</b>	<b>5 324</b>	<b>351</b>	<b>573</b>	<b>Designated Countries</b>
		361			354			341	Rest of Asia
144	54	164	171	43	131	178	34	164	Remaining countries/ Statistical difference
<b>7 288</b>	<b>1 346</b>	<b>1 346</b>	<b>7 063</b>	<b>1 216</b>	<b>1 216</b>	<b>7 421</b>	<b>1 237</b>	<b>1 237</b>	<b>World</b>

Seaborne Hard Coal Trade <sup>1)</sup>

Exporting Countries	2016			2017			2018		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Australia	189	201	391	173	200	373	178	208	386
USA	34	16	50	46	37	83	52	48	100
South Africa	0	75	75	0	83	83	0	81	81
Canada	27	2	29	28	2	30	30	1	31
PR China	1	7	9	2	6	8	1	4	5
Colombia	1	89	90	2	83	85	2	80	82
Indonesia	0	311	311	0	318	318	0	343	343
Poland	0	4	4	0	2	2	0	0	0
Russia	30	115	144	35	125	160	40	124	164
Other (incl. Venezuela)	2	11	13	3	13	16	0	14	14
<b>Total</b>	<b>285</b>	<b>832</b>	<b>1 117</b>	<b>288</b>	<b>869</b>	<b>1 157</b>	<b>304</b>	<b>902</b>	<b>1 206</b>
Importing Countries/Regions	2016			2017			2018		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
<b>Europe <sup>2)</sup>, of which</b>	40	154	194	43	157	200	45	158	202
EU 28 <sup>4)</sup>	35	108	143	37	109	146	37	111	148
<b>Asia, of which</b>	178	665	843	184	684	868	186	726	912
Japan	43	146	190	42	150	192	43	146	189
South Korea	25	110	134	24	123	147	25	123	148
Taiwan	11	54	66	11	58	69	12	57	69
PR China	46	111	157	56	100	155	45	105	150
Hong Kong	0	11	11	0	11	11	0	11	11
India	49	148	197	48	151	199	55	166	221
<b>Latin America</b>	15	27	42	15	21	36	15	20	35
Other/ Statistical Difference	-2	39	37	-5	57	52	5	53	58
PCI coal included in steam coal <sup>3)</sup>	54	-53	1	51	-51	0	53	-55	-2
<b>Total</b>	<b>285</b>	<b>832</b>	<b>1 117</b>	<b>288</b>	<b>869</b>	<b>1 157</b>	<b>304</b>	<b>902</b>	<b>1 206</b>

Figures excl. overland traffic

<sup>1)</sup> Rounding-off differences possible, coking coal exports from Australia and Russia, including PCI coal

<sup>2)</sup> incl. neighbouring Mediterranean countries

<sup>3)</sup> coking coal exports from Australia and Russia, including PCI coal

<sup>4)</sup> from 2020 EU 27 without UK

Assessment of various sources

Table 3

2019			2020			2021			
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	
183	212	395	172	199	371	168	199	367	Australia
46	33	79	36	23	59	38	35	73	USA
0	79	79	0	75	75	0	66	66	South Africa
34	2	35	26	5	31	26	5	31	Canada
1	5	6	1	2	3	1	2	3	PR China
2	76	78	1	52	53	1	56	57	Colombia
0	372	372	0	342	342	0	348	348	Indonesia
0	0	0	0	0	0	0	0	0	Poland
38	130	168	43	117	160	49	122	171	Russia
4	19	23	2	15	17	3	18	21	Other (incl. Venezuela)
<b>308</b>	<b>927</b>	<b>1 235</b>	<b>281</b>	<b>830</b>	<b>1 111</b>	<b>286</b>	<b>851</b>	<b>1 137</b>	<b>Total</b>
2019			2020			2021			
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Importing Countries/Regions
39	137	176	27	111	138	33	118	151	<b>Europe <sup>2)</sup>, of which</b>
32	87	119	21	59	80	28	69	97	EU 28 <sup>4)</sup>
191	758	949	189	730	919	188	698	886	<b>Asia, of which</b>
43	143	186	40	134	174	43	140	183	Japan
22	119	141	22	102	124	22	104	126	South Korea
13	54	67	12	51	63	13	57	70	Taiwan
49	112	161	54	122	176	41	135	176	PR China
0	10	10	0	6	6	0	7	7	Hong Kong
57	183	240	54	160	214	61	124	185	India
9	25	34	8	17	25	7	22	29	<b>Latin America</b>
14	62	76	2	27	29	0	71	71	Other/ Statistical Difference
55	-55	0	55	-55	0	58	-58	0	PCI coal included in steam coal <sup>3)</sup>
<b>308</b>	<b>927</b>	<b>1 235</b>	<b>281</b>	<b>830</b>	<b>1 111</b>	<b>286</b>	<b>851</b>	<b>1 137</b>	<b>Total</b>

Hard Coal Exports from Australia									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	4 739	5 721	5 921	6 608	5 625	5 275	4 771	3 851	5 439
Belgium	405	39	1 275	231	914	20	1 288	649	297
France	3 317	3 219	3 707	3 860	2 779	2 907	2 224	1 797	2 294
United Kingdom	2 455	1 803	1 729	1 218	935	980	609	<sup>2)</sup>	<sup>2)</sup>
Italy	821	657	840	778	329	556	334	467	438
The Netherlands	2 658	2 778	2 504	3 684	1 813	3 007	2 342	2 189	3 186
Poland	421	1 278	1 346	1 460	1 160	1 486	1 746	954	1 413
Spain	1 057	1 438	1 340	1 197	870	1 372	302	265	821
Sweden	1 050	1 079	1 311	1 363	790	1 024	1 252	1 114	988
Other EU 28	273	82	380	579	631	255	388	164	343
<b>EU-28</b>	<b>17 199</b>	<b>18 093</b>	<b>20 353</b>	<b>20 979</b>	<b>15 846</b>	<b>16 881</b>	<b>15 254</b>	<b>11 458</b>	<b>15 265</b>
UK								560	525
Israel	496	174	172	0	0	0	0	0	0
Turkey	311	633	1 987	1 505	570	424	857	709	4 419
Rest of Europe <sup>1)</sup>	0	624	989	391	245	237	176	0	263
<b>Europe <sup>1)</sup></b>	<b>18 005</b>	<b>19 525</b>	<b>23 502</b>	<b>22 875</b>	<b>16 661</b>	<b>17 542</b>	<b>16 287</b>	<b>12 727</b>	<b>20 472</b>
Brazil	3 045	4 745	6 615	6 435	5 745	5 048	3 546	3 751	5 552
Chile	914	901	2 151	3 640	2 201	978	1 206	2 600	2 614
Mexico	1 072	2 437	3 638	2 710	0	0	133	0	0
PR China	87 581	93 351	71 416	74 898	83 300	89 491	92 685	73 970	182
India	34 674	46 826	48 115	48 468	44 269	50 072	49 646	52 827	72 235
Indonesia	458	1 478	2 275	2 702	3 104	4 086	4 231	5 239	8 771
Japan	123 433	119 553	125 619	121 648	117 433	116 734	110 047	104 093	120 228
Malaysia	3 974	6 003	6 173	6 925	6 295	6 549	6 912	7 763	6 785
Korea	49 806	55 052	59 586	51 122	48 831	47 903	50 323	46 028	61 376
Taiwan	27 205	29 869	30 001	36 133	31 703	32 586	34 412	31 562	37 824
Thailand	3 531	3 948	3 777	3 585	3 914	3 444	4 094	3 884	7 295
Vietnam	429	544	1 302	4 097	4 025	6 953	16 068	20 766	15 670
Other Countries	3 443	3 276	4 986	6 278	5 474	4 884	4 181	5 258	7 791
Statistical differences	0	-182	-674	-929	-390	340	1 314	0	0
<b>Total Exports</b>	<b>357 571</b>	<b>387 328</b>	<b>388 482</b>	<b>390 586</b>	<b>372 564</b>	<b>386 609</b>	<b>395 086</b>	<b>370 469</b>	<b>366 796</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 7



Hard Coal Exports from Indonesia									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	0	0	84	180	0	0	0	0	0
Italy	3 017	3 516	3 106	1 686	891	718	0	67	0
Spain	4 078	4 071	4 826	4 944	3 232	2 464	685	0	84
Other EU 28	668	453	323	450	802	1 132	404	451	172
<b>EU 28</b>	<b>7 762</b>	<b>8 041</b>	<b>8 339</b>	<b>7 261</b>	<b>4 926</b>	<b>4 313</b>	<b>1 088</b>	<b>518</b>	<b>256</b>
Rest of Europe <sup>1)</sup>	147	0	253	238	87	0	131	0	0
<b>Europe <sup>1)</sup></b>	<b>7 909</b>	<b>8 041</b>	<b>8 592</b>	<b>7 498</b>	<b>5 012</b>	<b>4 313</b>	<b>1 219</b>	<b>518</b>	<b>256</b>
Bangladesh	0	159	2 847	1 537	2 268	2 613	5 934	7 167	4 659
PR China	89 721	49 782	36 684	50 843	47 294	48 136	65 476	62 492	108 169
Hong Kong	12 876	12 513	9 267	9 424	8 450	9 028	7 877	3 864	5 228
India	116 824	134 452	123 365	94 609	98 553	110 378	121 591	98 243	72 743
Japan	37 712	35 579	32 406	33 038	31 421	28 654	27 437	26 965	22 678
Cambodia	322	641	1 558	1 453	2 382	2 211	2 655	2 854	2 206
Malaysia	17 121	14 453	16 505	17 272	21 130	21 983	25 275	26 707	25 930
Pakistan	998	1 100	1 167	1 473	1 509	3 739	3 417	3 527	3 032
Philippines	14 509	15 021	15 804	17 503	18 978	22 595	27 156	28 061	30 335
South Korea	35 991	35 549	32 704	35 019	38 075	37 151	29 550	25 052	20 844
Taiwan	27 947	26 988	24 008	20 290	17 454	17 860	18 676	17 603	16 594
Thailand	14 258	16 196	17 730	16 384	16 375	19 964	17 600	16 625	14 959
Vietnam	1 820	1 529	1 988	2 852	6 340	11 668	15 262	18 033	15 592
Other Countries	3 162	4 244	2 620	2 209	3 064	2 589	3 414	4 010	4 483
Statistical differences	0	0	-53	-180	-31	0	-367	0	0
<b>Total Exports</b>	<b>381 169</b>	<b>356 247</b>	<b>327 191</b>	<b>311 225</b>	<b>318 275</b>	<b>342 883</b>	<b>372 175</b>	<b>341 720</b>	<b>347 707</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 8

Hard Coal Exports from Russia									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	12 578	13 230	16 564	17 859	19 894	19 170	19 237	14 522	20 312
Belgium	2 243	2 256	2 239	1 299	838	710	1 520	829	1 617
Denmark	821	1 258	860	1 307	1 073	1 541	1 508	1 014	622
Finland	3 159	3 561	2 498	1 926	1 976	2 377	2 574	1 276	1 229
France	1 572	1 151	1 323	2 847	3 056	2 432	2 214	2 179	2 630
UK	23 443	24 028	17 180	11 185	12 169	8 942	1 750	s.u.	s.u.
Italy	847	1 442	2 221	1 860	2 298	2 344	2 129	3 008	4 439
Poland	6 054	6 439	4 656	5 268	7 641	13 261	10 883	9 831	7 684
Romania	287	259	591	464	1 169	3 466	1 323	1 036	954
Slovakia	891	949	1 230	1 281	1 293	1 352	1 415	773	877
Slovenia	0	5	21	638	192	666	796	175	182
Spain	1 740	1 547	3 475	2 463	4 072	2 716	2 041	1 395	1 933
Other EU 28	13 336	13 973	16 637	15 435	18 135	19 299	21 604	14 587	19 376
<b>EU 28<sup>1)</sup></b>	<b>66 970</b>	<b>70 097</b>	<b>69 494</b>	<b>63 831</b>	<b>73 806</b>	<b>78 275</b>	<b>68 994</b>	<b>50 492</b>	<b>61 857</b>
UK								1 301	2 019
Israel	2 033	2 478	2 202	2 491	3 004	2 350	3 170	2 540	2 355
Morocco	127	1 400	1 596	2 639	3 215	3 166	4 427	7 088	7 634
Turkey	8 967	8 615	9 787	11 496	13 715	11 845	9 398	14 726	13 299
Ukraine	10 599	9 812	9 007	9 926	9 275	14 029	7 839	9 116	13 638
Belarus	496	550	817	470	357	1 051	3 537	1 278	1 075
Rest of Europe <sup>2)</sup>	537	489	1 134	991	972	1 414	2 201	1 956	1 827
<b>Europe<sup>2)</sup></b>	<b>89 729</b>	<b>93 441</b>	<b>94 037</b>	<b>91 844</b>	<b>104 345</b>	<b>112 131</b>	<b>99 566</b>	<b>88 496</b>	<b>103 704</b>
Mexico	0	0	0	141	1	0	1 323	157	216
Brazil	207	239	334	1 152	1 190	1 374	1 333	2 677	4 607
PR China	25 077	25 776	16 370	15 991	22 626	22 547	26 695	29 375	43 226
Hong Kong	116	414	753	944	1 189	1 093	1 124	902	535
India	623	1 635	3 039	3 191	3 460	4 306	7 448	7 518	5 894
Japan	12 513	14 657	15 965	18 544	17 426	18 131	19 968	21 433	21 798
Malaysia	365	1 500	2 504	3 151	3 064	3 133	3 305	3 596	3 357
South Korea	14 545	16 154	19 329	24 757	23 342	25 648	24 039	23 056	20 024
Taiwan	3 122	5 502	6 539	7 631	8 768	9 304	8 480	11 221	11 818
Vietnam	131	186	995	4 015	2 156	2 413	5 825	7 462	3 417
Other Countries	402	1 964	2 697	4 113	4 000	4 044	5 446	6 443	5 270
Statistical differences	-8 558	-8 822	-10 061	-9 550	1 256	-941	3 216	-4 408	-13 292
<b>Total Exports</b>	<b>138 273</b>	<b>152 647</b>	<b>152 501</b>	<b>165 924</b>	<b>192 821</b>	<b>203 183</b>	<b>207 771</b>	<b>197 929</b>	<b>210 575</b>

<sup>1)</sup> from 2020 EU 27 without UK <sup>2)</sup> incl. countries bordering the Mediterranean

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 9

Hard Coal Exports from USA									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	12 088	11 140	11 200	9 547	9 050	10 061	8 566	5 706	6 942
France	3 727	1 990	1 208	1 215	1 974	1 547	1 161	882	690
UK	12 257	8 897	3 811	965	2 476	3 805	1 258	<sup>2)</sup>	<sup>2)</sup>
Italy	5 981	5 330	3 112	1 733	2 850	3 091	2 425	1 031	908
Croatia	978	1 455	1 411	1 173	1 748	2 107	1 628	1 196	1 054
The Netherlands	4 452	4 594	4 441	2 847	3 807	4 497	2 165	32	1 358
Austria	558	355	379	382	519	951	1 986	1 430	1 176
Poland	591	652	513	219	1 231	1 656	1 329	919	1 054
Spain	1 430	1 357	1 151	1 263	1 590	1 657	556	354	618
Other EU 28	4 427	3 450	2 843	2 113	4 098	3 135	2 911	1 506	1 516
<b>EU 28</b>	<b>46 491</b>	<b>39 221</b>	<b>30 068</b>	<b>21 458</b>	<b>29 343</b>	<b>32 509</b>	<b>23 986</b>	<b>13 196</b>	<b>15 317</b>
Egypt	305	375	148	1	1 769	3 475	4 242	1 030	2 375
Morocco	2 803	2 218	193	941	2 656	3 888	3 149	760	1 955
Turkey	4 520	4 045	1 863	1 349	2 326	2 778	1 637	2 469	822
Ukraine	2 626	2 573	2 549	1 868	4 049	4 370	4 462	3 277	2 379
UK								1 030	1 386
Rest of Europe <sup>1)</sup>	1 419	1 706	136	142	74	127	46	49	117
<b>Europe <sup>1)</sup></b>	<b>58 164</b>	<b>50 139</b>	<b>34 957</b>	<b>25 759</b>	<b>40 216</b>	<b>47 147</b>	<b>37 523</b>	<b>21 811</b>	<b>24 351</b>
Canada	6 479	6 089	5 403	4 545	4 794	5 188	4 633	4 160	4 157
Mexico	5 106	4 268	3 412	2 807	3 387	4 911	2 276	532	438
Brazil	7 764	7 245	5 750	6 294	6 859	7 796	6 817	7 156	5 622
PR China	7 465	1 477	208	902	2 936	2 368	1 062	1 621	11 616
India	3 556	4 199	5 794	5 015	10 399	15 591	11 643	11 648	13 931
Japan	4 783	4 504	4 224	4 133	6 957	9 426	9 968	5 509	6 870
South Korea	7 648	7 283	5 563	4 056	8 573	8 456	6 165	5 922	5 786
Other Countries	5 710	3 117	2 046	1 148	3 603	4 093	3 427	4 278	4 505
Statistical differences	10	0	0	0	119	0	0	0	0
<b>Total Exports</b>	<b>106 684</b>	<b>88 320</b>	<b>67 358</b>	<b>54 658</b>	<b>87 842</b>	<b>104 977</b>	<b>83 513</b>	<b>62 638</b>	<b>77 276</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 10

Hard Coal Exports from South Africa									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	12 578	5 122	3 591	2 003	1 629	1 058	803	425	1 030
France	1 209	838	386	650	612	571	114	115	80
Italy	2 297	1 516	3 883	2 799	833	151	0	0	471
Spain	1 698	3 211	2 400	1 092	2 785	1 295	678	0	30
Other EU 28	6 355	7 058	635	2 246	1 018	3 370	695	229	912
<b>EU 28</b>	<b>24 136</b>	<b>17 745</b>	<b>10 895</b>	<b>8 791</b>	<b>6 877</b>	<b>6 445</b>	<b>2 290</b>	<b>736</b>	<b>2 522</b>
Israel	3 306	2 503	2 559	1 003	1 166	683	338	502	833
Morocco	300	1 338	4 325	2 243	757	353	447	61	584
Turkey	2 836	3 668	4 548	1 570	1 867	1 697	290	1 860	172
Rest of Europe <sup>1)</sup>	0	742	1 586	1 856	1 134	1 571	269	72	111
<b>Europe <sup>1)</sup></b>	<b>30 578</b>	<b>25 997</b>	<b>23 913</b>	<b>15 463</b>	<b>11 800</b>	<b>10 749</b>	<b>3 636</b>	<b>3 231</b>	<b>4 221</b>
USA	511	574	504	250	405	475	432	440	687
Brazil	631	1 014	944	879	998	474	461	347	381
Bangladesh	0	79	804	617	541	750	1 051	903	986
PR China	13 535	3 260	0	60	0	6	0	659	6 665
India	20 894	30 574	35 299	37 567	36 511	36 344	43 249	38 199	25 306
Japan	549	145	150	0	311	135	310	85	206
Malaysia	1 893	1 610	1 069	1 062	774	571	649	466	784
Pakistan	2 308	3 367	3 720	4 922	8 617	9 982	11 912	12 061	12 050
Sri Lanka	182	0	1 188	2 043	2 270	2 014	1 723	2 485	1 793
South Korea	150	305	318	2 739	8 328	6 827	3 857	1 409	3 240
Taiwan	5 804	1 344	1 289	765	3 203	2 774	1 137	1 044	1 814
Vietnam	0	0	44	511	55	127	2 614	7 506	1 171
Other Countries	6 363	8 159	8 210	8 569	9 126	9 768	7 517	6 058	6 896
Statistical differences	0	0	0	0	197	0	0	0	0
<b>Total Exports</b>	<b>83 399</b>	<b>76 429</b>	<b>77 451</b>	<b>75 446</b>	<b>83 138</b>	<b>80 997</b>	<b>78 547</b>	<b>74 893</b>	<b>66 199</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 12

Hard Coal Exports from Canada									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	1 202	1 462	1 350	1 487	1 481	1 551	1 395	1 219	1 301
Finland	428	537	526	587	412	605	460	110	225
France	0	31	0	92	119	69	74	38	0
Italy	817	403	288	283	318	234	256	78	143
Croatia	0	0	0	0	0	0	0	0	0
Poland	120	122	294	367	690	760	602	342	0
Other EU 28	642	887	699	-222	761	842	277	95	391
<b>EU 28</b>	<b>3 208</b>	<b>3 442</b>	<b>3 157</b>	<b>2 594</b>	<b>3 782</b>	<b>4 061</b>	<b>3 063</b>	<b>1 929</b>	<b>2 088</b>
Turkey	334	491	834	1 039	659	512	668	1 155	520
Ukraine	326	281	1 106	878	800	452	0	0	0
Rest of Europe <sup>1)</sup>	232	59	195	180	119	122	30	49	0
<b>Europe<sup>1)</sup></b>	<b>4 102</b>	<b>4 274</b>	<b>5 292</b>	<b>4 690</b>	<b>5 360</b>	<b>5 147</b>	<b>3 761</b>	<b>3 133</b>	<b>2 608</b>
USA	911	834	980	893	735	695	661	308	834
Brazil	1 677	2 263	1 113	901	926	863	756	305	78
Chile	327	274	366	638	266	199	179	1 331	1 247
PR China	11 025	7 709	5 361	5 126	4 749	3 129	4 823	5 209	10 631
India	1 360	1 711	1 700	2 697	3 085	4 140	4 943	3 692	2 020
Japan	10 108	8 850	8 306	7 914	7 240	7 447	8 488	7 960	7 339
South Korea	7 594	6 675	5 777	5 702	5 681	5 720	9 221	7 257	5 193
Taiwan	1 151	1 509	1 252	1 417	1 622	1 462	2 312	1 974	1 731
Vietnam	0	0	90	172	521	1 205	1 317	261	0
Other Countries	278	159	185	95	256	937	0	108	56
Statistical differences	0	0	-268	-75	0	0	-181	0	0
<b>Total Exports</b>	<b>38 534</b>	<b>34 259</b>	<b>30 153</b>	<b>30 170</b>	<b>30 441</b>	<b>30 944</b>	<b>36 281</b>	<b>31 537</b>	<b>31 737</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 13

Hard Coal Exports from China									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	8	51	16	12	12	10	9	2	10
UK	0	0	0	0	77	0	0	<sup>2)</sup>	<sup>2)</sup>
The Netherlands	0	0	11	1	0	0	9	0	0
Other EU 28	0	0	0	1	0	0	0	0	0
<b>EU 28</b>	<b>8</b>	<b>51</b>	<b>27</b>	<b>13</b>	<b>89</b>	<b>10</b>	<b>18</b>	<b>2</b>	<b>10</b>
Rest of Europe <sup>1)</sup>	4	0	0	0	0	95	0	0	0
<b>Europe <sup>1)</sup></b>	<b>12</b>	<b>51</b>	<b>27</b>	<b>13</b>	<b>89</b>	<b>105</b>	<b>18</b>	<b>2</b>	<b>10</b>
India	0	0	2	1	172	0	164	0	0
Indonesia	1	0	10	42	218	324	537	580	1 120
Japan	3 020	2 070	1 503	2 667	3 132	1 869	2 170	922	817
Malaysia	0	4	15	17	8	91	264	50	11
North Korea	129	80	71	132	44	438	763	0	0
South Korea	3 303	2 835	2 014	3 543	3 421	1 821	1 463	1 268	566
Taiwan	835	467	414	976	765	193	531	278	47
Vietnam	0	0	1 051	1 151	28	23	0	0	0
Other Countries	21	140	96	113	192	29	79	59	11
Statistical differences	-8	-23	-2	-12	35	-10	-9	-2	-10
<b>Total Exports</b>	<b>7 313</b>	<b>5 624</b>	<b>5 203</b>	<b>8 644</b>	<b>8 102</b>	<b>4 883</b>	<b>5 980</b>	<b>3 157</b>	<b>2 572</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 14

Hard Coal Exports from Poland									1 000 t
Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	3 680	3 299	3 342	2 422	1 254	251	218	178	291
Denmark	553	365	150	141	5	5	0	0	0
UK	665	230	123	51	26	22	18	<sup>2)</sup>	<sup>2)</sup>
Ireland	170	148	101	93	23	22	4	14	7
The Netherlands	147	54	381	159	0	0	0	0	0
Austria	807	887	850	846	881	1 008	974	892	1 018
Slovakia	767	500	619	650	784	675	543	438	485
Sweden	184	117	100	85	32	6	0	0	13
Czech Republic	1 623	2 604	2 633	2 827	3 108	2 395	2 274	2 683	3 427
Hungary	93	58	164	169	186	170	149	210	279
Other EU 28	1 399	250	457	326	106	73	21	3	34
<b>EU 28</b>	<b>10 088</b>	<b>8 511</b>	<b>8 919</b>	<b>7 768</b>	<b>6 406</b>	<b>4 626</b>	<b>4 202</b>	<b>4 411</b>	<b>5 514</b>
UK								8	57
Ukraine	131	125	296	538	651	313	236	168	780
Rest of Europe <sup>1)</sup>	927	791	539	1 272	41	18	14	16	94
<b>Europe <sup>1)</sup></b>	<b>11 145</b>	<b>9 427</b>	<b>9 754</b>	<b>9 579</b>	<b>7 098</b>	<b>4 956</b>	<b>4 451</b>	<b>4 603</b>	<b>6 445</b>
Other Countries	0	2	116	140	0	3	3	0	0
Statistical differences	363	-218	-407	-513	14	99	-24	70	51
<b>Total Exports</b>	<b>11 509</b>	<b>9 211</b>	<b>9 463</b>	<b>9 206</b>	<b>7 112</b>	<b>5 059</b>	<b>4 431</b>	<b>4 672</b>	<b>6 497</b>

<sup>1)</sup> Incl. countries bordering the Mediterranean <sup>2)</sup> from 2020 EU 27

Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 21.02.2022 / DESTATIS

Table 15

Primary Energy Consumption in Germany											Mill. TCE
Energy Source	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Hard Coal	55.3	58.3	61.0	58.1	58.6	56.7	50.0	48.7	37.0	30.6	35.6
of which import coal	(43.4)	(46.8)	(52.4)	(52.1)	(51.3)	(53.6)	(48.2)	(44.5)	(37.0)	(30.6)	(35.6)
Lignite	53.3	56.1	55.6	53.6	53.5	51.8	51.5	50.0	39.7	32.7	38.5
Oil	154.8	154.9	158.3	154.1	153.2	155.3	159.5	151.6	153.9	139.4	135.1
Natural Gas	99.3	99.6	104.4	91.4	94.2	103.8	106.5	105.4	109.7	107.0	112.2
Nuclear Energy	40.2	37.0	36.2	36.2	34.2	31.5	28.4	28.3	27.9	24.0	25.7
Renewables	49.9	47.3	51.1	51.8	56.1	57.9	61.1	61.5	65.0	67.3	66.4
Foreign Trade Balance Electric Power	-0.8	-2.8	-4.2	-4.4	-6.4	-6.6	-6.8	-6.0	-4.0	-2.3	-2.4
Other Energy Sources	8.7	7.9	7.1	7.7	7.6	8.0	8.4	7.6	7.8	7.3	7.3
<b>Total <sup>1)</sup></b>	<b>460.7</b>	<b>458.3</b>	<b>469.5</b>	<b>448.5</b>	<b>451.0</b>	<b>458.4</b>	<b>458.6</b>	<b>447.0</b>	<b>437.0</b>	<b>406.0</b>	<b>418.4</b>
										Shares in %	
Energy Source	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Hard Coal	12.0	12.7	13.0	13.0	13.0	12.4	10.9	10.9	8.5	7.5	8.5
of which import coal	(9.4)	(10.2)	(11.2)	(11.6)	(11.4)	(11.7)	(10.5)	(10.0)	(8.5)	(7.5)	(8.5)
Lignite	11.6	12.2	11.8	12.0	11.9	11.3	11.2	11.2	9.1	8.1	9.2
Oil	33.6	33.8	33.7	34.4	34.0	33.9	34.8	33.9	35.2	34.3	32.3
Natural Gas	21.6	21.7	22.2	20.4	20.9	22.6	23.2	23.6	25.1	26.4	26.8
Nuclear Energy	8.7	8.1	7.7	8.1	7.6	6.9	6.2	6.3	6.4	5.9	6.1
Hydroelectric and Wind Power	10.8	10.3	10.9	11.5	12.4	12.6	13.3	13.8	14.9	16.6	15.9
Foreign Trade Balance Electric Power	-0.2	-0.6	-0.9	-1.0	-1.4	-1.4	-1.5	-1.3	-0.9	-0.6	-0.6
Other Energy Sources	1.9	1.7	1.5	1.7	1.7	1.7	1.8	1.7	1.7	1.8	1.6
<b>Total <sup>1)</sup></b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>1)</sup> Rounding-off differences possible

Sources: Arbeitsgemeinschaft Energiebilanzen, „Energy consumption in Germany in the year 2021“, March 2022 / German Federal Statistical Office, own calculations

Table 17



Important Coal Transshipments in German Seaports									1 000 t
	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>North Sea Ports</b>									
Hamburg	5 629	5 924	7 672	7 434	7 697	8 162	7 232	4 736	5 458
Wilhelmshaven	3 301	3 112	4 093	2 480	3 536	3 556	2 311	966	1 584
Bremen Ports	1 270	1 636	1 710	1 175	1 175	895	846	398	680
Brunsbüttel	793	525	485	782	804	997	597	306	170
Nordenham	1 574	1 277	1 107	958	1 242	1 253	824	487	964
<b>Total</b>	<b>12 567</b>	<b>12 474</b>	<b>15 067</b>	<b>12 829</b>	<b>14 454</b>	<b>14 864</b>	<b>11 809</b>	<b>6 893</b>	<b>8 857</b>
<b>Baltic Sea Ports</b>									
Rostock	1 032	1 234	985	1 184	1 287	848	756	457	1 293
Flensburg	255	239	254	227	116	170	141	106	142
Kiel	178	325	231	158	72				
<b>Total</b>	<b>1 465</b>	<b>1 798</b>	<b>1 470</b>	<b>1 569</b>	<b>1 475</b>	<b>1 018</b>	<b>897</b>	<b>563</b>	<b>1 435</b>
<b>Total Transshipment</b>	<b>14 032</b>	<b>14 272</b>	<b>16 537</b>	<b>14 398</b>	<b>15 929</b>	<b>15 882</b>	<b>12 706</b>	<b>7 456</b>	<b>10 292</b>

Source: German Federal Statistical Office

Table 18a

Import of Hard Coal and Hard Coal Coke to Germany												
Countries	2018						2019					
	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total
Poland	234	0	17	1 507	0	1 758	190		27	1 181	0	1 398
Czech Republic	23	0	1	279	0	303	45		2	238		284
Other	2 588	38	171	180	22	2 999	2 292	32	181	164	10	2 679
<b>EU 28<sup>1)</sup></b>	<b>2 845</b>	<b>38</b>	<b>189</b>	<b>1 966</b>	<b>22</b>	<b>5 060</b>	<b>2 527</b>	<b>32</b>	<b>210</b>	<b>1 583</b>	<b>10</b>	<b>4 362</b>
Russian Federation	17 294	1 344	447	113	86	19 283	17 174	1 369	631	185	62	19 422
Ukraine	0		32			32	0		30			30
Kazakhstan	87					87	1 169					1 169
Norway	73					73	51					51
USA	6 566	3 492	3	4		10 065	5 030	3 514	22			8 566
Canada	13	1 539		39		1 590	175	1 219		15		1 409
Colombia	4 023		31	34		4 088	1 925		26	43		1 994
South Africa	884	173	1			1 058	803		0			803
Mozambique	178	611				789	206	365				
Australia	87	5 187				5 274	27	4 744				4 771
PR China	0		10	134		144	0		9	64		73
Other Third Countries												
<b>Third Countries</b>	<b>29 205</b>	<b>12 345</b>	<b>525</b>	<b>324</b>	<b>86</b>	<b>42 484</b>	<b>26 560</b>	<b>11 211</b>	<b>719</b>	<b>306</b>	<b>62</b>	<b>38 859</b>
<b>Total <sup>2)</sup></b>	<b>32 050</b>	<b>12 383</b>	<b>714</b>	<b>2 290</b>	<b>108</b>	<b>47 545</b>	<b>29 087</b>	<b>11 243</b>	<b>929</b>	<b>1 889</b>	<b>72</b>	<b>43 220</b>

<sup>1)</sup> From 2020 EU 27 without UK - UK data will be found under „third countries“ <sup>2)</sup> rounding-off differences possible

Sources: Federal Statistical Office, own calculations

Table 22

1 000 t												
2020						2021						Countries
Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	
150		27	1 029	1	1 207	250		40	1 322	1	1 613	Poland
2		1	200		203	2		2	277		281	Czech Republic
537	70	157	191	7	962	760	42	206	146	9	1 163	Other
<b>689</b>	<b>70</b>	<b>185</b>	<b>1 420</b>	<b>8</b>	<b>2 372</b>	<b>1 012</b>	<b>42</b>	<b>248</b>	<b>1 745</b>	<b>10</b>	<b>3 057</b>	<b>EU 28<sup>1)</sup></b>
13 111	878	505	70	59	14 623	18 196	1 384	673	183	59	20 495	Russian Federation
		6			6			11			11	Ukraine
159					159							Kazakhstan
19					19	48					48	Norway
2 036	3 663	7			5 706	3 230	3 695	17	134		7 076	USA
0	1 219				1 219	4	1 297		28		1 329	Canada
1 913	0	10	56		1 979	2 256		8	60		2 324	Colombia
425					425	978	52				1 030	South Africa
	140				140	9	0				9	Mozambique
	3 851				3 851	42	5 397		47		5 486	Australia
		2	71		73			10	147		157	PR China
750		23	3		776	31		3	3	0	37	Other Third Countries
<b>18 413</b>	<b>9 751</b>	<b>553</b>	<b>200</b>	<b>59</b>	<b>28 976</b>	<b>24 794</b>	<b>11 825</b>	<b>722</b>	<b>602</b>	<b>59</b>	<b>38 002</b>	<b>Third Countries</b>
<b>19 102</b>	<b>9 821</b>	<b>738</b>	<b>1 620</b>	<b>67</b>	<b>31 348</b>	<b>25 806</b>	<b>11 867</b>	<b>970</b>	<b>2 347</b>	<b>69</b>	<b>41 059</b>	<b>Total<sup>2)</sup></b>

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We have refrained from pointing out each time in the text and in the tables, lists and other enumerations that all figures etc. for 2021 are provisional.

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